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PGTE/25/RT/GA/2025

GENERAL AWARENESS AND PEDAGOGY

Question Booklet Number

Series : a

Time : 2 Hours **Maximum Marks : 100**

ROLL NO.

INSTRUCTIONS FOR CANDIDATES

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1. According to the QS World Future Skills Index 2025, India is ranked 2nd for which skill area?

[A] Cognitive Resilience Skills

[B] Digital Skills

[C] Quantum Innovation Skills

[D] Healthcare Skills

2. Which of the following Articles of the Constitution of India has provision for early childhood care and education for all children until they complete the age of six years?

[A] Article 15

[B] Article 21A

[C] Article 45

[D] Article 46

3. The concept of 'Sustainable Development' was first introduced in the context of environmental education in the landmark document titled

[A] The Kyoto Protocol

[B] The Brundtland Report

[C] The Paris Agreement

[D] The Earth Charter

4. India launched Operation Brahma in 2025 in response to a disaster in which country?

[A] Sri Lanka

[B] Nepal

[C] Myanmar

[D] Bangladesh

5. In 2025, India officially achieved what percentage of ethanol blending in petrol ahead of target?

[A] 15%

[B] 20%

[C] 25%

[D] 30%

6. Sunita Williams and Butch Wilmore returned to Earth after spending over nine months at the International Space Station (ISS). Which spacecraft was responsible for their return?

[A] Apollo 11

[B] Soyuz TMA-19M

[C] SpaceX Dragon Freedom Capsule

[D] SpaceX Crew Dragon Endeavour

7. Which mountain pass connects Arunachal Pradesh with Tibet and is strategically significant for India?

[A] Nathu La

[B] Bum La

[C] Rohtang La

[D] Zoji La

8. "Learning the treasure within" is mentioned in the report presented by

[A] Delors Commission

[B] Yashpal Committee

[C] Sargent Commission

[D] Hunter Commission

9. The mass of a neutron

[A] is slightly greater than the mass of an electron

[B] is much greater than the mass of an electron

[C] is slightly less than the mass of a proton

[D] is much less than the mass of a proton

10. In 2025, the Assam Government announced a plan to develop its own satellite called

[A] AHOMSAT

[B] BHUVAN-ASSAM

[C] NORTHEASTSAT

[D] ASSAMSAT

11. If the price of an article is increased by 20% and then decreased by 20%, what is the net percentage change in the price of the article?

[A] 0% (No change)

[B] 2% decrease

[C] 4% decrease

[D] 4% increase

12. What is the fundamental difference between speed and velocity?

[A] Velocity depends on gravitation, but speed does not

[B] Velocity depends on mass, but speed does not

[C] Velocity depends on direction, but speed does not

[D] No difference between speed and velocity

13. Which Indian Mission or Scheme is focused on women's empowerment and was active in promoting menstrual education in 2025?

[A] Saksham

[B] Mission Shakti 5.0

[C] Beti Bachao

[D] Ujjwala

14. Which country will host the Olympic Games 2028?

[A] France

[B] Australia

[C] USA

[D] Japan

15. Which Indian State is the largest by area?

[A] Maharashtra

[B] Rajasthan

[C] Uttar Pradesh

[D] Madhya Pradesh

16. Which Arunachali mountaineer became the first from the State to summit Mount Everest?

[A] Tine Mena

[B] Anshu Jamsenpa

[C] Tapi Mra

[D] Dicky Dolma

17. Who is the current Secretary-General of the United Nations as of 2025?

[A] Ban Ki-moon

[B] António Guterres

[C] Kofi Annan

[D] Kurt Waldheim

18. What is the main component of LPG gas?

[A] Methane

[B] Ethane

[C] Butane and Propane

[D] Hydrogen

19. What does the term GDP stand for in economics?

[A] Gross Debt Product

[B] Gross Development Plan

[C] Gross Domestic Product

[D] General Domestic Price

20. Which country was officially removed from the UN Human Rights Council in 2022 due to its invasion of Ukraine?

[A] China

[B] Iran

[C] Russia

[D] North Korea

21. Which international organization released the 'Global Gender Gap Report 2024'?

[A] UNDP

[B] UNESCO

[C] World Bank

[D] World Economic Forum

22. Which of the following is the oldest International Film Festival in the world?

[A] Toronto International Film Festival

[B] Cannes Film Festival

[C] Berlin International Film Festival

[D] Venice Film Festival

23. Which physiographic zone dominates the northern part of Arunachal Pradesh influencing its climate and topography?

[A] Shiwalik Hills

[B] Purvanchal Range

[C] Trans-Himalaya

[D] Eastern Himalayas

24. The Arunachal Pradesh Cabinet has cleared forming joint venture companies with NHPC and NEEPCO to boost hydropower capacity to how many gigawatts (GW)?

[A] 10 GW

[B] 15 GW

[C] 19 GW

[D] 22 GW

25. What is the primary aim of the "Mission Shikshit Arunachal 2029" roadmap unveiled by Education Minister Pasang Dorjee Sona?

[A] To privatize education in Arunachal Pradesh

[B] To increase the number of schools in every district

[C] To address systemic challenges in education such as enrolment, infrastructure and learning outcomes

[D] To implement a centralized examination system in all public schools

26. The headquarters of the North Eastern Council (NEC) is located in which city?

[A] Shillong

[B] Guwahati

[C] Itanagar

[D] Agartala

27. Which North Eastern State became the first in India to introduce organic farming as a primary agricultural practice at the State level?

[A] Sikkim

[B] Meghalaya

[C] Assam

[D] Mizoram

28. India's first indigenous photonic radar has been developed by

[A] Bharat Dynamics

[B] BrahMos Aerospace

[C] DRDO

[D] Larsen and Toubro

29. Which of the following is ***not true*** about the National Register of Citizens (NRC)?

[A] NRC updates citizenship records based on documentation

[B] NRC is mandatory across all Indian States

[C] It was first implemented in Assam

[D] It aims to identify illegal immigrants in India

30. Which city will host the AI Action Summit 2025?

[A] New York

[B] Paris

[C] Geneva

[D] Tokyo

31. Jitendra Pal Singh has recently been appointed as India's new Ambassador to which country?

[A] United States of America

[B] Israel

[C] France

[D] Germany

32. Who has been appointed as the new Chairperson of the National Medical Commission (NMC)?

[A] Dr. Soumya Swaminathan

[B] Dr. Abhijat Sheth

[C] Dr. Harsh Vardhan

[D] Dr. Randeep Guleria

33. In which of the following States will the World's largest data centre be built?

[A] Gujarat

[B] Odisha

[C] Maharashtra

[D] Uttar Pradesh

34. In which State was India's first digital nomad village established?

[A] Sikkim

[B] Himachal Pradesh

[C] Kerala

[D] Telangana

35. How many people have been announced to be given the Padma Award by the Government of India in 2025?

[A] 121

[B] 139

[C] 140

[D] 165

36. Which is the first bank to launch m-Visa, a cardless and deviceless solution to make payments?

[A] ICICI Bank

[B] Axis Bank

[C] SBI

[D] HDFC

37. Who among the following was ***not*** an exponent of the Bhakti Movement?

[A] Shankaracharya

[B] Nanak

[C] Ramananda

[D] Kabir

38. Which is the busiest bridge in India?

[A] Digha Sonpur Setu

[B] Howrah Bridge

[C] Dr Bhupen Hazarika Setu

[D] Mahatma Gandhi Setu

39. Who declared December 22 as National Mathematics Day in India?

[A] Dr. A.P. J. Abdul Kalam

[B] Pranab Mukherjee

[C] Dr. Manmohan Singh

[D] Narendra Modi

40. What is the period called when the moon appears to become 'smaller'?

[A] Full moon

[B] Waxing

[C] First quarter

[D] Waning

41. Which natural process helps to maintain the supply of fresh water on Earth's surface?

[A] Condensation

[B] Evaporation

[C] Desalination

[D] Precipitation

42. Which Arunachal Pradesh Chief Minister is credited with the 'Mission Digboi' initiative to promote sustainable tourism and local culture?

[A] Kalikho Pul

[B] Pema Khandu

[C] Gegong Apang

[D] Nabam Tuki

43. Bāṇabhaṭṭa is the author of

[A] *Indika*

[B] *Harshacharita*

[C] *Arthashastra*

[D] *Mahabharata*

44. What does the term 'Sapta Sindhava' mean?

[A] The land of the seven seas

[B] The land of the seven rivers

[C] The land of the seven mountains

[D] The land of the seven cities

45. The Ashokan edicts refer to him as

[A] General

[B] Piyadasi

[C] Raja

[D] Sultan

46. The Lokpal and Lokayuktas Bill, 2011 was passed by the Parliament on

[A] 1st January, 2014

[B] 16th January, 2014

[C] 17th December, 2013

[D] 17th December, 2016

47. What is the distance between the Earth and the Sun?

[A] 150 million km

[B] 75 million km

[C] 90 million km

[D] 180 million km

48. Who received the Nobel Peace Prize in 2025 for promoting democratic rights in Venezuela?

[A] Narges Mohammadi

[B] Maria Corina Machado

[C] Nihon Hidankyo

[D] Malala Yousafzai

49. Who issues the certificate to the learners who qualify Foundational Literacy and Numeracy Assessment Test (FLNAT)?

[A] District Institutes of Education and Training (DIETs)

[B] Central Board of Secondary Education (CBSE)

[C] National Institute of Open Schooling (NIOS)

[D] National Testing Agency (NTA)

50. Who is considered as the "Father of Artificial Intelligence"?

[A] Charles Babbage

[B] John McCarthy

[C] Alan Turing

[D] Allen Newell

51. The value judgement or making judgements about the quality of a learner's performance is a part of the process known as

[A] measurement

[B] assessment

[C] evaluation

[D] feedback

52. Norm-Referenced Tests (NRT) is primarily used for which purpose?

[A] To compare an individual's performance with a group

[B] To assess against a fixed objective

[C] To measure personal performance

[D] To measure mastery of specific skills

53. Which of the following best describes criterion-referenced testing?

[A] Evaluates relative standing

[B] Measures achievement against set learning goals or instructional objectives

[C] Uses percentile scores

[D] Focuses on competition

54. The tools like anecdotal records, checklists and rating scales are used for

[A] verbal tests

[B] observation-based assessment

[C] speed testing

[D] psychological experiments

55. Which cognitive skill is emphasized at the primary stage of learning?

[A] Abstract reasoning

[B] Memorization

[C] Observation and classification

[D] Hypothesis testing

56. Which distinguishes learning from maturation?

[A] Learning is instinctive; maturation is acquired

[B] Learning is a result of genetic unfolding; maturation is due to experience

[C] Learning involves effort and practice; maturation is a natural growth process

[D] Learning is temporary; maturation is permanent

57. What is the role of the National Assessment Centre — PARAKH?

[A] To conduct entrance exams for higher education

[B] To set standards for student assessment and evaluation

[C] To regulate school fees

[D] To train teachers in assessment techniques

58. What is the role of ICT in inclusive education?

[A] It replaces traditional teaching methods

[B] It helps in excluding learners with disabilities

[C] It provides assistive technologies for diverse learners

[D] It limits access to learning materials

59. What does ICT stand for in the context of education?

[A] Integrated Classroom Technology

[B] Information and Communication Technology

[C] Instructional and Creative Teaching

[D] Internet and Computer Training

60. The ability to think abstractly and use hypothetico-deductive reasoning emerges during which of the following Piaget's stages?

[A] Sensor Motor Stage

[B] Preoperational Stage

[C] Concrete Operational Stage

[D] Formal Operational Stage

61. Socio-emotional development refers to

[A] the development of thinking and understanding concepts

[B] an understanding of self, the social environment and managing emotions

[C] the development of the senses of right and wrong

[D] the ability to communicate using language

62. What is encouraged by the critical pedagogy?

[A] Open discussions, multiple views and collective decision-making

[B] Strict teacher-driven solutions

[C] Acceptance of a single viewpoint

[D] Passive learning through lectures

63. Which of the following ***does not*** emphasize in the Cooperative Learning?

[A] Positive interdependence

[B] Competition among team members

[C] Group processing

[D] Face-to-face interaction

64. Which of the following methods provides real-life experience, integrates other methods and encourages group work?

[A] Role play

[B] Problem solving

[C] Dramatization

[D] Project method

65. Which of the following options primarily explain the behaviouristic approach of learning?

[A] A process of self-reflection

[B] Active construction of knowledge

[C] Social interaction

[D] A stimulus-response connection

66. Which of the following options best describes the concept of Learning?

[A] Learning is a product, not a process

[B] Learning is a temporary change in behaviour

[C] Learning is a natural reflex response

[D] Learning is a life-long process involving experience and adjustment

67. Which of the following options emphasizes on the cognitive approach?

[A] Mental processes like perception, thinking and problem-solving

[B] Observable behaviours

[C] Environmental conditioning

[D] Imitation of models

68. Which of the following is the best strategy for accommodating different paces of learning in a classroom?

[A] Using one teaching method for all

[B] Teaching only at the average learner's pace

[C] Providing varied activities and self-paced tasks

[D] Ignoring individual differences

69. Which of the following best describes 'learning as a process' rather than a product?

[A] Memorizing definitions for a test

[B] Gaining a certificate after a course

[C] Acquiring the ability to adjust to new situations

[D] Scoring high marks in exams

70. Which of the following approaches reflects the teaching activity of a teacher for a group of students to "investigate local environmental issues and propose solutions"?

[A] Behaviouristic approach

[B] Teacher-centred approach

[C] Rote memorization

[D] Collaborative, project-based learning

71. What is the teacher's role in collaborative learning?

[A] To provide direct answers

[B] To enforce strict discipline

[C] To focus only on individual assessment

[D] To act as a facilitator and guide

72. Which of the following knowledges best represents the constructivist's knowledge?

[A] Actively constructed by the learners

[B] Innate and required no experience

[C] Transferred directly from teacher to learner

[D] Fixed and unchangeable

73. In context of Learning, which of the following involves with the cognitive apprenticeship?

[A] Memorizing facts

[B] Rote instruction

[C] Testing learner's recall

[D] Learning through guided experience with experts

74. The shift from teacher-centred to learner-centred education is based mainly on which of the following principles?

[A] Behaviouristic principles

[B] Maturation theory

[C] Reinforcement schedules

[D] Constructivist principles

75. Which of the following attributes in the individual differences in development of children?

[A] Heredity only

[B] Environment only

[C] Interplay of heredity and environment

[D] Neither heredity nor environment

76. Conceptual understanding among students is likely to improve in which type of teaching practice?

[A] High-level competition among learners

[B] Textbook-centric pedagogy

[C] Frequent examinations

[D] Inquiry and dialogue

77. Why should a teacher analyse the various errors made by students on a given task?

[A] He/she can decide degree of punishment accordingly

[B] Understandings of errors are meaningful in the teaching-learning process

[C] He/she can segregate those who made more errors in comparison to others

[D] Learning is correction of errors

78. What is the primary objective of assessment?

[A] Assigning rank to students

[B] Understanding children's clarity and confusions about related concepts

[C] Labeling students as per their score

[D] Marking pass or fail in the report cards

79. Which of the following is the main purpose of inclusive education?

[A] To provide equal opportunities to all students regardless of their physical abilities

[B] To segregate students based on their abilities

[C] To create a competitive environment among students

[D] To ensure higher grades for all students

80. Which educational method focuses on learning through direct experience, observation and reflection?

[A] Experiential Learning

[B] Traditional Learning

[C] Thematic Learning

[D] Lecture-based Learning

81. What does NEP 2020 suggest for the use of technology in education?

[A] Technology should replace teachers

[B] Technology should be used to enhance learning, assessment, planning and administration

[C] Technology has no role in education

[D] Technology should only be used for online exams

82. What is the role of online educational platforms like SWAYAM?

[A] To replace traditional universities

[B] To provide access to high-quality learning resources and bridge the digital divide

[C] To promote commercialization of education

[D] To cater only to higher education

83. Which type of technology enhances teaching through immersive and simulated environments?

[A] Augmented Reality (AR)

[B] Virtual Reality (VR)

[C] Learning Management System (LMS)

[D] Smart Boards

84. Which of the following strategies can help teachers cater to diverse learning styles?

[A] Using only lectures for teaching

[B] Providing only visual aids

[C] Using varied teaching methods and multimedia

[D] Relying solely on textbooks

85. Which type of learning is emphasized in the 'Flipped Classroom' model?

[A] Learning in large groups only

[B] Teacher-centred instruction

[C] Student-driven learning with teacher support

[D] Learning through textbooks exclusively

86. Which of the following learner characteristics is highly related to the effectiveness of teaching?

[A] Prior experience of the learner

[B] Educational status of the parents of the learner

[C] Peer groups of the learner

[D] Family income of the learner

87. Which of the following statements ***does not*** describe the type of a teaching method?

[A] Content delivery in a lucid language is lecturing

[B] Discussions in groups produce a large number of ideas

[C] Small step presentation with feedback provided in Programmed Instruction

[D] Brainstorming is presentation of large content in small time period

88. The classroom communication should essentially be

[A] abstract

[B] concrete

[C] empathetic

[D] non-descriptive

89. Which one of the following is ***not*** a key behaviour in effective teaching?

[A] Instructional variety

[B] Using student ideas and contribution

[C] Organization and structuring of content

[D] Daily homework

90. Which of the following justifies the best ground for the use of teaching aids in the classroom?

[A] Attracting students' attention in the classroom

[B] Minimising indiscipline problems in the classroom

[C] Optimising learning outcomes of students

[D] Effective engagement of students in learning tasks

91. As a teacher, select the best option to ensure your effective presence in the classroom.

[A] Use of peer command

[B] Making aggressive statements

[C] Adoption of well-established posture

[D] Being authoritarian

92. Which one of the following is considered an outline of the topics of a subject to be covered in a specific time?

[A] Programme

[B] Course

[C] Curriculum

[D] Syllabus

93. Which of the following statements is ***not*** suited for a good teacher?

[A] Able to use variety of teaching approaches, methods and techniques

[B] Very clear about what to teach and how to teach

[C] Give eye-to-eye contact during teaching

[D] Making simple things complex in the teaching

94. Which of the following statements is ***not correct*** in context of constructivist approach of teaching and learning?

[A] Student empowerment is the central point

[B] Learning task is completed by their own way

[C] One way transmission

[D] Collaborative learning

95. Which of the following is ***not*** matched in context of learner centred approach of teaching and learning?

[A] Imposed Discipline

[B] Participatory

[C] Activity based

[D] Shared teacher and learner controlled

96. Which of the following explains the 'Explore' in context of 5E learning model?

[A] Help learner apply prior learning and new acquired learning

[B] Help learner understand about the concepts, process, facts or principles

[C] Help learner to determine the need of learning as new concept

[D] Help learner to express new learning and provide guidance

97. Which of the following best describes the role of AI in education?

[A] Replacing teachers completely

[B] Supporting personalized and adaptive learning

[C] Limiting student creativity

[D] Reducing access to education

98. Which of the following is ***not*** a step in the Herbartian Lesson Plan?

[A] Preparation

[B] Presentation

[C] Adaptation

[D] Application

99. Which of the following is ***not*** one of the fundamental principles that will guide both the education system at large, as well as the individual institutions within it as per NEP 2020?

[A] Emphasis on conceptual understanding rather than rote learning and learning-for-exams

[B] Limited teacher and institutional autonomy

[C] Creativity and critical thinking to encourage logical decision-making and innovation

[D] Recognizing, identifying and fostering the unique capabilities of each student

100. According to NEP 2020, the Board examinations will be redesigned to

[A] encourage rote learning

[B] test only factual knowledge

[C] test core competencies and reduce pressure

[D] increase coaching culture

SPACE FOR ROUGH WORK

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1. Dalton's Atomic theory does not explain

[A] law of constant composition

[B] law of radioactivity

[C] law of conservation of mass

[D] law of multiple proportion

2. One mole of oxygen at STP is equal to

[A] 8 g/mole of oxygen

[B] 16 g/mole of oxygen

[C] 32 g/mole of oxygen

[D] 64 g/mole of oxygen

3. What is the frequency of light with wavelength 300 nm?

[A] 3×10^{15} Hz

[B] 10^{15} Hz

[C] 1.5×10^{15} Hz

[D] 2.9×10^{15} Hz

4. The maximum number of electrons that can be accommodated in a sublevel for which $l = 3$ is

[A] 12

[B] 14

[C] 6

[D] 3

5. Which of the following is a weak acid?

[A] HCl

[B] HF

[C] $HClO_3$

[D] HNO_3

6. Find the species with the maximum bond angle.

[A] NH_3

[B] NH_4^+

[C] PCl_3

[D] SCl_2

7. Which of the following pairs has same geometry?

[A] CH_4 and NH_4^+

[B] CH_4 and SF_4

[C] CH_4 and XeF_4

[D] XeF_4 and NH_4^+

8. Which defect occurs due to missing of same number of cations and anions from the lattice site?

[A] Frenkel defect

[B] Schottky defect

[C] Vacancy defect

[D] Interstitial defect

9. What is the hybridization of oxygen in water molecule?

[A] sp

[B] sp^2

[C] sp^3

[D] sp^2d

10. Which of the following molecules have isoelectronic structure?

[A] CH_3^+ and H_3O^+

[B] H_3O^+ and NH_4^+

[C] CH_3^+ and NH_4^+

[D] CH_3^+ and CH_3^-

11. The number of lone pair of electron on central atom in I_3^- is

[A] 2

[B] 3

[C] 1

[D] 0

12. Which of the following electronic configurations obeys Hund's rule?

[A] $1s^2, 2s^2, 2p_x^2, 2p_y^1, 2p_z^0$

[B] $1s^2, 2s^2, 2p_x^1, 2p_y^2, 2p_z^0$

[C] $1s^2, 2s^2, 2p_x^0, 2p_y^1, 2p_z^2$

[D] $1s^2, 2s^2, 2p_x^1, 2p_y^1, 2p_z^1$

13. Alkanes undergo halogenation. It is an example of

[A] nucleophilic substitution

[B] free-radical substitution

[C] electrophilic substitution

[D] elimination

14. In a reaction between $CuSO_4(s)$ and $Zn(s)$,

[A] Cu gains electrons

[B] Cu is reduced

[C] Oxidation state of Cu is decreased

[D] All of the above

15. Oxidation number of Si in $SiCl_4$ is

[A] +2

[B] +3

[C] +4

[D] +5

16. Amines which are bonded in alkyl group are

[A] primary amines

[B] secondary amines

[C] tertiary amines

[D] quaternary amines

17. In an acidified solution of potassium dichromate (VI) ($K_2Cr_2O_7$), dichromate ion ($Cr_2O_7^{-2}$) is reduced to

[A] chromate (V) ions

[B] chromate (III) ions

[C] chromate (II) ions

[D] chromate (VI) ions

18. Which combination of atoms can form a polar covalent bond?

[A] Na and Br

[B] H and Br

[C] N and N

[D] H and H

19. Alumina is

[A] a good conductor of electricity

[B] a bad conductor of electricity

[C] neutral to electricity

[D] a partial conductor of electricity

20. Based on the first law of thermodynamics, which one of the following is ***correct***?

[A] For isothermal process, $q = +w$

[B] For isochoric process, $\Delta U = -q$

[C] For adiabatic process, $\Delta U = -w$

[D] For cyclic process $q = -w$

21. Amines behave as

[A] Lewis acid

[B] Lewis base

[C] aprotic acid

[D] neutral compound

22. Which of the following statements regarding E1 mechanism is ***wrong***?

[A] The reaction is unimolecular

[B] The reaction is first order

[C] The reaction occurs in one step

[D] The reaction occurs in multi-step

23. Which of the following changes with time for a first-order reaction?

[A] Rate of reaction

[B] Rate constant

[C] Half-life

[D] Concentration

24. Time required for 100 percent completion of a zero order reaction is

[A] $2k/a$

[B] $a/2k$

[C] a/k

[D] Ak

25. An acceptor of pair of electron is termed as

[A] nucleophile

[B] electrophile

[C] carbocation

[D] carbonium

26. The element used for dating ancient remains is

[A] C-14

[B] C-13

[C] C-12

[D] C-11

27. The standard reduction potentials E° for half reactions are

$Zn \rightarrow Zn^{2+} + 2e^-$; $E^\circ = +0.71$ V

$Fe \rightarrow Fe^{2+} + 2e^-$; $E^\circ = +0.41$ V

The EMF of the cell reaction $Fe^{2+} + Zn \rightarrow Zn^{2+} + Fe$ is

[A] –0.30 V

[B] +0.30 V

[C] +1.12 V

[D] –1.12 V

28. The molecular formula C_5H_{12} contains how many isomeric alkanes?

[A] 1

[B] 2

[C] 3

[D] 4

29. Bond orders of O_2, F_2, N_2 respectively are

[A] +2, +1, +3

[B] +3, +1, +2

[C] +3, +2, +1

[D] +2, +3, +1

30. Identify the ***correct*** sequence with respect to inductive effects.

[A] $CF_3 > CHF_2 > CH_2F > CH_3$

[B] $CF_3 > CH_2F > CHF_2 > CH_3$

[C] $CH_3 > CH_2F > CHF_2 > CF_3$

[D] $CH_3 > CHF_2 > CH_2F > CF_3$

31. The solubility of $Ca_3(PO_4)_2$ in water is y moles/litre. Its solubility product is

[A] $6y^4$

[B] $36y^4$

[C] $108y^5$

[D] $64y^5$

32. Phenol is obtained by heating aqueous solution of which of the following?

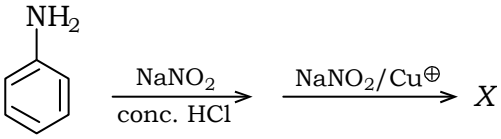
[A] Aniline

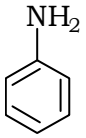
[B] Benzene diazonium chloride

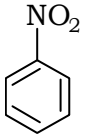
[C] Benzoic acid

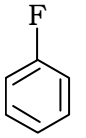
[D] Benzyl alcohol

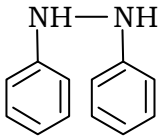
33. What will be the (X) in the below mentioned reaction sequence?



[A] 

[B] 

[C] 

[D] 

34. The electronic configuration of Cu(II) is $3d^9$ whereas for Cu(I) it is $3d^{10}$. Which of the following is ***correct***?

[A] Cu(II) is more stable

[B] Cu(I) is more stable

[C] Cu(II) and Cu(I) are equally stable

[D] Cu(II) and Cu(I) are unstable

35. A radioactive substance has a half-life of 1 year. The fraction of this material that would remain after 5 years will be

[A] 1/32

[B] 1/5

[C] 1/2

[D] 4/5

36. The enthalpy of fusion of water is 1.435 kcal/mol. The molar entropy change for the melting of ice at 0 °C is

[A] 5.260 cal/(mol K)

[B] 0.5260 cal/(mol K)

[C] 10.52 cal/(mol K)

[D] 21.04 cal/(mol K)

37. Which substance will conduct current in the solid state?

[A] Diamond

[B] Graphite

[C] Iodine

[D] Sodium Chloride

38. Number of moles of solute dissolved per dm^3 of solution is called

[A] molality

[B] normality

[C] mole fraction

[D] molarity

39. Which bond has the greatest ionic character?

[A] H···F

[B] H···Cl

[C] H···O

[D] H···N

40. The correct order of the size of the iodine species is

[A] $I > I^+ > I^-$

[B] $I > I^- > I^+$

[C] $I^+ > I^- > I$

[D] $I^- > I > I^+$

41. Which is least soluble in water?

[A] $CaSO_4$

[B] $MgSO_4$

[C] Na_2SO_4

[D] $BaSO_4$

42. Glucose + Tollen's reagent $\rightarrow$ silver mirror

The above process shows

[A] presence of –COOH group

[B] presence of –OH group

[C] presence of keto group

[D] presence of –CHO group

43. A fruity smell is produced by the reaction of C_2H_5OH with

[A] CH_3COOH

[B] CH_3COCH_3

[C] CH_3COOCH_3

[D] CH_3CONH_2

44. Among the following, which is least acidic?

[A] Phenol

[B] *o*-cresol

[C] *p*-nitrophenol

[D] *p*-chlorophenol

45. What is the molecular shape of CCl_4?

[A] Tetrahedral

[B] Trigonal planar

[C] Bent

[D] Linear

46. The mean kinetic energy of one gram-mole of a perfect gas at absolute temperature T is

[A] $1/2\ kT$

[B] $1/2\ RT$

[C] $3/2\ kT$

[D] $3/2\ RT$

47. Which of the following decomposes more readily?

[A] Li_2CO_3

[B] Na_2CO_3

[C] K_2CO_3

[D] Cs_2CO_3

48. All the metals form oxides of the type MO, ***except***

[A] Ba

[B] Cu

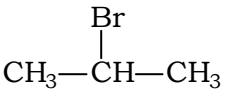
[C] Pb

[D] Ag

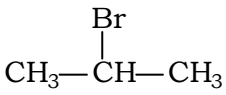
49. Identify ***X*** and ***Y*** in the following reaction given :

$$CH_3CH_2CH_2OH \xrightarrow{\text{Conc. } H_2SO_4} X \xrightarrow{HBr} Y$$

[A] $CH_3—CH=CH_2$ and



[B] $CH_3—CH—CH_3$ and



[C] $CH_3—CH—CH_3$ and

$CH_3—CH—CH_2Br$

[D] $CH_3—CH=CH_2$ and

$CH_3—CH—CH_2Br$

50. How much charge is required to reduce 1 mole of Al^{3+} to Al?

[A] 289500 coulomb

[B] 193000 coulomb

[C] 96500 coulomb

[D] 95600 coulomb

51. Hyperconjugation is most useful for stabilizing which of the following carbocations?

[A] Neopentyl

[B] Tert-butyl

[C] Iso-propyl

[D] Ethyl

52. How many σ and π bonds are present in the following molecule?

$$N\equiv C—CH—C\equiv N$$

[A] σ = 5; π = 4

[B] σ = 6; π = 3

[C] σ = 4; π = 2

[D] σ = 3; π = 5

53. The addition of carbonyl compound to HCN is an example of

[A] nucleophilic substitution

[B] electrophilic addition

[C] nucleophilic addition

[D] electrophilic substitution

54. Which of the following ions is the most resonance stabilized?

[A] $C_2H_5O^-$

[B] $C_6H_5O^-$

[C] $(CH_3)_3CO^-$

[D] $(CH_3)_2CHO^-$

55. The state of hybridization of the asterisked carbon in $CH_3CH=C^*=CH_2$ is

[A] sp

[B] sp^2

[C] sp^3

[D] None of the above

56. Staggered conformation of ethane is

[A] more stable than eclipsed conformation

[B] less stable than eclipsed conformation

[C] equally stable as eclipsed conformation

[D] impossible to exist

57. Isomers which can be interconverted through rotation around a single bond are called

[A] conformers

[B] diastereomers

[C] enantiomers

[D] position isomers

58. Which of the following is ***not*** a mixture of hydrocarbons?

[A] Candle wax

[B] Vegetable oil

[C] Kerosene

[D] Paraffin oil

59. Anti-Markovnikov's addition of HBr is not observed in

[A] propene

[B] but-1-ene

[C] but-2-ene

[D] pent-2-ene

60. The relative ease of dehydration of alcohols follows which of the following orders?

[A] Tertiary > Secondary > Primary

[B] Primary > Secondary > Tertiary

[C] Secondary > Tertiary > Primary

[D] Tertiary > Primary > Secondary

61. Phenols can be distinguished from ethanol by the following reagents, ***except***

[A] Na

[B] $NaOH/I_2$

[C] Neutral $FeCl_3$

[D] Br_2/H_2O

62. An ether is more volatile than alcohol having the same molecular formula. This is due to

[A] intermolecular hydrogen bonding in alcohols

[B] dipolar character of ethers

[C] alcohols having resonance structure

[D] intermolecular hydrogen bonding in ethers

63. Which of the following orders of acid strength is ***correct***?

[A] $C_6H_5OH > ROH > HOH$

[B] $C_6H_5OH > HOH > ROH$

[C] $HOH > ROH > C_6H_5OH$

[D] $HOH > C_6H_5OH > ROH$

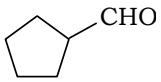
64. The reaction of Lucas reagent is fast with

[A] ethanol

[B] methanol

[C] 2-propanol

[D] 2-methyl-2-propanol

65. The IUPAC name of  is

[A] pentanaldehyde

[B] pentanal

[C] cyclopentanecarbaldehyde

[D] hexanal

66. Methyl ketones are characterized through

[A] Tollens' reagent

[B] Iodoform test

[C] Schiff's reagent

[D] Fehling's solution

67. The compound that does not undergo Cannizzaro reaction is

[A] formaldehyde

[B] acetaldehyde

[C] benzaldehyde

[D] trimethylacetaldehyde

68. Benzaldehyde and acetone can be best distinguished using

[A] Fehling's solution

[B] NaOH solution

[C] 2, 4-DNP

[D] Tollens' reagent

69. Aldol condensation does not occur between

[A] two different aldehydes

[B] two different ketones

[C] an aldehyde and a ketone

[D] an aldehyde and an ester

70. The distinguishing test between methanoic acid and ethanoic acid is

[A] Tollens' test

[B] Sodium bicarbonate test

[C] Litmus test

[D] Esterification test

71. Which of the following is a 3° amine?

[A] 1-methylcyclohexylamine

[B] Triethylamine

[C] tert-butylamine

[D] N-methylaniline

72. Best method for preparing primary amines from alkyl helides without changing the number of carbon atoms in the chain is

[A] Hoffmann bromamide reaction

[B] Gabriel pthalimide synthesis

[C] Sandmeyer reaction

[D] Reaction with NH_3

73. Acid anhydrides on reaction with primary amines give

[A] amide

[B] imide

[C] secondary amine

[D] imine

74. The commercial name of polyacrylonitrile is

[A] Dacron

[B] Orlon (Acrilan)

[C] PVC

[D] Bakelite

75. Which of the following is/are neurologically active drug(s)?

[A] Aspirin

[B] Phenelzine

[C] Heroin

[D] All of the above

76. Structurally, a biodegradable detergent should contain a

[A] normal alkyl chain

[B] branched alkyl chain

[C] phenyl side chain

[D] cyclohexyl side chain

77. Glycerol is added to soap. It

[A] functions as a filler

[B] prevents lathering

[C] prevents rapid drying

[D] makes soap granules

78. Which of the following polymers of glucose is stored by animals?

[A] Cellulose

[B] Glycogen

[C] Amylose

[D] Amylopectin

79. The monomer(s) of buna-S rubber is/are which of the following?

[A] Vinyl chloride and sulphur

[B] Butadiene

[C] Styrene and butadiene

[D] Isoprene and butadiene

80. The sweetest artificial sugar among the following is

[A] aspartame

[B] sucralose

[C] sucrose

[D] alitame

81. Gilman reagents are excellent nucleophiles for

[A] S_N2 reactions

[B] S_N1 reactions

[C] E1 reactions

[D] E2 reactions

82. The ion that isoelectronic with CO is

[A] O_2^-

[B] O_2^+

[C] N_2^+

[D] CN^-

83. The compressibility factor for an ideal gas is

[A] 1.5

[B] 1

[C] 2

[D] 0

84. The nature of cathode rays was identified by who among the following scientists?

[A] William Crookes

[B] J. J. Thomson

[C] J. Perrin

[D] Hittorf

85. The ionic radii of K^+, Ca^{2+}, Cl^- and S^{2-} ions decrease in the order

[A] $Cl^- > S^{2-} > K^+ > Ca^{2+}$

[B] $K^+ > Ca^{2+} > Cl^- > S^{2-}$

[C] $S^{2-} > Cl^- > K^+ > Ca^{2+}$

[D] $Ca^{2+} > K^+ > C1^- > S^{2-}$

86. By adding lead acetate to sodium fusion extract, acidified with acetic acid. The formation of a black precipitate indicates the presence of

[A] N

[B] S

[C] C

[D] Br

87. A true statement about 'Greenhouse Effect' is that it is

[A] caused by CFCs

[B] caused by NO_2

[C] caused only by CO_2, CH_4, N_2O, CFCs, water vapor and ozone

[D] caused by NO_2 and CO_2

88. The antiknock property of the fuel depends on its

[A] self-ignition temperature

[B] molecular structure

[C] chemical composition

[D] All of the above

89. Which of the following is ***correct*** in order of increasing ligand field strength?

[A] $Cl^- < OH^- < CN^-$

[B] $CN^- < OH^- < Cl^-$

[C] $Cl^- < CN^- < OH^-$

[D] $OH^- < Cl^- < CN^-$

90. Formula of pentaamminechlorocobalt (2+) chloride is

[A] $[CoCl(NH_3)_5]Cl_2$

[B] $[Co(NH_3)_5]Cl_3$

[C] $[CoCl_2(NH_3)_5]Cl$

[D] $[CoCl(NH_3)_5]Cl$

91. Geometry of TeF_5^- ion is

[A] trigonal bipyramidal

[B] octahedral

[C] pentagonal

[D] square pyramidal

92. The most common oxidation state of lanthanides is

[A] +3

[B] +4

[C] +5

[D] +6

93. A possible mechanism for the reaction, $2A + B \longrightarrow C + D$, is

(1) $A + A \rightleftharpoons A_2$ fast, equilibrium

(2) $A_2 + A \longrightarrow A_3$ slow

(3) $A_3 + B \longrightarrow A + C +$ D fast

According to the mechanism, the rate law will be

[A] Rate = $k[A]^2$

[B] Rate = $k[A]^3$

[C] Rate = $k[A][B]$

[D] Rate = $k[A]$

94. What are coordination number and oxidation number of Cr in $K_3[Cr(C_2O_4)_3]$?

[A] 6 and +3

[B] 6 and +2

[C] 3 and +3

[D] 3 and 0

95. What is the hybridization in NO^+?

[A] sp

[B] sp^2

[C] sp^3

[D] sp^3d

96. The weakest bond of C=O strength is present in which of the following metal carbonyl compounds?

[A] $[V(CO)_6]^-$

[B] $[Cr(CO)_6]$

[C] $[Mn(CO)_6]^+$

[D] $[Os(CO)_6]^{+2}$

97. Which chemical bond is present in DNA?

[A] Easter bond

[B] Phosphodiester bond

[C] Peptide bond

[D] Glycosidic bond

98. Which of the following is a fat-soluble vitamin?

[A] Vitamin B

[B] Vitamin B_{12}

[C] Vitamin C

[D] Vitamin K

99. ΔG in case of spontaneous reaction is

[A] negative

[B] positive

[C] infinite

[D] zero

100. Colloidal solution

[A] does not diffuse

[B] does not scatter light

[C] is homogeneous

[D] shows Tyndall effect

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AGRICULTURE

Question Booklet Number

Series : a

Time : 3 Hours **Maximum Marks : 200**

ROLL NO.

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1. International Year of Millets was

[A] 2021

[B] 2022

[C] 2023

[D] 2024

2. Photoperiodically, rice is a type of

[A] long-day plant

[B] short-day plant

[C] day neutral plant

[D] intermediate plant

3. Growing of coconut, black pepper and ginger simultaneously in the same field is called

[A] relay cropping

[B] intercropping

[C] multiple cropping

[D] multistoried cropping

4. The Golden Revolution is related to

[A] agricultural production

[B] horticulture and honey

[C] fertilizer production

[D] egg production

5. The primary purpose of crop rotation is to

[A] increase pest

[B] maintain soil fertility

[C] decrease crop yield

[D] reduce soil nutrients

6. Which of the following is an example of no-till farming technique?

[A] Ploughing the soil

[B] Using chemical fertilizers

[C] Leaving crop residues

[D] Applying insecticides to crops

7. What is the role of compost in organic farming?

[A] To replace chemical pesticides

[B] To improve soil fertility and structure

[C] To increase soil acidity

[D] To remove organic matter from the soil

8. Shifting cultivation is also known as

[A] slash and burn cultivation

[B] afforestation

[C] plantation agriculture

[D] composting

9. The lowest layer of Earth's atmosphere is called

[A] troposphere

[B] exosphere

[C] mesosphere

[D] stratosphere

10. Which crop is known as the Golden Fiber?

[A] Jute

[B] Cotton

[C] Hemp

[D] Flax

11. What is agro-meteorology?

[A] Study of weather patterns only

[B] Study of climate and weather related to agriculture

[C] Study of soil nutrients

[D] Study of plant diseases

12. Which of the following is a microclimate?

[A] Climate of an entire country

[B] Climate of a small area like field or garden

[C] Climate of a continent

[D] Global climate changes

13. Which meteorological element is less affected by the presence of clouds?

[A] Temperature

[B] Wind speed

[C] Solar radiation

[D] Rainfall

14. Which weather element influences the evapotranspiration rate?

[A] Wind speed

[B] Temperature

[C] Humidity

[D] All of the above

15. Which of the following weather data is most critical for planting irrigation?

[A] Wind speed

[B] Rainfall and humidity

[C] Cloud cover

[D] Soil pH

16. Which instrument is used to measure rainfall?

[A] Hygrometer

[B] Anemometer

[C] Rain gauge

[D] Barometer

17. The relative humidity is highest during which part of the day?

[A] Afternoon

[B] Noon

[C] Early morning

[D] Evening

18. The largest component of soil is

[A] sand

[B] silt

[C] clay

[D] mineral matter

19. The pH range of most soils is

[A] 3.0–4.5

[B] 5.0–7.5

[C] 8.0–9.5

[D] 9.0–10.5

20. The process of adding organic materials to soil to improve fertility is called

[A] fertilization

[B] manuring

[C] irrigation

[D] tillage

21. Which of the following is a primary nutrient?

[A] Nitrogen

[B] Calcium

[C] Magnesium

[D] Sulfur

22. The soil texture classified as having a high percentage of clay particles is called

[A] sandy soil

[B] loamy soil

[C] clay soil

[D] silt soil

23. Which soil type has the highest water retention capacity?

[A] Sand

[B] Silt

[C] Clay

[D] Gravel

24. Which of the following is an inorganic fertilizer?

[A] Compost

[B] Manure

[C] Urea

[D] Green manure

25. The process of converting organic nitrogen into ammonium is called

[A] nitrification

[B] ammonification

[C] denitrification

[D] nitrogen fixation

26. Which type of irrigation systems is most efficient in terms of water use?

[A] Flood irrigation

[B] Drip irrigation

[C] Border irrigation

[D] Furrow irrigation

27. Which of the following is a biological control agent?

[A] DDT

[B] *Bacillus thuringiensis*

[C] Malathion

[D] Carbaryl

28. Powdery mildew is caused by

[A] bacteria

[B] fungi

[C] virus

[D] nematodes

29. The term 'pesticide' includes

[A] insecticides

[B] herbicides

[C] fungicides

[D] All of the above

30. Which of the following is an example of a viral disease in plants?

[A] Rust

[B] Mosaic

[C] Blight

[D] Smut

31. Which of the following is ***not*** a commonly used insecticide?

[A] Malathion

[B] DDT

[C] Glyphosate

[D] Carbaryl

32. Which crop is most susceptible to the pest stem borer?

[A] Rice

[B] Cotton

[C] Wheat

[D] Maize

33. The fundamental unit of heredity is called

[A] gene

[B] chromosome

[C] DNA

[D] allele

34. What is the term for the genetic makeup of an organism?

[A] Phenotype

[B] Genotype

[C] Allele

[D] Chromosome

35. Which plant breeding method involves crossing two genetically different plants?

[A] Inbreeding

[B] Hybridization

[C] Cloning

[D] Selection

36. Which technique is used to transfer a specific gene from one plant to another?

[A] Cross-breeding

[B] Mutation-breeding

[C] Genetic engineering

[D] Hybridization

37. Which hormone promotes cell elongation in plants?

[A] Cytokinin

[B] Auxin

[C] Gibberellin

[D] Abscisic acid

38. The GATT came into effect in

[A] 1947

[B] 1948

[C] 1995

[D] 1997

39. Which of the following is a symptom of damping off disease?

[A] Leaf spot

[B] Root nodules

[C] Yellowing of leaves

[D] Rotting and decaying of new plants

40. The process by which water vapour is lost from the plant leaves is called

[A] photosynthesis

[B] transpiration

[C] respiration

[D] osmosis

41. 'Gold fleck' is a physiological disorder of

[A] potato

[B] radish

[C] tomato

[D] cauliflower

42. Which enzyme is involved in the fixation of carbon dioxide in C3 plants?

[A] RuBisCO

[B] Amylase

[C] Catalyse

[D] Peroxidase

43. The process of seed dormancy is regulated by which hormone?

[A] Gibberellin

[B] Abscisic acid

[C] Cytokinin

[D] Auxin

44. What is the main function of potassium in plants?

[A] Protein synthesis

[B] Enzyme activation and osmoregulation

[C] Cell wall formation

[D] Chlorophyll production

45. The main site of respiration in plants is

[A] chloroplast

[B] mitochondria

[C] nucleus

[D] cytoplasm

46. Which of the following crops is sensitive to photoperiod?

[A] Rice

[B] Maize

[C] Tobacco

[D] Cotton

47. The process of translocation in plants occurs through

[A] phloem

[B] xylem

[C] cortex

[D] epidermis

48. Which stage of plant growth is most sensitive to environmental stresses?

[A] Seedling

[B] Maturity

[C] Senescence

[D] Dormancy

49. Which of the following crops is mainly grown in irrigated areas for high productivity?

[A] Maize

[B] Wheat

[C] Cotton

[D] Rice

50. Which of the following crops is a major oilseed crop?

[A] Wheat

[B] Mustard

[C] Maize

[D] Paddy

51. Which soil treatment is used to reduce soil acidity?

[A] Lime application

[B] Gypsum application

[C] Organic manure

[D] Sulfur application

52. Which of the following crops is a short-duration crop?

[A] Sugarcane

[B] Maize

[C] Cotton

[D] Wheat

53. Which of the following crops is most suitable for cultivation on poor soils?

[A] Rice

[B] Millets

[C] Cotton

[D] Sugarcane

54. Green Revolution has been most successful in

[A] wheat

[B] potato

[C] barley

[D] coffee

55. Which State has the highest productivity of sugarcane?

[A] Uttar Pradesh

[B] West Bengal

[C] Karnataka

[D] Tamil Nadu

56. 'Akiochi' disease in rice is due to the toxicity caused by

[A] zinc

[B] iron

[C] phosphorus

[D] hydrogen sulphide

57. The most critical stage of maize is

[A] silking stage

[B] tasseling stage

[C] boot stage

[D] dough stage

58. Which crop is suitable for intercropping with maize?

[A] Cotton

[B] Soybean

[C] Wheat

[D] Rice

59. Which crop is mainly grown in the Rabi season?

[A] Rice

[B] Wheat

[C] Maize

[D] Cotton

60. Which crop is known as the queen of cereals?

[A] Wheat

[B] Maize

[C] Rice

[D] Barley

61. Which crop is best suited for intercropping with sunflower?

[A] Maize

[B] Gram

[C] Cotton

[D] Sugarcane

62. The main reason for practicing mixed cropping is

[A] to increase pest problems

[B] to improve land use and reduce risk

[C] to reduce crop diversity

[D] to maximize monoculture benefits

63. Which crop is mainly grown for oil production?

[A] Sunflower

[B] Wheat

[C] Maize

[D] Rice

64. Which crop is commonly used as a pulse crop?

[A] Wheat

[B] Maize

[C] Chickpea

[D] Rice

65. The best time for sowing wheat in the temperate region is

[A] winter

[B] summer

[C] autumn

[D] spring

66. What is the ideal slope for a nursery bed to prevent water stagnation?

[A] 0.5%

[B] 1%

[C] 15%

[D] 2%

67. Akashin is a physiological disorder of

[A] potato

[B] radish

[C] carrot

[D] tomato

68. Which of the following is a C4 plant?

[A] Wheat

[B] Rice

[C] Barley

[D] Maize

69. The criteria of essentiality of nutrients in plants was given by

[A] D. J. Nicholas

[B] Arnon and Stout

[C] J. S. Kanwar

[D] M. S. Swaminathan

70. An ideal fruit for making jelly should be rich in

[A] pectin and sugars

[B] acids and proteins

[C] sugars and acids

[D] pectin and acids

71. National Horticulture Board was established in

[A] 1976

[B] 1984

[C] 1985

[D] 1990

72. The most important disease of banana in India is

[A] Panama wilt

[B] Cercospora leaf spot

[C] Sigatoka

[D] Bunchy top

73. Buttoning is a physiological disorder in

[A] cabbage

[B] cauliflower

[C] onion

[D] garlic

74. Red flesh is a variety of

[A] guava

[B] mango

[C] papaya

[D] tomato

75. Fruit crop tolerant to salinity is

[A] ber

[B] mango

[C] orange

[D] apple

76. Garlic contains which of the following amino acids?

[A] Alliin

[B] Allicin

[C] Diallyl disulphide

[D] Allinage

77. Carrot is heavy feeder particularly for

[A] N

[B] P

[C] K

[D] Ca

78. Which of the following is used to check the sprouting of onion under storage?

[A] NAA

[B] GA

[C] MH

[D] PCPA

79. Which of the following preservatives is used for the preparation of tomato ketchup?

[A] Potassium metabisulfite

[B] Sodium benzoate

[C] Sodium metabisulfite

[D] Citric acid

80. Which of the following fruits is botanically called as 'Hespiridium'?

[A] Jackfruit

[B] Orange

[C] Litchi

[D] Apple

81. Which of the following fruits is ***not*** suitable for jam making?

[A] Mango

[B] Banana

[C] Aonla

[D] Lemon

82. Exhausting temperature for canned fruit and vegetable is

[A] 70–72 °C

[B] 80–82 °C

[C] 90–92 °C

[D] 100–102 °C

83. Wind breaks are planted in orchards towards

[A] south-west

[B] north-west

[C] north-east

[D] east-south

84. The recommended storage temperature to extend the shelf-life of banana is

[A] 0 °C

[B] 2–5 °C

[C] 12–15 °C

[D] 25-28 °C

85. Vegetables are canned in

[A] brine

[B] syrup

[C] distilled water

[D] None of the above

86. Fruits are blanched before canning at

[A] 80 °C

[B] 90 °C

[C] 100 °C

[D] None of the above

87. For biological control of tomato fruit borer, the ideal trap crop is

[A] marigold

[B] mustard

[C] tobacco

[D] garlic

88. Wax coating treatment enhances the shelf-life of fruits because it blocks

[A] transpiration

[B] respiration

[C] ripening process

[D] None of the above

89. Granulation can be reduced by spraying of

[A] KNO_3

[B] copper oxide

[C] lead arsenate

[D] urea

90. Onion bulbs are stored well at

[A] 0 to 1 °C

[B] 10 to 15 °C

[C] 15 to 20 °C

[D] 20 to 25 °C

91. Which of the following are the first farmers to adopt a new idea?

[A] Innovators

[B] Early adopters

[C] Early majority

[D] Laggards

92. Communication through spoken words is called

[A] vocal communication

[B] non-verbal communication

[C] mass communication

[D] non-vocal communication

93. Which of the following training methods comes under behavioural approach?

[A] Lecture

[B] Role playing

[C] Demonstration

[D] Behaviour modelling

94. AGMARK is a

[A] cooperative

[B] product

[C] barcode

[D] quality guarantee stamp

95. What is the share of the Government of India in NABARD?

[A] 75%

[B] 50%

[C] 99%

[D] 85%

96. The Reserve Bank of India was established in the year

[A] 1935

[B] 1920

[C] 1925

[D] 1930

97. Kisan Credit Card (KCC) Scheme was started since

[A] July, 1998

[B] August, 1998

[C] September, 1998

[D] October, 1998

98. Formaldehyde is used in mushroom cultivation as

[A] disinfectant

[B] food material

[C] fertilizer

[D] insect repellent

99. The nature of honey

[A] is acidic

[B] is alkaline

[C] is neutral

[D] turns basic after a few days

100. Which of the following chemicals is used for protecting vermi-bed from ants?

[A] DDT

[B] Griseofulvin

[C] Chloramphenicol

[D] Chlorpyri phosphate

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1. 'दहीबड़ा' में कौन-सा समास है?

[A] नञ् तत्पुरुष

[B] लुप्तपद तत्पुरुष

[C] उपपद तत्पुरुष

[D] अलुक् तत्पुरुष

2. 'विशेषण-विशेष्य' युक्त समास है

[A] कर्मधारय

[B] बहुव्रीहि

[C] द्वन्द्व

[D] तत्पुरुष

3. 'नेत्री' शब्द का पुल्लिंग शब्द है

[A] नेतिन

[B] नेताईन

[C] नेतत्रा

[D] नेता

4. निम्न में से पुल्लिंग शब्द कौन-सा है?

[A] आचरण

[B] देह

[C] अदालत

[D] अक्ल

5. नीचे दिए गए विकल्पों में से शुद्ध वर्तनी का शब्द है

[A] आक्षौहिणी

[B] आक्षोहि

[C] अक्षौहिणी

[D] आक्षोहणी

6. उसका कथन **<u>अतिश्योक्ति</u>** मात्र था-इसमें अधोरेखांकित का शब्द वर्तनी शब्द है

[A] अतिशयुक्ति

[B] अतिश्योक्ति

[C] अतीश्योक्ति

[D] अतिशयोक्ति

7. रिक्त स्थान की पूर्ति नीचे दिए गए उपयुक्त शब्द से कीजिए – व्यंग्य लेखक सामाजिक _____ पर तीखा प्रहार करता है।

[A] अनुरूपता

[B] अभिरामता

[C] विद्रूपता

[D] संगति

8. 'वह अगले साल आयेगा'– इस वाक्य में कौन-सा कारक है?

[A] सम्बन्ध कारक

[B] अधिकरण कारक

[C] करण कारक

[D] सम्प्रदान कारक

9. 'के लिए' किस कारक का चिन्ह है?

[A] सम्बन्ध कारक

[B] अधिकरण कारक

[C] अपादान कारक

[D] सम्प्रदान कारक

10. 'आग लगने पर कुआँ खोदना' लोकोक्ति का अर्थ है

[A] तसल्ली से कोई काम करना

[B] विपत्ति आ जाने पर तुरंत समाधान खोजना

[C] विपत्ति आ जाने पर भाषण देना

[D] व्यर्थ भाग-दौड़ करना

नोट : निम्नलिखित उद्धरण को पढ़कर प्रश्न संख्या **11** और **12** का उत्तर दीजिएः

आज हम एक स्वतंत्र राष्ट्र की स्थिति पा चुके हैं, राष्ट्र की अनिवार्य विशेषताओं में दो हमारे पास हैं, भौगोलिक अखण्डता और सांस्कृतिक एकता। परन्तु अब तक हम उस वाणी को प्राप्त नहीं कर सके हैं, जिसमें एक स्वतंत्र राष्ट्र दूसरे राष्ट्रों को अपना परिचय देता है। बहुभाषाभाषी देश तो और भी अनेक हैं परन्तु उनकी अविच्छिन्न स्वतंत्रता की तुलना में भारत विषम पराधीनता को झेलता रहा है। हमारी परतन्त्रता भी आँधी-तूफान के समान नहीं आई। वह तो रोग के कीटाणु लाने वाले मन्द समीर के समान साँस में समाकर शरीर में व्याप्त हो गई है। हमें यह ऐतिहासिक सत्य भी विस्मृत हो गया कि कोई विजेता, विजित देश पर राजनीतिक प्रभुत्व पाकर ही सन्तुष्ट नहीं होता क्योंकि सांस्कृतिक प्रभुत्व के बिना राजनीतिक विजय न पूर्ण है, न स्थायी। घटनाएँ संस्कारों में चिर जीवन पाती हैं, और संस्कार के अक्षय वाहक शिक्षा, साहित्य, कला आदि हैं। दीर्घकाल से विदेशी भाषा हमारे विचार-विनिमय और शिक्षा का माध्यम ही नहीं रही, वह हमारे विद्वान और संस्कृत होने का प्रमाण भी मानी जाती है। ऐसी स्थिति में यदि हममें से अनेक उसके अभाव में जीवित रहने की कल्पना से सिहर उठते हैं, तो आश्चर्य की बात नहीं। पर रोग की स्थिति को स्थायी मानकर तो चिकित्सा सम्भव नहीं होती। राष्ट्र-जीवन की पूर्णता के लिए उनके परे मनोजगत् को मुक्त करना होगा और वह कार्य हैं। विशेष प्रयत्नसाध्य है क्योंकि शरीर को बाँधने वाली श्रृंखला से आत्मा को जकड़ने वाली श्रृंखला अधिक दृढ़ होती है।

11. इस गद्यांश का सर्वाधिक उपयुक्त शीर्षक है

[A] राष्ट्रभाषा हिन्दी का विकास

[B] बहुभाषी देश और हिन्दी

[C] स्वतंत्र राष्ट्र की राष्ट्रभाषा

[D] स्वतंत्र भारत और राष्ट्रभाषा

12. हमारे राष्ट्र में राष्ट्रभाषा के रूप में प्रतिष्ठित न हो सकने का प्रमुख कारण यह है कि

[A] यहाँ विभिन्न भाषाओं को महत्व दिया गया है

[B] हम दीर्घकाल तक पराधीन रहे हैं

[C] हमने इस विषय की गम्भीरता को समझा ही नहीं है

[D] हमने इस विषय की तुलना में भौगोलिक अखण्डता को अधिक महत्व दिया है

13. फीचर लेखन का संबंध किससे होता है?

[A] समाचार पत्रों से

[B] रेडियो लेखन से

[C] टेलीविजन से

[D] सिनेमा से

14. भारत में प्रथम प्रायोगिक टी.वी. केंद्र का उद्घाटन कब हुआ?

[A] 15 सितम्बर, 1959

[B] 15 जनवरी, 1975

[C] 15 अगस्त, 1976

[D] 15 सितम्बर, 1963

15. 'शब्दार्थौ सहितौ काव्यं' — यह कथन निम्न में से किनका है?

[A] भामह

[B] दंडी

[C] वामन

[D] मम्मट

16. व्याकरण द्वारा असम्मत शब्दों के प्रयोग से कौन-सा काव्य-दोष बनता है?

[A] श्रुतिकटु दोष

[B] च्युत्संस्कृति दोष

[C] क्लिष्टता दोष

[D] अप्रयुक्त दोष

17. '**धर्मार्थकाममोक्षेषु वैचक्षण्यं कलासु च**' — यह किनका कथन है?

[A] भामह

[B] कुंतक

[C] वामन

[D] भामह एवं कुंतक

18. 'काव्य गुण' के संबंध में निम्न में से कौन-सा कथन **असत्य** है?

[A] दोषों के विपर्य ही गुण होते हैं

[B] भरत मुनि ने अपने ग्रन्थ में तीन काव्य गुणों की चर्चा की है

[C] गुण तीन होते हैं — माधुर्य, ओज तथा प्रसाद

[D] गुण को चित्तवृति का पर्याय भी माना जाता है

19. 'चित्तदिप्ति' का सम्बन्ध किस काव्य गुण से है?

[A] ओज गुण

[B] प्रसाद गुण

[C] माधुर्य गुण

[D] पांचाली गुण

20. 'मुँह में ताला लगाओ' — यह काव्य किस शब्द शक्ति का उदाहरण है?

[A] प्रयोजनवती लक्षणा

[B] गौणी प्रयोजनवती लक्षणा

[C] रुढ़िमूला लक्षणा

[D] उपादान लक्षणा

21. आचार्य भरत के रससूत्र के प्रथम व्याख्याता निम्न में से कौन हैं?

[A] भट्टलोल्लट

[B] अभिनवगुप्त

[C] भट्टनायक

[D] शंकुक

22. 'साधारणीकरण' शब्द का सर्वप्रथम प्रयोग किसने किया?

[A] शंकुक

[B] अभिनवगुप्त

[C] भट्टनायक

[D] भट्टलोल्लट

23. संचारी भावों की संख्या है

[A] तैंतीस

[B] चौंतीस

[C] पैंतीस

[D] छत्तीस

24. कौशिकी वृति का संबंध किस रस से है?

[A] शांत रस

[B] करुण रस

[C] हास्य रस

[D] शृंगार रस

25. अलंकार संप्रदाय के प्रवर्तक आचार्य निम्न में से कौन हैं?

[A] भरत मुनि

[B] भामह

[C] मम्मट

[D] धनंजय

26. वक्रोक्ति संप्रदाय के प्रवर्तक आचार्य निम्न में से कौन हैं?

[A] कुंतक

[B] मम्मट

[C] भामह

[D] दंडी

27. छंद पढ़ते समय आने वाले विराम को क्या कहते हैं?

[A] गति

[B] यति

[C] तुक

[D] गण

28. दोहा और रोला के संयोग से कौन-सा छंद बनता है?

[A] बरवै

[B] छप्पय

[C] रोला

[D] कुण्डलिया

29. छप्पय के प्रथम चार चरण किस छंद के होते हैं?

[A] बरवै

[B] रोला

[C] दोहा

[D] उल्लाला

30. निम्नलिखित में से कौन-सा काव्य गुण **नहीं** है?

[A] श्लेष

[B] ओज

[C] माधुर्य

[D] प्रसाद

31. अरस्तू ने किस काव्य रूप को अनुकरणात्मक माना है?

[A] ट्रैजडी

[B] एपिक

[C] कॉमेडी

[D] कविता

32. काव्य में त्रासदी (ट्रैजडी) शब्द की सबसे पहले व्याख्या किसने की?

[A] सुकरात

[B] अरस्तू

[C] प्लेटो

[D] होरेस

33. प्लेटो के काव्य सम्बन्धी विचार मुख्यतः किस कृति में उपलब्ध हैं?

[A] क्रिटीयस

[B] लॉज

[C] द रिपब्लिक

[D] टायनिस

34. लोंजाइनस ने काव्य में एक नवीन तत्व का प्रतिपादन किया था, जो निम्नलिखित में किस नाम से विख्यात है?

[A] उदात्तवाद

[B] अभिव्यंजनावाद

[C] विरेचनवाद

[D] औचित्यवाद

35. क्रोचे ने किस पुस्तक में अभिव्यंजनावाद का विशद विवेचन किया है?

[A] ईस्थेटिक में

[B] ईस्थेटिक पोयम में

[C] द वेस्टलैंड में

[D] दि क्राईटेरियन में

36. रिचर्ड्स के अनुसार काव्य की पाठक/ श्रोता को प्रभावित करने की क्षमता निर्भर है

[A] शब्द चयन पर

[B] अलंकार योजना पर

[C] तथ्यपरकता पर

[D] सम्प्रेषणीयता पर

37. इलियट की आलोचनात्मक कृति 'दी सेक्रेड वुड' का प्रकाशन वर्ष है

[A] 1920

[B] 1922

[C] 1930

[D] 1926

38. मार्क्सवाद को किस साहित्यिक रूप में पढ़ा जाता है?

[A] आधुनिकतावाद

[B] स्वछंदतावाद

[C] प्रगतिवाद

[D] नकेनवाद

39. भाषा विज्ञान के किस शाखा को 'व्याकरण' भी कहते हैं?

[A] वर्णनात्मक भाषा विज्ञान

[B] ऐतिहासिक भाषा विज्ञान

[C] गायात्मक भाषा विज्ञान

[D] तुलनात्मक भाषा विज्ञान

40. निम्नलिखित में से अर्द्ध संवृत स्वर हैं

[A] इ, उ

[B] अ, ए

[C] ऐ, औ

[D] ए, ओ

41. किसी भाषा की मूलभूत इकाई होती है

[A] स्वर ध्वनियाँ

[B] व्यंजन ध्वनियाँ

[C] स्वनिम

[D] संयुक्त व्यंजन ध्वनियाँ

42. जो स्वर दोनों होठों को स्पर्श करते हैं, वे कहलाते हैं

[A] दन्त्योष्ठ्य

[B] ऊष्म

[C] द्वयोष्ठ्य

[D] कंठोष्ठ्य

43. भाषा विज्ञान में 'संपर्क सिद्धांत' के प्रतिपादक आचार्य कौन थे?

[A] प्रो॰ जी॰ रेवेज़

[B] डार्विन

[C] प्लेटो

[D] मैक्स मूलर

44. हिंदी भाषा के विकास का **सही** अनुक्रम कौन-सा है?

[A] पालि, प्राकृत, अपभ्रंश, हिंदी

[B] प्राकृत, अपभ्रंश, हिंदी, पालि

[C] अपभ्रंश, पालि, प्राकृत, हिंदी

[D] हिंदी, पालि, अपभ्रंश, प्राकृत

45. हिन्दी भाषा का संबंध किससे है?

[A] शौरसेनी अपभ्रंश

[B] अपभ्रंश

[C] पश्चिमी प्राकृत

[D] प्राकृत

46. मध्य भारतीय आर्य भाषा का अंतिम रूप है

[A] संस्कृत

[B] पालि

[C] प्राकृत

[D] अपभ्रंश

47. मगही किस हिंदी प्रदेश की बोली है?

[A] मध्य प्रदेश

[B] बिहार

[C] राजस्थान

[D] छत्तीसगढ़

48. ब्राह्मी लिपि के विकास का अनुक्रम है

[A] ब्राह्मी लिपि, गुप्त लिपि, कुटिल लिपि, देवनागरी लिपि

[B] कुटिल लिपि, ब्राह्मी लिपि, गुप्त लिपि, देवनागरी लिपि

[C] ब्राह्मी लिपि, देवनागरी लिपि, गुप्त लिपि, कुटिल लिपि

[D] देवनागरी लिपि, ब्राह्मी लिपि, कुटिल लिपि,गुप्त लिपि

49. मान स्वरों की संख्या कितनी है?

[A] 4

[B] 6

[C] 8

[D] 2

50. केन्द्रीय हिन्दी संस्थान का मुख्यालय कहाँ स्थित है?

[A] दिल्ली

[B] आगरा

[C] वर्धा

[D] वाराणसी

51. 'गार्सा द तासी' ने 'इस्तवार द ला लितरेत्यूर ऐन्दुई ऐ ऐन्दुस्तानी' किस भाषा में लिखा है?

[A] फ्रांसीसी

[B] जर्मन

[C] अंग्रेजी

[D] हिंदी

52. हिंदी साहित्य के आदिकाल को 'सिद्ध सामंत काल' किसने कहा है?

[A] वासुदेव सिंह

[B] आचार्य रामचंद्र शुक्ल

[C] राहुल सांकृत्यायन

[D] हजारी प्रसाद द्विवेदी

53. आदिकालीन साहित्य में वीर रस की रचनाओं में प्रायः किस भाषा का प्रयोग किया गया है?

[A] पिंगल

[B] बुन्देली

[C] प्राकृत

[D] डिंगल

54. रामचंद्र शुक्ल ने चौरासी सिद्धों के अंतर्गत निम्न में से किसे योगिनी के रूप में उल्लेखित **नहीं** किया है?

[A] कपालपा

[B] मणिभद्रपा

[C] कनखलापा

[D] लक्ष्मीकरा

55. 'भक्ति द्रविड़ उपजी लाए रामानंद' किसने कहा है?

[A] रामानंद

[B] तुलसी

[C] सूरदास

[D] कबीर

56. भक्तिकाल की समय-सीमा क्या है?

[A] संवत् 1375 से 1700

[B] संवत् 1775 से 1800

[C] संवत् 1375 से 1900

[D] संवत् 1375 से 1600

57. रीतिकाल के उत्तर मध्यकाल को 'श्रृंगार काल' किसने कहा है?

[A] आचार्य रामचंद्र शुक्ल

[B] हजारी प्रसाद द्विवेदी

[C] डॉ॰ रामशंकर शुक्ल 'रसाल'

[D] विश्वनाथ प्रसाद मिश्र

58. रीतिबद्ध काव्यधारा के कवि कौन हैं?

[A] बिहारी

[B] चिंतामणि

[C] सेनापति

[D] घनानंद

59. घनानंद किस काव्यधारा के कवि हैं?

[A] रीतिमुक्त

[B] रीतिसिद्ध

[C] रीतिबद्ध

[D] उपर्युक्त सभी

60. 'मिश्रबंधु विनोद' के चौथे भाग का प्रकाशन वर्ष बताइए।

[A] 1913 ई॰

[B] 1934 ई॰

[C] 1914 ई॰

[D] 1924 ई॰

61. साप्ताहिक 'उदंत मार्तंड' का प्रकाशन किस वर्ष प्रारम्भ हुआ?

[A] 1825

[B] 1826

[C] 1828

[D] 1806

62. 'सम्पत्ति-शास्त्र' के लेखक हैं

[A] आचार्य रामचंद्र शुक्ल

[B] राहुल सांकृत्यायन

[C] आचार्य महावीर प्रसाद द्विवेदी

[D] बाबू श्यामसुंदर दास

63. "भीतर-भीतर सब रस चूसे, हँसि-हँसि के तन-मन-धन मूसै। जाहिर बातन में अति तेज, क्यों सखि साजन? नहिं अंग्रेज"। यह उक्ति किसकी है?

[A] अमीर खुसरो

[B] प्रताप नारायण मिश्र

[C] भारतेन्दु हरिश्चंद्र

[D] बालमुकुंद गुप्त

64. छायावाद को चित्रभाषा शैली किसने कहा है?

[A] नंददुलारे वाजपेयी

[B] रामचंद्र शुक्ल

[C] डॉ॰ नामवर सिंह

[D] डॉ॰ नगेन्द्र

65. नागार्जुन का वास्तविक नाम क्या था?

[A] बाबा नागार्जुन

[B] बाबादीन

[C] बासुदेव सिंह

[D] वैद्यनाथ मिश्र

66. नकेनवाद किस काव्यधारा के लिए प्रयोग किया जाता है?

[A] छायावादी काव्यधारा

[B] प्रगतिवादी काव्यधारा

[C] प्रयोगवादी काव्यधारा

[D] नयी कविता

67. मुक्तिबोध की सबसे लंबी और चर्चित कविता कौन-सी है?

[A] अँधेरे में

[B] जमाने का चेहरा

[C] उपकृत हूँ

[D] ओ काव्यात्मन 'फणिधर'

68. निम्नलिखित में से किसको 'नई कविता' का कवि **नहीं** कहा जा सकता है?

[A] अज्ञेय

[B] रघुवीर सहाय

[C] नागार्जुन

[D] सर्वेश्वरदयाल सक्सेना

69. निम्नलिखित में से कौन 'चन्द्रगुप्त' नाटक का पात्र **नहीं** है?

[A] अलका

[B] कल्याणी

[C] कार्नेलिया

[D] मल्लिका

70. 'बकरी' नाटक के रचनाकार हैं

[A] सर्वेश्वरदयाल सक्सेना

[B] हबीब तनवीर

[C] मोहन राकेश

[D] सुरेन्द्र वर्मा

71. 'चरणदास चोर' नाटक के लेखक हैं

[A] हबीब तनवीर

[B] नागबोडस

[C] शंकर शेष

[D] गिरीश कर्नाड

72. प्रेमचंद का अपूर्ण उपन्यास है

[A] मंगलसूत्र

[B] रूठीरानी

[C] वरदान

[D] कायाकल्प

73. नागार्जुन कृत 'पारो' उपन्यास का प्रकाशन वर्ष है

[A] 1972 ई॰

[B] 1969 ई॰

[C] 1975 ई॰

[D] 1976 ई॰

74. हिंदी में 'आंचलिक' शब्द का सर्वप्रथम प्रयोग किस उपन्यास की भूमिका में किया गया है?

[A] बलचनमा

[B] पानी के प्राचीर

[C] जंगल जहाँ शुरू होता है

[D] मैला आंचल

75. 'हाथी के दाँत' किसकी रचना है?

[A] अमृत राय

[B] वियोगी हरि

[C] पदमसिंह शर्मा

[D] हरिशंकर परसाई

76. भारतेंदु युग का सर्वश्रेष्ठ निबंधकार किसे माना गया है?

[A] पं॰ बालकृष्ण भट्ट

[B] भारतेंदु हरिश्चंद्र

[C] बद्रीनारायण चौधरी 'प्रेमघन'

[D] पं॰ प्रतापनारायण मिश्र

77. 'अशोक के फूल' निबंध के रचयिता हैं

[A] कुबेरनाथ राय

[B] गिरजाकुमार माथुर

[C] रामचंद्र शुक्ल

[D] हजारी प्रसाद द्विवेदी

78. भारतेंदु कृत 'नाटक' किस विधा की रचना है?

[A] नाटक

[B] आलोचना

[C] कविता

[D] एकांकी

79. आचार्य रामचंद्र शुक्ल की समीक्षा का सैद्धांतिक आधार है

[A] कला कला के लिए

[B] कला जीवन के लिए

[C] भारतीय रसवाद

[D] भारतीय अभिव्यंजनावाद

80. 'आवारा मसीहा' में किसके जीवन का उल्लेख है?

[A] शरतचंद्र

[B] राहुल सांकृत्यायन

[C] विष्णु प्रभाकर

[D] प्रेमचंद

81. 'बाबूजी' किसकी जीवनी है?

[A] शिवरानी देवी

[B] नागार्जुन

[C] धर्मवीर भारती

[D] परीपूर्णनंद

82. हिंदी का प्रथम रेखाचित्र संग्रह है

[A] पद्मपराग

[B] बोलती प्रतिमा

[C] अतीत के चलचित्र

[D] स्मृति रेखाएँ

83. 'माटी की मूरतें' किसकी रचना है?

[A] महादेवी वर्मा

[B] रामवृक्ष बेनीपुरी

[C] पद्मसिंह शर्मा

[D] विनय मोहन शर्मा

84. 'एक बूंद सहसा उछली' किनकी रचना है?

[A] शकुंतला माथुर

[B] शिवानी

[C] मुक्तिबोध

[D] अज्ञेय

85. कबीर के दोहे किस नाम से जाने जाते हैं?

[A] उलटबाँसी

[B] सबद

[C] साखी

[D] रमैनी

86. 'कबीर परिचई' के रचयिता हैं

[A] अनंतदास

[B] नाभादास

[C] धरमदास

[D] गोकुलनाथ

87. आचार्य रामचंद्र शुक्ल ने किसको हिंदी का प्रथम सूफी कवि माना है?

[A] जायसी

[B] कुतुबन

[C] मुल्ला दाउद

[D] नूर मुहम्मद

88. सूफी प्रेमाख्यान परम्परा में 'आराध्य' को प्रायः किस रूप में देखा गया है?

[A] गुरु के रूप में

[B] प्रेमी के रूप में

[C] सखा के रूप में

[D] प्रेमिका के रूप में

89. निम्नलिखित में से तुलसीदास कृत पुस्तक कौन-सी है?

[A] गोसाईं चरित

[B] रामरक्षास्रोत

[C] रामाज्ञाप्रश्नावली

[D] योगचिन्तामणि

90. 'रामचरितमानस' की भाषा है

[A] अवधी

[B] ब्रज

[C] मगही

[D] खड़ी बोली

91. सूरदास को 'पुष्टिमार्ग का जहाज' किसने कहा है?

[A] वल्लभाचार्य

[B] गोकुलनाथ

[C] हितहरिवंश

[D] विट्ठलनाथ

92. 'बिहारी सतसई' का टीका सहित सबसे प्रामाणिक संस्करण किसने निकाला है?

[A] कृष्ण कवि

[B] भारतेन्दु हरिश्चंद्र

[C] जगन्नाथदास 'रत्नाकर'

[D] कविरत्न

93. 'साकेत' महाकाव्य का सर्वाधिक मार्मिक सर्ग है

[A] पंचम

[B] नवम

[C] सप्तम

[D] अष्टम

94. 'कामायनी' का प्रकाशन वर्ष है

[A] सन् 1920

[B] सन् 1926

[C] सन् 1936

[D] सन् 1935

95. निराला कृत 'राम की शक्ति पूजा' की रचना का आधार ग्रन्थ कौन-सा है?

[A] कम्बन रामायण

[B] कृतिवास रामायण

[C] रामचरितमानस

[D] रामचंद्रिका

96. 'कितनी नावों में कितनी बार' काव्य-कृति के अज्ञेय को कौन-सा पुरस्कार मिला था?

[A] साहित्य अकादमी पुरस्कार

[B] व्यास सम्मान

[C] सरस्वती सम्मान

[D] ज्ञानपीठ पुरस्कार

97. 'रांपी से उठी हुई आँखों ने मुझे क्षण भर टटोला/ और फिर जैसे पतियाते हुए स्वर में/ वह हंसते हुए बोला'- ये काव्य पंक्तियाँ किनकी हैं?

[A] नागार्जुन

[B] धूमिल

[C] मुक्तिबोध

[D] केदारनाथ सिंह

98. कालक्रम की दृष्टि से प्रेमचंद के उपन्यासों का **सही** अनुक्रम कौन-सा है?

[A] सेवासदन, कर्मभूमि, रंगभूमि, गोदान

[B] कर्मभूमि, गोदान, सेवासदन, रंगभूमि

[C] गोदान, कर्मभूमि, रंगभूमि, सेवासदन

[D] रंगभूमि, कर्मभूमि, गोदान, सेवासदन

99. 'मैला आँचल' उपन्यास के पात्र कौन **नहीं** हैं?

[A] प्रशांत और कालीचरण

[B] श्रीधर और सरस्वती

[C] कमली और सुमरितदास

[D] हरगौरी सिंह और मंगलादेवी

100. 'स्कंदगुप्त' नाटक का प्रकाशन वर्ष बताइए।

[A] 1931

[B] 1930

[C] 1926

[D] 1928

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1. Who propounded the sea floor spreading theory?

[A] Harry Hess

[B] Tuzo Wilson

[C] D. L. Homes

[D] A. Hobbles

2. Which of the following is ***not*** a planetary wind?

[A] Easterlies

[B] Drainage winds

[C] Westerlies

[D] Trade winds

3. What does the term 'lithosphere' refer to?

[A] Plant and animal

[B] Interior of the Earth

[C] Ocean current

[D] Crust of the Earth

4. Which of the following is an organic rock?

[A] Marble

[B] Granite

[C] Slate

[D] Coal

5. To which group does the black cotton soil of India belong?

[A] Podzol

[B] Chernozem

[C] Laterite

[D] Alluvial

6. Among the following States, which one has the most suitable climatic conditions for the cultivation of a large variety of orchids with minimum cost of production and can develop an export-oriented industry in this field?

[A] Arunachal Pradesh

[B] Andhra Pradesh

[C] Madhya Pradesh

[D] Uttar Pradesh

7. What is measured on the Richter Scale?

[A] Temperature

[B] Earthquake

[C] Depth

[D] Wind Velocity

8. Where is the Gulf of Mannar located?

[A] South of Kanyakumari

[B] West of Kerala

[C] East of Tamil Nadu

[D] West of Gujarat

9. Which one of the following is a Great Circle?

[A] Equator

[B] Tropic of Cancer

[C] Arctic Circle

[D] Tropic of Capricorn

10. Which of the following is a biotic resource?

[A] Coal

[B] Iron

[C] Mica

[D] Copper

11. Which of the following theories is proposed by C. E. Dutton?

[A] Isostasy

[B] Plate tectonic

[C] Continental drift

[D] Weathering theory

12. Which of the following rivers of India is called Tsangpo in one of its reaches?

[A] Ganga

[B] Brahmaputra

[C] Narmada

[D] Lohit

13. Which of the following landforms is primarily shaped by the action of glaciers?

[A] Oxbow Lake

[B] Drumlins

[C] Deltas

[D] Sand dunes

14. Which one of the following longitudes is the standard meridian for India?

[A] 69°30′E

[B] 75°30′E

[C] 82°30′E

[D] 90°30′E

15. What is the most abundant dissolved element in sea water?

[A] Chlorine

[B] Sodium

[C] Iodine

[D] Potassium

16. Which one of the following is based on the principle of least cost?

[A] Weber's Theory

[B] Losch's Theory

[C] Von Thunen's Theory

[D] Smith's Spatial Profitability Theory

17. Which combination of the following tribes is confined to a single State of North East India?

[A] Khasi-Garo

[B] Naga-Mizo

[C] Khasi-Mizo

[D] Khasi-Naga

18. Who is the author of *The Principles of Human Geography*?

[A] E. Huntington

[B] F. Ratzel

[C] E. C. Semple

[D] Homer

19. In India, ports are categorized as major or non-major ports. Which one of the following is a non-major port?

[A] Dahej

[B] Kochi

[C] Paradip

[D] New Mangalore

20. Which one of the following tribes practices pastoral nomadism?

[A] Eskimo

[B] Boro

[C] Karbi

[D] Maasai

21. Which of the following is an agro-based industry?

[A] Petrochemical industry

[B] Iron and steel industry

[C] Sugar industry

[D] Automobile industry

22. The water content in the atmosphere

[A] is not dependent on temperature

[B] increases as temperature increases

[C] remains unchanged

[D] cannot be measured

23. Which of the following is a type of marine sediment formed from the remains of living organisms?

[A] Cosmogenous sediments

[B] Hydrogenous sediments

[C] Lithogenous sediments

[D] Biogenous sediments

24. The demographic dividend refers to

[A] economic growth potential due to a favorable age structure

[B] a rise in birth rate

[C] a decrease in infant mortality

[D] a shift in migration pattern

25. Soil genesis refers to

[A] the classification of biomes

[B] conservation of soil

[C] process of soil formation over time

[D] classification of soil on its properties

26. A typical soil profile consists of the horizons labeled as

[A] M, N, O, P

[B] P, Q, R, S

[C] O, A, B, C

[D] A, B, C, D

27. Most of the weather phenomena take place in the

[A] mesosphere

[B] stratosphere

[C] ionosphere

[D] troposphere

28. The classification of resources is typically based on

[A] renewability and availability

[B] use and price

[C] economic importance

[D] availability and price

29. Which factor is a primary driver of cultural diffusion?

[A] Migration and trade

[B] Globalization

[C] Movies

[D] Music

30. When humidity is expressed as a percentage, it is called

[A] relative humidity

[B] absolute humidity

[C] specific humidity

[D] percentage humidity

31. Which of the following forces is responsible for continental drift according to Wegener?

[A] Tidal

[B] Convection current

[C] Tensional force

[D] Compressional force

32. In settlement geography, the term 'Hinterland' is best defined as

[A] the central business district of a city

[B] the rural or less developed area serving and served by a central place

[C] a region with no economic activity

[D] the industrial zone of metropolitan areas

33. The crustal layer of the Earth is also called

[A] sial

[B] sima

[C] moho

[D] nife

34. Which theoretical model explains the spatial arrangement of settlements based on their size and function, assuming a uniform landscape?

[A] Concentric Zone Model

[B] Central Place Theory

[C] Sector Model

[D] Multiple Nuclei Model

35. The geographical cycle of erosion was proposed by

[A] W. Penck

[B] W. M. Davis

[C] Wood

[D] L. C. King

36. Plains formed in the limestone region are called

[A] peneplains

[B] flood plains

[C] karst plains

[D] alluvial plains

37. Which of the following is ***not*** a calcareous ooze?

[A] Pterpod Ooze

[B] Diatom Ooze

[C] Globizerina Ooze

[D] None of the above

38. What is a tornado?

[A] A very high pressure centre

[B] A very low pressure centre

[C] A planetary wave

[D] A very high ocean wave

39. Which of the following is considered to be the global carbon sink?

[A] Sahara Desert

[B] Antarctic Ice Sheet

[C] Arctic Ocean

[D] Equatorial rainforest

40. One of the warm currents in the Indian Ocean is the

[A] Labrador current

[B] Kuroshio current

[C] Humboldt current

[D] Agulhus current

41. Which sector of economy is the most important for economic development?

[A] Primary

[B] Secondary

[C] Tertiary

[D] None of the above

42. Harris and Ullman are best known for their contributions to

[A] political geography

[B] economic geography

[C] agricultural geography

[D] urban geography

43. Who laid the philosophical basis for Regional Planning?

[A] F. S. Chapin

[B] F. Ratzel

[C] Benton MacKaye

[D] E. Kant

44. The most important activity of the Tundra region is

[A] fish farming

[B] cropping

[C] cattle rearing

[D] hunting

45. Which of the following cartographic methods is generally used to show population density?

[A] Contour

[B] Choropleth

[C] Dot method

[D] Isopleth

46. The slope replacement model was first proposed by

[A] A. Young

[B] W. Penck

[C] L. C. King

[D] Strahler

47. The greenhouse effect is due to

[A] absorption of UV radiation by sea water

[B] infrared reflection by oceanic surface

[C] absorption of infrared radiation by carbon dioxide and water vapour in the atmosphere

[D] absorption of infrared radiation by plants

48. Welfare Geography emphasizes the analysis of

[A] regional balanced development

[B] urban industrial development

[C] aspects of quality of life and well-being

[D] public-private partnerships in development

49. What is meant by 'Willy Willy'?

[A] An earthquake

[B] A very high tide

[C] A tropical cyclone near India

[D] A tropical cyclone near Australia

50. The homeland of the Yakuts is

[A] Iran

[B] North India

[C] Russian Siberia

[D] Kenya

51. Who was the founder of Neo-Determinism?

[A] F. Ratzel

[B] Charles Darwin

[C] Griffith Taylor

[D] H. H. Barrows

52. Coolgardie and Kalgoorlie are famous for

[A] resort towns

[B] institutional towns

[C] mining towns

[D] industrial towns

53. What kind of vegetation is usually found in river estuaries?

[A] Grass

[B] Thorn forest

[C] Deciduous forest

[D] Littoral forest

54. The Lakshadweep Islands are of

[A] volcanic origin

[B] tectonic origin

[C] coral origin

[D] alluvial origin

55. Who among the following is ***not*** a supporter of determinism?

[A] Lucien Febvre

[B] Carl Ritter

[C] E. C. Semple

[D] All of them

56. Who wrote *Influences of Geographic Environment*?

[A] Huntington

[B] Carl Ritter

[C] E. C. Semple

[D] None of them

57. Who first enunciated the principle of uniformitarianism?

[A] Playfair

[B] Dutton

[C] Hutton

[D] Kober

58. A characteristic feature of limestone topography is

[A] yardang

[B] bajada

[C] pediment

[D] sinkhole

59. Which area of India receives the least rainfall?

[A] Ladakh

[B] The Western Ghat

[C] Eastern Rajasthan

[D] Western Tamil Nadu

60. Increase in temperature with increase in height is known as

[A] lapse rate

[B] adiabatic lapse rate

[C] inversion of temperature

[D] normal rate

61. When the wind is deflected due to the rotation of the Earth, it is known as

[A] planetary wind

[B] geostropic wind

[C] accidental wind

[D] forced wind

62. Which one of the following is a Taiga Biome?

[A] Subtropical biome

[B] Subarctic biome

[C] Savanna biome

[D] Sub-Sahara biome

63. Which of the following are twin cities?

[A] Delhi and Faridabad

[B] Mumbai and Pune

[C] Bangalore and Mysore

[D] Hyderabad and Secunderabad

64. Which of the following schools of thought developed possibilism?

[A] German

[B] France

[C] British

[D] American

65. Which Indian State has a very little area under alluvial soil?

[A] Tamil Nadu

[B] Haryana

[C] Madhya Pradesh

[D] West Bengal

66. Which Indian State is leading producer of maize?

[A] Punjab

[B] Karnataka

[C] Rajasthan

[D] Kerala

67. The typical area of Sal forests in the Indian peninsula occurs in

[A] Western Ghat

[B] Malwa Plateau

[C] North East of the Godavari

[D] between the Narmada and the Tapti

68. Which of the following is known as the home of Asiatic lion?

[A] Gir National Park

[B] Dudhwa National Park

[C] Kanha National Park

[D] Corbett National Park

69. Manas Sanctuary in Assam is famous for what?

[A] Bear

[B] Tiger

[C] Wild Ass

[D] Birds

70. Corbett National Park is in

[A] Bihar

[B] Madhya Pradesh

[C] Uttarakhand

[D] Himachal Pradesh

71. Which Indian State has the lowest area under forest?

[A] Gujarat

[B] Uttarakhand

[C] Andhra Pradesh

[D] Haryana

72. Which Indian State is the leading producer of coconut?

[A] Kerala

[B] Assam

[C] Tamil Nadu

[D] Karnataka

73. Who founded the Humanistic School of Geography?

[A] Tuan

[B] Kirk

[C] Harvey

[D] Wolpert

74. Diego Garcia is an island in which of the following oceans?

[A] Atlantic

[B] Indian

[C] Pacific

[D] Arctic

75. Which Indian State has the lowest population density?

[A] Nagaland

[B] Assam

[C] Arunachal Pradesh

[D] Kerala

76. Ecosystem has two components, which are

[A] animals and plants

[B] trees and birds

[C] biotic and abiotic

[D] men and animals

77. Name the State which employs the highest number of child labour in India.

[A] Bihar

[B] Tamil Nadu

[C] Jharkhand

[D] Andhra Pradesh

78. Which Indian State is the leading producer of wheat?

[A] Bihar

[B] Punjab

[C] Haryana

[D] Uttar Pradesh

79. The concept of 'cultural landscape' was promoted by

[A] A. Buttimer

[B] W. Zelinsky

[C] Huntington

[D] Carl Sauer

80. Which is the largest volume of import commodities of India?

[A] Iron and steel

[B] Petroleum

[C] Pearls

[D] Cotton

81. Which Indian State has the longest coastline?

[A] Tamil Nadu

[B] Kerala

[C] Gujarat

[D] Maharashtra

82. The valley of Kashmir lies between which of the following ranges?

[A] Pir Panjal and Karakoram

[B] Pir Panjal and Zanskar

[C] Zanskar and Ladakh

[D] Sulaiman and Kirthar

83. Which of the following is ***not*** a quantitative distribution map?

[A] Dot map

[B] Choropleth

[C] Isopleth

[D] Choroschematic

84. Which is the westernmost limit of the Siwalik Hills?

[A] Pir Panjal

[B] Potwar

[C] River Kosi

[D] Morni Hills

85. Which one of the following is ***not*** a major port on the east coast of India?

[A] Paradip

[B] Kolkata

[C] Visakhapatnam

[D] Kochi

86. The term 'Nife' refers to

[A] earthquakes

[B] ocean beds

[C] Earth crust

[D] core of the Earth

87. In which of the following areas is salinity likely to be the highest?

[A] Red Sea

[B] North Pacific

[C] Atlantic

[D] Indian Ocean

88. Blizzards are characteristics of which region?

[A] Equatorial

[B] Tropical

[C] Temperate

[D] Subtropical

89. Where are the Doldrums located?

[A] Tropic of Cancer

[B] Near the Equator

[C] Tropic of Capricorn

[D] Near the polar areas

90. The most prominent gases in the atmosphere in terms of volume are

[A] hydrogen and oxygen

[B] nitrogen and oxygen

[C] oxygen and carbon dioxide

[D] nitrogen and hydrogen

91. The thickness of troposphere increases in

[A] summer

[B] winter

[C] spring

[D] autumn

92. Echo sounding is the technique applied to

[A] measure the depth of the sea

[B] measure the amplitude of sound waves

[C] record earthquake waves

[D] record density of air in the atmosphere

93. The leeward side of a mountain which ***does not*** receive rain is known as

[A] dry zone

[B] desert

[C] rain shadow area

[D] adiabatically dry area

94. Which atmospheric layer reflects radio wave that is transmitted from the Earth and again back to the Earth?

[A] Mesosphere

[B] Stratosphere

[C] Troposphere

[D] Ionosphere

95. On which two factors the growth of vegetation depends?

[A] Moisture and temperature

[B] Temperature and air

[C] Air and moisture

[D] Temperature and pressure

96. The transition zone between two ecosystems is called

[A] biome

[B] biotope

[C] ecology

[D] ecotone

97. Which of the following is ***not*** a major factor influencing the population distribution?

[A] Climate

[B] Landform

[C] Polity

[D] Availability of water

98. What is the percentage of fresh water on the Earth?

[A] 70%

[B] 90%

[C] 2.7%

[D] 50%

99. The highest peak in India, K2 is located in

[A] Karakoram

[B] Central Himalaya

[C] Trans Himalaya

[D] Kumaon Himalaya

100. The large tidal wave(s) is/are called

[A] tides

[B] currents

[C] waves

[D] tsunami

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1. The ICAR-Indian Institute of Horticultural Research is located in

[A] New Delhi

[B] Uttar Pradesh

[C] Karnataka

[D] Kerala

2. The national horticulture mission was launched in the year

[A] 2003-04

[B] 2004-05

[C] 2005-06

[D] 2006-07

3. The national fruit of India is

[A] papaya

[B] guava

[C] litchi

[D] mango

4. Which fruit is rich in malic acid?

[A] Apple

[B] Pineapple

[C] Citrus

[D] Pomegranate

5. The highest vitamin C is present in the fruit

[A] aonla

[B] Barbados cherry

[C] guava

[D] litchi

6. The acid present in tomato is

[A] citric acid

[B] lactic acid

[C] oxalic acid

[D] tartaric acid

7. Papaya is commercially propagated by

[A] budding

[B] cutting

[C] seed

[D] grafting

8. Edible part of litchi is

[A] fleshy aril

[B] fleshy peduncle

[C] fleshy stalk

[D] fleshy thalamus

9. Which of the following is the most commonly used rooting hormone?

[A] IAA

[B] IBA

[C] NAA

[D] GA3

10. The hexagonal system of planting accommodates how many more plants than the square system?

[A] 10%

[B] 15%

[C] 20%

[D] 25%

11. In which direction of an orchard is a windbreak planted to protect it from strong winds?

[A] North-east

[B] South-east

[C] North-west

[D] South-west

12. The common enzyme present in pineapple is

[A] actinidine

[B] bromelain

[C] caprine

[D] papain

13. The above-ground stem of a banana plant is called

[A] sword sucker

[B] water sucker

[C] pseudostem

[D] rhizome

14. ELISA test in banana is conducted for screening of

[A] fungus

[B] bacteria

[C] aphid

[D] virus

15. Litchi is propagated by

[A] air layering

[B] inarching

[C] stone grafting

[D] veneer grafting

16. Auxanometer is used to measure the

[A] TSS

[B] acidity

[C] soil moisture

[D] plant growth

17. Blossom end rot of tomato is caused by the deficiency of

[A] calcium

[B] zinc

[C] molybdenum

[D] potassium

18. The 'stress hormone' in plants is

[A] auxin

[B] abscisic acid

[C] ethylene

[D] GA3

19. Colchicine is mainly used for induction of

[A] hybrid

[B] pure line

[C] inbreeding depression

[D] polyploidy

20. The precursor of ethylene is

[A] purine

[B] cysteine

[C] zeatin

[D] methionine

21. Which of the following is a hexaploid?

[A] Tomato

[B] Potato

[C] Sweet potato

[D] Okra

22. Transfer of resistant gene is done by

[A] backcross method breeding

[B] bulk method breeding

[C] mutation breeding

[D] polyploidy breeding

23. The National Seed Corporation was established in

[A] 1943

[B] 1953

[C] 1963

[D] 1973

24. Self incompatibility is prominent in

[A] cucumber

[B] cauliflower

[C] okra

[D] onion

25. Which molecular marker is non-PCR based?

[A] RAPD

[B] RFLP

[C] SSR

[D] SCAR

26. The tetrazolium test is used to determine

[A] seed purity

[B] seed germination

[C] seed viability

[D] seed quality

27. Which plant hormone is used for berry elongation in grapes?

[A] IAA

[B] IBA

[C] NAA

[D] GA3

28. Which fruit crop has mycorrhizal root network?

[A] Apple

[B] Mango

[C] Guava

[D] Litchi

29. Granulation is a serious problem in

[A] mango

[B] citrus

[C] litchi

[D] guava

30. Most widely cultivated variety of grape in India is

[A] Pusa Seedless

[B] Parlette

[C] Tash-e-Ganesh

[D] Thompson Seedless

31. Which one of the following is a climacteric fruit?

[A] Litchi

[B] Banana

[C] Pomegranate

[D] Grape

32. Pollination in mango primarily occurs through

[A] honey bees

[B] houseflies

[C] bat

[D] wind

33. Which of the following is the hermaphrodite variety of papaya?

[A] Coorg Honeydew

[B] Surya

[C] Sunrise Solo

[D] CO-3

34. Pusa Srijan is a rootstock of

[A] apple

[B] citrus

[C] guava

[D] mango

35. Which variety of mango has almost seedless fruit?

[A] Alphonso

[B] Ratna

[C] Neelam

[D] Sindhu

36. The Red Lady variety of papaya was developed in which country?

[A] Malaysia

[B] Taiwan

[C] Thailand

[D] Indonesia

37. Stenospermocarpy is found in

[A] apple

[B] pomegranate

[C] grapes

[D] loquat

38. Sporophytic self-incompatibility is present in

[A] apple

[B] apricot

[C] aonla

[D] almond

39. The famous mango variety 'Mallika' is developed from a cross between

[A] Dasheri × Neelam

[B] Neelam × Dasheri

[C] Neelam × Alphonso

[D] Ratna × Alphonso

40. In cucurbits, low temperature and short day promotes more

[A] male flowers

[B] female flowers

[C] Both [A] and [B]

[D] None of the above

41. Sinigrin is found in the family

[A] Solanaceae

[B] Leguminosae

[C] Malvaceae

[D] Cruciferae

42. The best temperature range for tuberization of potato is

[A] 12-15 °C

[B] 18-21 °C

[C] 24-27 °C

[D] 30-33 °C

43. Which group of crops originated from Mediterranean region?

[A] Cole crops

[B] Cucurbitaceous crops

[C] Leguminous crops

[D] Solanaceous crops

44. Cauliflower is the best indicator of

[A] Ca-deficiency

[B] Fe-deficiency

[C] Zn-deficiency

[D] Mo-deficiency

45. Okra belongs to family

[A] Cruciferae

[B] Malvaceae

[C] Solanaceae

[D] Leguminosae

46. Chaconine, a toxic alkaloid, is present in

[A] carrot

[B] turnip

[C] potato

[D] sweet potato

47. 'U' triangle is associated with the classification of the family

[A] Solanaceae

[B] Cruciferae

[C] Leguminosae

[D] Malvaceae

48. The optimum temperature for lycopene synthesis in tomato is

[A] 15-18 °C

[B] 21-24 °C

[C] 27-30 °C

[D] 33-36 °C

49. Which watermelon variety is a cross between Tetra-2 × Pusa Rasaal?

[A] Arka Jyoti

[B] Arka Manik

[C] Pusa Bedana

[D] Pusa Rasaraj

50. Chilling temperature is essential for the seed production of

[A] cabbage

[B] cauliflower

[C] French bean

[D] garden pea

51. Guar gum is extracted from

[A] winged bean

[B] cluster bean

[C] broad bean

[D] lima bean

52. Bulbing of kharif onion occurs under

[A] short day

[B] long day

[C] day neutral

[D] None of the above

53. Gynoecious sex form is common in

[A] cucumber

[B] wax gourd

[C] muskmelon

[D] ridge gourd

54. Legume crop demands more amount of

[A] nitrogen

[B] phosphorus

[C] calcium

[D] sulphur

55. Yellow vein mosaic virus is a serious problem of

[A] bitter gourd

[B] okra

[C] cabbage

[D] garden pea

56. Contender and Kentucky Wonder are popular varieties of

[A] broad bean

[B] cluster bean

[C] French bean

[D] lima bean

57. Leaf curl virus is a serious problem in

[A] cauliflower

[B] okra

[C] onion

[D] chilli

58. Dioecious sex form is found in

[A] bottle gourd

[B] cucumber

[C] pointed gourd

[D] snake gourd

59. Arka Rakshak is a popular variety of

[A] tomato

[B] brinjal

[C] chilli

[D] okra

60. Which vegetable is biennial in nature?

[A] Okra

[B] Tomato

[C] Cabbage

[D] French bean

61. The inflorescence of coconut is called

[A] umbel

[B] spike

[C] spadix

[D] catkin

62. Cashew nut is commercially propagated through

[A] cutting

[B] softwood grafting

[C] layering

[D] patch budding

63. Mohitnagar is an improved variety of

[A] arecanut

[B] coconut

[C] cashew nut

[D] walnut

64. The headquarters of the Coconut Development Board is in

[A] Bangalore

[B] Chennai

[C] Kochi

[D] Hyderabad

65. One bud and two leaves plucking method is popular in

[A] coffee

[B] cocoa

[C] tea

[D] rubber

66. Small cardamom belongs to the family

[A] Anacardiaceae

[B] Leguminosae

[C] Liliaceae

[D] Zingiberaceae

67. Brown bast is a serious disorder of

[A] coffee

[B] cashew nut

[C] tea

[D] rubber

68. Coffee belongs to the family

[A] Arecaceae

[B] Rubiaceae

[C] Moraceae

[D] Theaceae

69. Crown chocking in coconut occurs due to deficiency of

[A] boron

[B] calcium

[C] magnesium

[D] zinc

70. The process of extracting latex from the rubber plant is known as

[A] scuffing

[B] tapping

[C] tilting

[D] tipping

71. Chirkey and Foorkey are major viral diseases of

[A] black pepper

[B] nutmeg

[C] vanilla

[D] large cardamom

72. The traditional antimalarial drug quinine is obtained from

[A] belladonna

[B] cinchona

[C] rawolfia

[D] palmarosa

73. Which main part of isabgol is medicinally important?

[A] Leaves

[B] Flowers

[C] Root

[D] Seed husk

74. The garden of Rashtrapati Bhavan in New Delhi was designed by

[A] Shah Jahan

[B] Lord Curzon

[C] Edwin Lutyens

[D] Lady Hardinge

75. Baradari is an important feature of which type of garden?

[A] English

[B] Japanese

[C] Persian

[D] Mughal

76. Lloyd Botanical Garden is situated in

[A] Darjeeling, West Bengal

[B] Dehradun, Uttarakhand

[C] Shimla, Himachal Pradesh

[D] Ooty, Tamil Nadu

77. The Japanese style of flower arrangement is known as

[A] Tatebana

[B] Ikebana

[C] Suchigama

[D] Hira-niwa

78. The Indian Botanical Garden at Shibpur, Howrah was established in

[A] 1787

[B] 1857

[C] 1907

[D] 1947

79. Stone lanterns are important features of which style of garden?

[A] Mughal

[B] Japanese

[C] Persian

[D] English

80. The flower color of *Cassia fistula* is

[A] red

[B] blue

[C] white

[D] yellow

81. Pyrethrum is extracted from which *Chrysanthemum* species?

[A] *Chrysanthemum cinerariifolium*

[B] *Chrysanthemum indicum*

[C] *Chrysanthemum morifolium*

[D] *Chrysanthemum sinense*

82. Climbing lily is botanically known as

[A] *Gloriosa simplex*

[B] *Gloriosa lutea*

[C] *Gloriosa virens*

[D] *Gloriosa superba*

83. The 'Rajat Rekha' and 'Swarn Rekha' varieties of tuberose were developed from

[A] ICAR-IARI

[B] CSIR-NBRI

[C] CSIR-CIMAP

[D] ICAR-IIHR

84. Which flowers exhibit the phenomenon of sleepiness?

[A] Carnation

[B] Chrysanthemum

[C] Gladiolus

[D] Tuberose

85. The most widely cultivated flower crop in India is

[A] chrysanthemum

[B] rose

[C] tuberose

[D] marigold

86. French marigold is a

[A] diploid

[B] triploid

[C] tetraploid

[D] hexaploid

87. The book *The Rose in India* was written by

[A] M. S. Randhawa

[B] B. P. Pal

[C] Vishnu Swarup

[D] R. S. Paroda

88. The national flower of India is the

[A] water lily

[B] tulip

[C] tuberose

[D] lotus

89. In terms of both volume and market value, top cut flower of the world is

[A] chrysanthemum

[B] carnation

[C] rose

[D] orchids

90. In which State is ICAR-NRC Orchids located?

[A] Assam

[B] Sikkim

[C] Uttarakhand

[D] West Bengal

91. Pusa Basanti and Pusa Narangi are varieties of

[A] chrysanthemum

[B] rose

[C] tuberose

[D] marigold

92. Gladiolus is propagated by

[A] seed

[B] bulb

[C] corm

[D] rhizome

93. Cider, a type of fermented wine, is prepared from

[A] apple

[B] pear

[C] peach

[D] plum

94. Which one of the following gases is also a ripening hormone?

[A] Carbon dioxide

[B] Hydrogen

[C] Oxygen

[D] Ethylene

95. In cold storage of potato, at low temperature

[A] sugar converts to starch

[B] starch converts to sugar

[C] both of the above increase

[D] both of the above decrease

96. Sago/Sabudana is obtained from

[A] potato

[B] sweet potato

[C] tapioca

[D] yam

97. In food preservation, lye peeling means

[A] mechanical peeling

[B] dipping in boiling NaOH

[C] dipping in boiling water

[D] manual peeling

98. Sauerkraut is a fermented product of

[A] cabbage

[B] carrot

[C] tomato

[D] turnip

99. Which vitamin is lost during the processing of fruits and vegetables?

[A] Vitamin A

[B] Vitamin C

[C] Vitamin D

[D] Vitamin E

100. 'Feni' is a drink obtained from

[A] apple

[B] coconut

[C] cashew apple

[D] mango

SPACE FOR ROUGH WORK

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★ ★ ★

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ECONOMICS

Question Booklet Number

Series : a

Time : 3 Hours **Maximum Marks : 200**

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1. Scarcity definition of economics was given by

[A] Adam Smith

[B] Nurkse

[C] J. M. Keynes

[D] Lionel Robbins

2. According to Lionel Robbins, economics is a

[A] normative science

[B] positive science

[C] social science

[D] ethical science

3. Let the shape of a demand curve be rectangular hyperbola and *A* be the midpoint of that demand curve. What is the price elasticity of demand at point *A*?

[A] 1

[B] 0

[C] 0.5

[D] ∞

4. When income of the consumer increases, the budget line

[A] shifts parallel to the right

[B] shifts parallel to the left

[C] becomes steeper

[D] remains constant

5. What is the income effect of demand of an inferior good?

[A] Positive

[B] Negative

[C] Zero

[D] Infinite

6. If we measure income on the *X*-axis and pollution on the *Y*-axis, then what will be the shape of the indifference curve?

[A] Downward sloping from left to right

[B] Horizontal straight line

[C] Vertical straight line

[D] Upward sloping from left to right

7. According to ordinal approach to consumer's behaviour

[A] utility can be measured numerically

[B] preferences of the consumers can be ranked

[C] monetary measurement of utility is possible

[D] None of the above

8. When marginal cost is equal to average cost, the marginal cost curve is

[A] upward sloping

[B] downward sloping

[C] vertical straight line

[D] horizontal straight line

9. Which market does have the characteristic of price discrimination?

[A] Perfect competition

[B] Monopoly

[C] Monopolistic competition

[D] Duopoly

10. As the volume of output increases to infinite, the average fixed cost

[A] approaches to zero

[B] approaches to infinite

[C] becomes equal to average cost

[D] remains constant

11. Ricardian theory of rent is also known as a

[A] theory of fixed rent

[B] theory of variable rent

[C] theory of differential rent

[D] theory of monetary rent

12. Which form of market equilibrium does have excess capacity?

[A] Monopoly market

[B] Perfectly competitive market

[C] Government market

[D] Village market

13. Who did link economics to material welfare of human being for the first time?

[A] Adam Smith

[B] Alfred Marshall

[C] J. M. Keynes

[D] Malthus

14. In the long run

[A] some of the factors of production are variable and some are fixed

[B] all the factors of production are fixed

[C] all the factors of production are variable

[D] larger proportion of factors are fixed

15. Which of the following is ***not*** a characteristic of an indifference curve?

[A] It moves downward from left to right

[B] Two indifference curves cannot intersect each other

[C] It is concave to the origin

[D] A higher indifference curve gives more satisfaction than the lower one

16. In the monopoly market, price is

[A] equal to marginal cost

[B] equal to average cost

[C] greater than marginal cost

[D] less than marginal cost

17. The demand curve of a monopolist is also the

[A] average cost curve

[B] marginal cost curve

[C] average revenue curve

[D] marginal revenue curve

18. The uncertainty bearing theory of profit was given by

[A] Knight

[B] Cannan

[C] Milton

[D] Howley

19. Marginal productivity theory of distribution was given by

[A] Adam Smith

[B] Alfred Marshall

[C] J. B. Clark

[D] Robinson

20. Cartel is found in the _____ market.

[A] perfectly competitive

[B] monopoly

[C] monopsony

[D] oligopoly

21. Production function explains the relationship between

[A] cost and profit

[B] input and output

[C] profit and output

[D] employment and wage

22. Law of variable proportion operates in the

[A] long run

[B] short run

[C] very long run

[D] both long and short run

23. In the analysis of returns to scale

[A] all the factors of production are variable

[B] only labour is a variable factor

[C] all factors of production are fixed

[D] capital is variable, but labour is fixed

24. When marginal product is greater than average product, then

[A] average product remains fixed

[B] average product decreases

[C] average product increases

[D] average product is maximum

25. When total product is maximum, then

[A] marginal product = average product

[B] average product is negative

[C] marginal product = 0

[D] marginal product is negative

26. According to psychological law of consumption, what is the value of Marginal Propensity to Consume (MPC)?

[A] MPC = ∞

[B] MPC = 1

[C] MPC = 0

[D] $0 < MPC < 1$

27. What is the shape of the money demand curve at liquidity trap?

[A] Perfectly elastic

[B] Perfectly inelastic

[C] Highly inelastic

[D] Highly elastic

28. Liquidity preference theory of interest rate was given by

[A] J. B. Say

[B] Schumpeter

[C] Samuelson

[D] J. M. Keynes

29. *Demand creates its own supply* is the implication of

[A] classical theory

[B] Keynesian theory

[C] monetarist theory

[D] neoclassical theory

30. According to Keynesian theory of employment, at the point of equilibrium, we have

[A] voluntary unemployment

[B] involuntary unemployment

[C] full employment

[D] fictional unemployment

31. When marginal propensity to consume increases, the value of income multiplier

[A] increases

[B] decreases

[C] remains constant

[D] approaches to that of accelerator

32. At the point of effective demand

[A] aggregate demand = aggregate supply

[B] aggregate demand > aggregate supply

[C] aggregate demand < aggregate supply

[D] aggregate demand approaches to aggregate supply

33. Induced investment is motivated by

[A] welfare

[B] profit

[C] international trade

[D] Government budget

34. Disposable income =

[A] personal income – direct taxes

[B] personal income + indirect taxes

[C] personal income – depreciation

[D] personal income + transfer payments

35. Phillips curve shows the relationship between

[A] income and employment

[B] inflation and unemployment

[C] price and output

[D] tax and Government expenditure

36. According to the classical analysis, at the point of equilibrium, we have

[A] voluntary unemployment

[B] involuntary unemployment

[C] both voluntary and involuntary unemployments

[D] educated unemployment

37. What is accelerator?

[A] Change in investment due to change in income

[B] Change in profit due to change in investment

[C] Change in employment due to change in investment

[D] Change in profit due to change in Government expenditure

38. What is the difference between Gross Domestic Product and Gross National Product?

[A] Depreciation

[B] Net factor income from abroad

[C] Externalities

[D] Net indirect tax

39. What is the difference between National Income at Market Price and National Income at Factor Cost?

[A] Net indirect taxes

[B] Direct taxes

[C] Subsidies

[D] Transfer income

40. Keynesian economists gave more importance on

[A] aggregate demand

[B] aggregate supply

[C] savings

[D] capital formation

41. According to classical economics, the supply side factors change in the

[A] short run

[B] long run

[C] very short run

[D] market time

42. The world great depression took place during

[A] 1920s

[B] 1950s

[C] 1930s

[D] 1980s

43. If marginal propensity to consume is 0.8, what is the value of income multiplier?

[A] 5

[B] 0

[C] 1

[D] 4

44. Which one of the following is ***not*** an instrument of monetary policy?

[A] Bank rate

[B] Repo rate

[C] Goods and Services Tax

[D] Cash Reserve Ratio

45. The concept of inflationary gap was given by

[A] Keynes

[B] Marshall

[C] Pigou

[D] Friedman

46. At natural rate of employment, the Phillips curve is

[A] a horizontal straight line

[B] a vertical straight line

[C] upward sloping

[D] downward sloping

47. Credit creation is done by the

[A] central bank

[B] insurance companies

[C] microfinance institutions

[D] commercial banks

48. Concept of speculative demand for money was given by

[A] Keynes

[B] Schumpeter

[C] Baumol

[D] Friedman

49. According to Milton Friedman, the demand for money is determined by the

[A] total wealth of the individual

[B] different forms of asset to be held by an individual

[C] cost of return from different types of assets

[D] All of the above

50. Which one of the following is a macroeconomic variable?

[A] Price of a car

[B] Income of a person

[C] National income

[D] Cost of production of a firm

51. GST is an example of

[A] direct tax

[B] indirect tax

[C] corporate tax

[D] property tax

52. Corporate profit tax is an example of

[A] direct tax

[B] indirect tax

[C] value added tax

[D] goods and services tax

53. The principal objective of Government finance is

[A] maximisation of profit

[B] economic growth and welfare

[C] achieving balanced budget

[D] maximisation of export

54. What is the characteristic of public goods?

[A] Excludable and rival

[B] Non-excludable and rival

[C] Excludable but non-rival

[D] Non-excludable and non-rival

55. What is meant by equity in taxation?

[A] Equal amount of tax paid by the citizen

[B] Equal rate of tax for all the sections of the society

[C] Equal share of everyone in the total tax revenue of the Government

[D] Equality in sacrifice while paying tax

56. Deficit financing involves

[A] printing new currencies

[B] reducing Government expenditure

[C] increasing tax rate

[D] reducing subsidies

57. What is fiscal deficit?

[A] Total expenditure minus total receipts

[B] Capital expenditure minus revenue expenditure

[C] Capital formation minus depreciation

[D] Capital expenditure minus interest payment

58. Under _____, each and every unit of the population has equal chance to be included.

[A] stratified random sampling

[B] accidental sampling

[C] simple random sampling

[D] convenient sampling

59. Stratified random sampling is appropriate, when

[A] population is homogeneous

[B] population is heterogeneous and can be divided into sub-groups

[C] sampling frame is not available

[D] population is infinite in size

60. Snowball sampling is a method of

[A] random sampling

[B] non-random sampling

[C] stratified sampling

[D] systematic sampling

61. Population characteristic is known as

[A] statistic

[B] parameter

[C] constant

[D] variable

62. As the sample size increases

[A] sampling error decreases

[B] the accuracy of the study declines

[C] mean approaches to infinite

[D] mean approaches to zero

63. Standard deviation is a measure of

[A] central tendency

[B] dispersion

[C] correlation

[D] regression

64. Which of the following is a measure of dispersion?

[A] Geometric mean

[B] Range

[C] Mode

[D] Index number

65. An extreme item or lowest item will always have a bearing upon

[A] median

[B] mean

[C] mode

[D] None of the above

66. Which of the following measures is appropriate to identify income inequality in the society?

[A] Arithmetic mean

[B] Median

[C] Mode

[D] Harmonic mean

67. When the population is normally distributed, then

[A] Mean = Median = Mode

[B] Arithmetic mean = Geometric mean = Harmonic mean

[C] Mean > Median > Mode

[D] Arithmetic mean $\leq$ Geometric mean $\geq$ Harmonic mean

68. Mode can be easily located from

[A] pie diagram

[B] histogram

[C] ogive

[D] sampling

69. If the value of all the observations in a sample is increased by 10, then the value of mean will

[A] increase by 10

[B] decrease by 10

[C] remain unchanged

[D] increase by 10 times

70. Which of the following is a graph?

[A] Pie diagram

[B] Composite bar

[C] Sub-divided bar

[D] Histogram

71. Range is calculated as

[A] Highest value + Lowest value

[B] Highest value – Lowest value

[C] Highest value / Lowest value

[D] ln (Highest value – Lowest value)

72. The sum of the deviations of all observations from their arithmetic mean is always

[A] minimum

[B] maximum

[C] zero

[D] infinite

73. The value of mean deviation is always

[A] negative

[B] greater than 1

[C] between –1 and 1

[D] positive

74. Which measure of dispersion is based on all observations?

[A] Range

[B] Standard deviation

[C] Mean deviation

[D] Quartile deviation

75. If standard deviation of a sample is 7, what is the variance?

[A] 7

[B] 14

[C] 49

[D] 3.5

76. Correlation measures

[A] the cause and effect relationship between variables

[B] the degree of association between variables

[C] the difference between two variables

[D] None of the above

77. The value of correlation coefficient lies between

[A] 0 and 1

[B] –1 and 1

[C] 0 and ∞

[D] 0 and 100

78. Spearman's rank correlation is used when

[A] variables are measured in ranks or ordinal scale

[B] variables are continuous

[C] variables are independent

[D] variables are normal

79. When the covariance between X and Y is positive, the correlation

[A] must be negative

[B] must be positive

[C] must be zero

[D] may take any value

80. When correlation between X and Y is perfect and positive, the points in the scatter diagram

[A] are widely scattered

[B] form a downward sloping curve

[C] are randomly distributed

[D] form a straight line

81. Index number is used to measure

[A] absolute change over time

[B] relative change over time

[C] random variance

[D] coexistence of values

82. In index number, the weight means

[A] importance given to items

[B] number of items

[C] total price of items

[D] quantity of items in kg

83. Which index satisfies both time reversal and factor reversal tests?

[A] Laspeyres' index

[B] Paasche's index

[C] Fisher's index

[D] Marshall-Edgeworth index

84. The base year index number is always taken as

[A] 0

[B] 1

[C] 100

[D] ∞

85. The consumer price index is used to measure

[A] population growth

[B] unemployment rate

[C] inflation rate

[D] productivity

86. Which one of the following is a barrier to tourism industry in Arunachal Pradesh?

[A] Rich tourist infrastructure everywhere

[B] Restricted access and inner line permit issue

[C] Overcrowding tourist spots

[D] Air connectivity

87. The 'Jhum' cultivation practiced in Arunachal Pradesh refers to

[A] terrace farming

[B] shifting or slash and burn agriculture

[C] permanent wet rice cultivation

[D] plantation agriculture

88. Arunachal Pradesh is often recognised as the 'power house of South Asia' because of its potential in

[A] solar energy

[B] oil and gas

[C] wind energy

[D] hydropower

89. Which one of the following is a major problem of agricultural development in Arunachal Pradesh?

[A] Excessive dependence on cash crops

[B] Inadequate irrigation infrastructure

[C] Too much mechanization

[D] Excessive use of chemical fertiliser

90. NITI Aayog was established in the year

[A] 2014

[B] 2015

[C] 2018

[D] 1991

91. In the year 1991, when economic reform was introduced, who was the Finance Minister of India?

[A] Dr. Manmohan Singh

[B] P. Chidambaram

[C] P. V. Narasimha Rao

[D] Indira Gandhi

92. What was the immediate reason behind the introduction of economic reform 1991?

[A] High rate of unemployment

[B] Agricultural stagnation

[C] Political instability

[D] Balance of payment crisis

93. What are the three pillars of India's economic reform 1991?

[A] Planning, Regulation and Reform

[B] Liberalisation, Privatisation and Globalization

[C] Public sector, Private sector and Common sector

[D] Information, Communication and Technology

94. During British rule, Indian economy was basically

[A] exporting economy

[B] industrial economy

[C] service based economy

[D] agrarian economy

95. The first oil refinery of Asia was established in

[A] Digboi (India)

[B] Beijing (China)

[C] Abu Dhabi (UAE)

[D] Jamnagar (India)

96. The concept of "missing women in India" was given by

[A] Jagdish Bhagwati

[B] Mahatma Gandhi

[C] Dr. Manmohan Singh

[D] Amartya Sen

97. Where was the first metro rail of India started?

[A] Delhi

[B] Mumbai

[C] Chennai

[D] Kolkata

98. What is the objective of Sagarmala Project?

[A] Expansion of highways to the sea ports

[B] To modernize ports and coastal areas

[C] Expansion of railway network to the sea ports

[D] Establishment of airports near the sea ports

99. What is the main objective of UDAN Scheme?

[A] International air connectivity

[B] Connectivity of rural areas

[C] Regional air connectivity

[D] Expansion of railway network

100. Operation flood is related to the production of

[A] fish

[B] rice

[C] mustard oil

[D] milk

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PHYSICS

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1. A particle has an initial velocity of $3\hat{i}+4\hat{j}$ and an acceleration of $0.4\hat{i}+0.3\hat{j}$. Its speed after 10 sec is

[A] 10 units

[B] 7 units

[C] $7\sqrt{2}$ units

[D] 8.5 units

2. A bird flies for 4 sec with a velocity of $|t-2|$ m/sec in a straight line, where t = time in second. It covers a distance of

[A] 2 m

[B] 4 m

[C] 6 m

[D] 8 m

3. A projectile is moving at 60 m/sec at its highest point, where it breaks into two equal parts due to an internal explosion. One part moves vertically upward at 50 m/sec with respect to the ground. The outer part will move at

[A] 110 m/sec

[B] 120 m/sec

[C] 130 m/sec

[D] $10\sqrt{61}$ m/sec

4. A force $\vec{F}=-k(y\,\hat{i}+x\,\hat{j})$, k is a positive constant, acts on a particle moving in the xy plane. Starting from the origin, the particle is taken along the positive x-axis to the point $(a, 0)$ and then parallel to the y-axis to the point (a, a). The total work done by the force on the particle is

[A] $-2ka^2$

[B] $2ka^2$

[C] $-ka^2$

[D] ka^2

5. A car is moving on a circular horizontal track of radius 10 m with a constant speed of 10 m/sec. A plumb bob is suspended from the roof of the car by a light rigid rod of length 1 m. The angle made by the rod with the vertical is

[A] zero

[B] 30°

[C] 45°

[D] 60°

6. An external device, example an electric motor, supplies constant power to a rotating system, such as a flywheel, through a torque τ. The angular velocity of the system is ω. Both τ and ω are variables, the relation between τ and ω is

[A] $\omega \propto \tau$

[B] $\omega \propto \frac{1}{\tau}$

[C] $\omega \propto \sqrt{\tau}$

[D] $\omega \propto \sqrt{\frac{1}{\tau}}$

7. The displacement y of a particle executing a certain periodic motion is given by $y=4\cos^2\left(\frac{1}{2}t\right)\sin(1000t)$.

This expression may be considered to be the superposition of n independent harmonic motions. Then n is equal to

[A] 2

[B] 3

[C] 4

[D] 5

8. A transparent sphere of radius R and refractive index μ is kept in air. At what distance from the surface of the sphere should a point object be placed so as to form a real image at the same distance from the sphere?

[A] R/μ

[B] μR

[C] $R/(\mu - 1)$

[D] $R/(\mu + 1)$

9. A ray of light is incident normally on one of the faces of a prism of apex angle 30° and refractive index $\sqrt{2}$. The angle of deviation of the ray is

[A] 0°

[B] 12.5°

[C] 15°

[D] 22.5°

10. In a compound microscope, maximum magnification is obtained when the final image

[A] is formed at infinity

[B] is formed at the least distance of distinct vision

[C] coincides with the object

[D] coincides with the objective lens

11. In a Young's double slit experiment, the central bright fringe can be identified

[A] as it has greater intensity than the other bright fringes

[B] as it is wider than the other bright fringes

[C] as it is narrower than the other bright fringes

[D] by using white light instead of monochromatic light

12. A charge q is placed at the centre of the line joining two equal charges Q. The system of the three charges will be in equilibrium, if q is equal to

[A] $-Q/2$

[B] $-Q/4$

[C] $+Q/4$

[D] $+Q/2$

13. Three-point charges are placed at the corners of the equilateral triangle. Assume that only electrostatic forces are acting.

[A] The system will be in equilibrium if the charges have the same magnitude but not all have the same sign

[B] The same system will be in equilibrium if the charges have different magnitudes and not all have the same sign

[C] The system will be in equilibrium if the charges rotate about the centre of the triangle

[D] The system can never be in equilibrium

14. All charges on a conductor must reside only on its outer surface. This statement is true

[A] in all cases

[B] for spherical conductors only (both solid and hollow)

[C] for hollow spherical conductors only

[D] for conductors which do not have any sharp points or corners

15. A point charge Q is placed outside a hollow spherical conductor of radius R, at a distance $r\,(r > R)$ from its centre C. If k is dielectric constant, then the field at C due to the induced charges on the conductor is

[A] zero

[B] $kQ/(r-R)^2$

[C] kQ/r^2, directed towards Q

[D] kQ/r^2, directed away from Q

16. A solid sphere of radius R is charged uniformly. At what distance from its surface is the electrostatic potential half of the potential at the centre?

[A] R

[B] $R/2$

[C] $R/3$

[D] $2R$

17. The resistance of a metallic conductor increases with temperature due to

[A] change in carrier density

[B] change in the dimensions of the conductor

[C] increase in the number of collisions among the carriers

[D] increase in the rate of collisions between the carriers and the vibrating atoms of the conductor

18. A straight conductor of uniform cross-section carries a current I. Let s = specific charge of an electron. The momentum of all the free electrons per unit length of the conductor, due to their drift velocities only, is

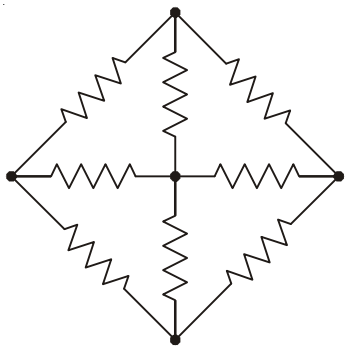
[A] Is

[B] I/s

[C] $\sqrt{\frac{I}{s}}$

[D] $(I/s)^2$

19.



In the network shown above, each resistance is equal to R. The equivalent resistance between diagonally opposite corners is

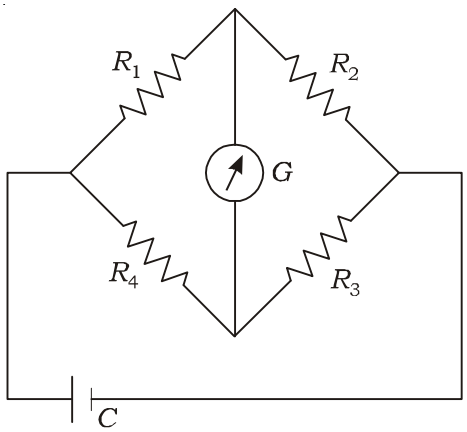
[A] R

[B] $R/3$

[C] $2R/3$

[D] $4R/3$

20.



The Wheatstone bridge shown in the above figure is balanced. If the positions of the cell C and the galvanometer G are now interchanged, then G will show zero deflection

[A] in all cases

[B] only if all the resistances are equal

[C] only if $R_1 = R_3$ and $R_2 = R_4$

[D] only if $R_1/R_3 = R_2/R_4$

21. An ammeter and a voltmeter are joined in series to a cell. Their readings are A and V respectively. If a resistance is now joined in parallel with the voltmeter, then

[A] both A and V will increase

[B] both A and V will decrease

[C] A will decrease, V will increase

[D] A will increase, V will decrease

22. If E and B denote electric and magnetic fields respectively, then which of the following is dimensionless?

[A] $\sqrt{\mu_0\varepsilon_0}\,\dfrac{E}{B}$

[B] $\mu_0 B_0\,\dfrac{E}{B}$

[C] $\mu_0\varepsilon_0\left(\dfrac{B}{E}\right)^2$

[D] None of the above

23. A vertical wire carries a current upwards. The magnetic field at a point due north of the wire is directed

[A] upward

[B] due south

[C] due west

[D] due east

24. Two coils of inductances L_1 and L_2 are linked such that their mutual inductance is M, then

[A] $M = L_1 + L_2$

[B] $M = 1/2(L_1 + L_2)$

[C] the maximum value of M is $(L_1 + L_2)$

[D] the maximum value of M is $\sqrt{L_1 L_2}$

25. A charged capacitor discharges through a resistance R with time constant τ. The two are now placed in series across an AC source of angular frequency $\omega = 1/\tau$. The impedance of the circuit will be

[A] $\dfrac{R}{\sqrt{2}}$

[B] R

[C] $\sqrt{2}R$

[D] $2R$

26. An inductance L, a capacitance C and a resistance R may be connected to an AC source of angular frequency ω, in three different combinations of RC, RL and LC in series. Assume that $\omega L = 1/\omega C$. The power drawn by the three combinations are P_1, P_2 and P_3 respectively. Then

[A] $P_1 > P_2 > P_3$

[B] $P_1 = P_2 > P_3$

[C] $P_1 = P_2 < P_3$

[D] $P_1 = P_2 = P_3$

27. If a generalised co-ordinate has the dimensions of momentum, then the generalised velocity will have the dimension of

[A] velocity

[B] acceleration

[C] force

[D] torque

28. For an electrical circuit comprising an inductance L and capacitance C, charged to q coulombs and the current flowing in the circuit is I amperes, Lagrangian can be represented as

[A] $L\dot{q}^2 - q^2 / C$

[B] $1/2\ L\dot{q}^2 - 1/2\ q^2 C$

[C] $1/2\ L\dot{q}^2 - 1/2\ q^2 / C$

[D] $1/2\ L\dot{q}^2 + 1/2\ q^2 / C$

29. The change in the internal energy of the gas is directly proportional to

[A] the change in volume

[B] the change in pressure

[C] the change in temperature

[D] None of the above

30. Specific heats of a gas at constant volume C_v and at constant pressure C_p are related as

[A] $C_p / C_v = 1 - R / J$

[B] $C_p - C_v = R / J$

[C] $C_p - C_v = J / R$

[D] $C_p + C_v = R / J$

31. A reversible heat engine can have 100% efficiency, if the temperature of sink is

[A] less than that of source

[B] equal to that of source

[C] 0 °C

[D] 0 K

32. The work done W during an isothermal process in which the gas expands from an initial volume V_1 to a final volume V_2 is given by (R = Gas constant, T = Temperature)

[A] $R(V_2 - V_1)\log_e(T_1 / T_2)$

[B] $R(T_2 - T_1)\log_e(V_2 / V_1)$

[C] $RT\log_e(V_2 / V_1)$

[D] $RT\ \log_e(V_1 / V_2)$

33. Which of the following Maxwell's relation leads to Clausius-Clapeyron equation?

[A] $\left(\frac{\partial T}{\partial V}\right)_S = -\left(\frac{\partial P}{\partial V}\right)_V$

[B] $\left(\frac{\partial S}{\partial V}\right)_T = \left(\frac{\partial P}{\partial T}\right)_V$

[C] $\left(\frac{\partial T}{\partial P}\right)_S = \left(\frac{\partial V}{\partial S}\right)_P$

[D] $\left(\frac{\partial V}{\partial T}\right)_P = -\left(\frac{\partial S}{\partial P}\right)_T$

34. A given amount of heat cannot be completely converted into work. However, it is possible to convert a given amount of work completely into heat. This statement results from the

[A] zeroth law of thermodynamics

[B] first law of thermodynamics

[C] second law of thermodynamics

[D] third law of thermodynamics

35. Given for solar radiation λ_m = 4753 Å and Wien's constant $b = 2.898 \times 10^{-3}$ m-K. The surface temperature of the sun is

[A] 6790 K

[B] 6097 K

[C] 6907 K

[D] 6970 K

36. When applied to solar radiation, Planck's law reduces to Wien's law in the

[A] ultraviolet region

[B] microwave region

[C] infrared region

[D] visible region

37. In a gas, the relative magnitudes of the most probable speed (v_p), the average speed $\bar{v}$ and the root mean square speed ($v_{\text{r.m.s.}}$) of the molecule are

[A] $v_{\text{r.m.s.}} > \bar{v} > v_p$

[B] $\bar{v} > v_{\text{r.m.s.}} > v_p$

[C] $v_p > \bar{v} > v_{\text{r.m.s.}}$

[D] $v_p > v_{\text{r.m.s.}} > \bar{v}$

38. Which of the following is the ***correct*** statement?

[A] Only charged particles in motion are accompanied by matter waves

[B] Any particle in motion whether charged or uncharged is accompanied by matter waves

[C] No particle whether at rest or in motion is ever accompanied by matter waves

[D] Only subatomic particles in motion are accompanied by matter waves

39. The expectation value of momentum p is

[A] $\int \psi^* \psi(-i\hbar\nabla)\, d\tau$

[B] $\int \psi^* \psi(i\hbar\nabla)\, d\tau$

[C] $\int \psi^* (-i\hbar\nabla)\psi\, d\tau$

[D] $\int \psi(-i\hbar\nabla)\psi^*\, d\tau$

40. The uncertainty relation holds for

[A] microscopic particles only

[B] macroscopic particles only

[C] both microscopic and macroscopic particles

[D] neither microscopic nor macroscopic particles

41. The duration of radar pulse is 10^{-6} sec. The uncertainty in its energy would be

[A] 0

[B] 1.05×10^{-35} J

[C] 1.05×10^{-28} J

[D] 1.05×10^{-21} J

42. Which of the following wave functions can be solutions of Schrödinger's equation for all values of x?

[A] $\psi = A \sec x$

[B] $\psi = A \tan x$

[C] $\psi = Ae^{x^2}$

[D] $\psi = Ae^{-x^2}$

43. The degree of degeneracy for three-dimensional isotropic harmonic oscillator is

[A] n^2

[B] $2n + 1$

[C] $\frac{1}{2}(2n+1)(2n+2)$

[D] $\frac{1}{2}(n+1)(n+2)$

44. The wave function of a particle is given by $\psi = c\exp(-x^2\alpha^2)$, $-\infty < x < +\infty$. Where c and α are constants. The probability of finding the particle in the region $0 < x < \infty$ is

[A] 1

[B] 1/3

[C] 1/2

[D] 1/4

45. Which of the following operators is linear?

[A] $\hat{c}\,u = u^2$

[B] $\hat{D}\,u = \frac{dU}{dx}$

[C] $\hat{E}\,u = \frac{1}{U}$

[D] None of the above

46. The differential form of Gauss's law in CGS system is

[A] $\vec{\nabla} . \vec{E} = \frac{\rho}{\varepsilon_0}$

[B] $\varepsilon_0 \text{ div } \vec{E} = \rho$

[C] $\vec{\nabla} . \vec{E} = 4\pi\rho$

[D] $\text{div } \vec{E} = 4\pi\sigma$

47. The Laplace's equation in CGS Gaussian system is

[A] $\nabla^2 V = -\frac{\rho}{\varepsilon_0}$

[B] $\nabla^2 V = -4\pi\rho$

[C] $\nabla^2 V = -4\pi\sigma$

[D] $\nabla^2 V = 0$

48. The displacement current arises due to

[A] positive charges only

[B] negative charges only

[C] both positive and negative charges

[D] time varying electric field

49. "The work done on the charges by the electromagnetic force is equal to the decrease in energy stored in the field, less the energy which flowed out through the surface." This statement represents

[A] Gauss's theorem

[B] Stokes' theorem

[C] Gauss's divergence theorem

[D] Poynting's theorem

50. A monochromatic electromagnetic wave means

[A] the field strength at a point varies with time according to sine or cosine function

[B] the wave always travels in the same direction

[C] electric field vector lies in one direction only

[D] magnetic field vector must be parallel to the direction of propagation

51. Compute the fractional change in volume of a glass slab, when subjected to a hydraulic pressure of 10 atm (bulk modulus of glass is 37×10^9 Pascal).

[A] 2.74×10^{-5}

[B] 27.4×10^{-5}

[C] 2.74×10^{-8}

[D] 2.74×10^{-10}

52. A steel wire of length 4.7 m and cross-section 3×10^{-5} m^2 stretches by the same amount as a copper wire of length 3.5 m and cross-section 4×10^{-5} m^2 under a given load. What is the ratio of Young's modulus of steel to that of copper?

[A] 1.79

[B] 2

[C] 2.5

[D] 4

53. Water flows through a horizontal pipe of varying area of cross-section at the rate of 10 cubic metre per minute. Determine the velocity of water at a point where radius of pipe is 10 cm.

[A] 5 ms^{-1}

[B] 10 ms^{-1}

[C] 20 ms^{-1}

[D] 25 ms^{-1}

54. Two springs have force constants k_1 and k_2 ($k_1 > k_2$). On which spring is more work done, if they are stretched by the same force?

[A] $W_2 > W_1$

[B] $W_2 < W_1$

[C] $W_2 = W_1$

[D] None of the above

55. A particle of mass m moving with velocity v collides with a stationary particle of mass $2m$. After collision, the speed of the combined particle is

[A] $v/2$

[B] $2v$

[C] $v/3$

[D] $3v$

56. What is the rotational kinetic energy of the earth about its own axis? Mass of the Earth = 6×10^{24} kg and radius of the Earth = 6400 km.

[A] 2.6×10^{29} J

[B] 5×10^{29} J

[C] 7×10^{29} J

[D] 10^{30} J

57. A torque of 2×10^{-4} Nm is applied to produce an angular acceleration of 4 rad s^{-2} in a rotating body. What is the moment of inertia of the body?

[A] 0.5×10^{-4} kg m^2

[B] 5×10^{-4} kg m^2

[C] 5×10^{-2} kg m^2

[D] 5 kg m^2

58. What will be the duration of the day, if earth suddenly shrinks to 1/64 of its original volume, mass remaining the same?

[A] 3 hr

[B] 1.5 hr

[C] 2 hr

[D] 6 hr

59. At what height above the Earth's surface, the value of g is same as in a mine 80 km deep?

[A] 40 km

[B] 80 km

[C] 20 km

[D] 100 km

60. Calculate the escape velocity for an atmospheric particle 1600 km above the Earth's surface, given that the radius of the Earth is 6400 km and acceleration due to gravity on the surface of Earth is 9.8 ms^{-2}.

[A] 10 kms^{-1}

[B] 100 kms^{-1}

[C] 50 kms^{-1}

[D] 500 kms^{-1}

61. The distances of two planets from the Sun are 10^{13} m and 10^{12} m respectively. Find the ratio of time periods of the two planets.

[A] $\sqrt{10}$

[B] $10\sqrt{10}$

[C] $5\sqrt{10}$

[D] 10

62. What is the dimensional formula for coefficient of viscosity?

[A] $[ML^{-1}\ T^{-1}]$

[B] $[ML^{-1}\ T^{-2}]$

[C] $[ML^{-2}\ T^{-1}]$

[D] $[ML^{-2}\ T^{-2}]$

63. The error in the measurement of radius of a sphere is 2%. What would be the error in the volume of the sphere?

[A] 9%

[B] 6%

[C] 12%

[D] 2%

64. The electron in a hydrogen atom with a radius equal to first Bohr radius has a velocity equal to

[A] $C/5$

[B] $C/10$

[C] $C/137$

[D] $C/8$

65. The kinetic energy of an electron in atom is

[A] half of its potential energy

[B] twice of its potential energy

[C] equal to its potential energy

[D] thrice of its potential energy

66. Which of the following has the order of increasing energy?

[A] $^1D_2, ^3D_2, ^3F_2$

[B] $^3F_2, ^3D_2, ^1D_2$

[C] $^3D_2, ^3F_2, ^1D_2$

[D] $^1D_2, ^3F_2, ^3D_2$

67. Which of the following interactions causes the non-conservation of orbital angular momentum of the electrons in an atom?

[A] Spin-orbit interaction

[B] Spin-spin interaction

[C] Electrostatic interaction between electrons

[D] Electrostatic interaction between electrons and nucleus

68. The sodium doublet lines are due to transition from $^2P_{3/2}$ and $^2P_{1/2}$ levels to $^2S_{1/2}$ level. On application of a weak magnetic field, the total number of allowed transitions becomes

[A] 4

[B] 6

[C] 8

[D] 10

69. In Zeeman effect, a spectral line, upon the application of magnetic field, splits into more than three components because of

[A] energy levels split into $2J + 1$ components

[B] in magnetic field $\Delta Mj = 0, \pm 1$ no longer holds

[C] variation of Lande *g* factor from one level to another

[D] None of the above

70. Which one of the following statements concerning the Compton effect is ***not correct***?

[A] The wavelength of the scattered photon is greater than or equal to the wavelength of the incident photon

[B] The electrons can acquire a kinetic energy equal to the energy of incident photon

[C] The energy of the incident photon equals to the kinetic energy of the electron plus the energy of the scattered photon

[D] The kinetic energy acquired by the electron is largest when the incident and scattered photons move in opposite direction

71. In an X-ray experiment, when we apply a voltage across an X-ray tube we find that there is a definite short wavelength limit to the continuous X-ray spectrum. This limit

[A] depends upon the voltage across the tube only or is independent of the material of target

[B] depends on the voltage across the tube and also depends on the material of the target

[C] depends upon the material of target only

[D] depends upon the ionisation potential of target atom

72. The Bohr magneton is of the order of

[A] 10^{-23} erg/gauss

[B] 10^{-20} erg/gauss

[C] 10^{-25} erg/gauss

[D] None of the above

73. The NMR spectrum of ethanol comprises to three branches of spectral-lines in the bunch corresponding to CH_2 group is

[A] 1

[B] 2

[C] 3

[D] 4

74. All vibrations producing a change in the electric dipole moment of molecule yield

[A] Raman spectra

[B] Infrared spectra

[C] Ultraviolet spectra

[D] X-ray spectra

75. Calculate the velocity of a meson having kinetic energy equal to 4 MeV. (Given that the rest mass of a μ-meson is about 106 MeV)

[A] 0.28 *c*

[B] 0.56 *c*

[C] 0.84 *c*

[D] 0.98 *c*

76. The binding energy per nucleon of helium nucleus is 7 MeV and that of deuteron is 1 MeV, then

[A] helium nucleus is more stable

[B] deuteron nucleus is more stable

[C] both helium and deuteron nuclei are less stable

[D] both helium and deuteron nuclei are equally stable

77. The asymmetry terms in the Weizsäcker semi-empirical mass formula is because of

[A] non-spherical shape of the nucleus

[B] non-zero spin of nucleus

[C] unequal number of protons and neutrons inside the nucleus

[D] odd number of protons inside the nucleus

78. Nuclear forces are

[A] spin dependent and have no non-central part

[B] spin dependent and have a non-central part

[C] spin independent and have no non-central part

[D] spin independent and have a non-central part

79. If the frequency of incident light on a metal surface is doubled, then the kinetic energy of the photo-electrons will be

[A] doubled

[B] halved

[C] remained same

[D] None of the above

80. When light of wavelength 400 nm is incident on the cathode of a photocell, the stopping potential recorded is 6 volt. If the wavelength of the incident light is increased to 600 nm, then the new stopping potential will be

[A] 5 volt

[B] 3 volt

[C] 8 volt

[D] 2 volt

81. The current gain for common emitter amplifier is 59. If the emitter current is 6 mA, then the collector current is

[A] 5.9 mA

[B] 8 mA

[C] 10 mA

[D] 3.5 mA

82. The input resistance of a transistor is 1000 ohm. On changing its base current by 10 μA, the collector current increases by 2 mA. If a load resistance of 5 kilo ohm is used in the circuit, then the current gain is

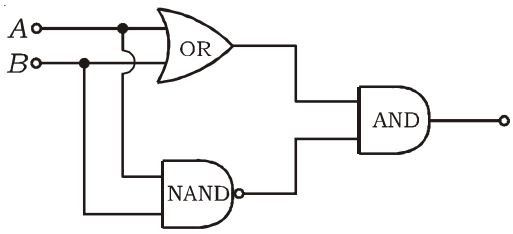
[A] 200

[B] 400

[C] 600

[D] 800

83. What is the output in the following circuit, if the inputs are (1,1) and (1,0)?



[A] 0 and 1

[B] 1 and 0

[C] 1 and 1

[D] None of the above

84. Two amplifiers are connected one after the other in series. The first amplifier has a voltage gain of 10 and the second has a voltage gain of 20. If the input signal is 0.01 V, then calculate the output a.c. signal.

[A] 2 V

[B] 4 V

[C] 6 V

[D] 8 V

85. A sinusoidal voltage amplitude modulates another sinusoidal voltage of amplitude 2 kV to result in two sidebands, each of amplitude 200 V. The modulation index is

[A] 0.2

[B] 0.4

[C] 0.6

[D] 0.8

86. The TV signals have a bandwidth of 4.7 MHz. The number of channels that can be accommodated in a bandwidth of 4700 GHz is

[A] 10^9

[B] 10^6

[C] 10^{12}

[D] 10^3

87. If $\frac{d^2y}{dx^2} - 8\frac{dy}{dx} + 16y = 0$, then y = ?

[A] $(C_1 + C_2x)e^{4x}$

[B] $(C_1 + C_2)e^{4x}$

[C] C_1e^{4x}

[D] None of the above

88. If $\frac{d^2y}{dx^2} - 8\frac{dy}{dx} = 0$, the order and degree of the above equation are respectively

[A] 1 and 2

[B] 2 and 1

[C] 2 and 2

[D] 1 and 1

89. The value of the following determinant

$$\begin{vmatrix} 5^2 & 5^3 & 5^4 \\ 5^3 & 5^4 & 5^5 \\ 5^4 & 5^6 & 5^7 \end{vmatrix}$$

is

[A] 5^2

[B] 0

[C] 5^{13}

[D] 5^9

90. Find $\iint \vec{F}.\hat{n}.dS$ where

$\vec{F} = (2x + 3z)\hat{i} - (xz + y)\hat{j} + (y^2 + 2z)\hat{k}$

and S is the surface of the sphere having centre (3,–1,2) and radius 3.

[A] 24π

[B] 36π

[C] 12π

[D] 108π

91. Which one of the following is a solution of $\frac{d^2u(x)}{dx^2} = k^2u(x)$: for k real?

[A] e^{-kx}

[B] sin kx

[C] cos kx

[D] sinh kx

92. Which one of the following is a universal logic gate?

[A] AND

[B] NOT

[C] OR

[D] NAND

93. A medium ($\varepsilon_r > 1, \mu_r = 1, \sigma > 0$) is semi-transparent to an electromagnetic wave when

[A] conduction current >> displacement current

[B] conduction current << displacement current

[C] conduction current = displacement current

[D] both conduction current and displacement current are zero

94. Choose the ***correct*** statement from the following :

[A] Silicon is a direct band gap semiconductor

[B] Conductivity of metals decreases with increase in temperature

[C] Conductivity of semiconductor decreases with increase in temperature

[D] Gallium arsenide is an indirect band gap semiconductor

95. The donor concentration in a sample of *n*-type silicon is increased by a factor of 100. Assuming the sample to be non-degenerate, the shift in the Fermi level (in meV) at 300 K is

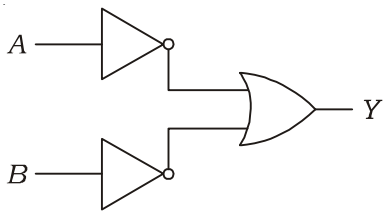
[A] 115 meV

[B] 115 eV

[C] 215 meV

[D] 215 eV

96.



The above combination of logic gates represents the operation

[A] OR

[B] NAND

[C] AND

[D] NOR

97. In a semiconductor, the ratio of the effective mass of hole to electron is 2 : 11 and the ratio of average relaxation time for hole to electron is 1 : 2. The ratio of the mobility of the hole to electron is

[A] 4 : 9

[B] 4 : 11

[C] 9 : 4

[D] 11 : 4

98. An atom with non-zero magnetic moment has an angular momentum of magnitude $\sqrt{12}\,\hbar$. When a beam of such atoms is passed through a Stern-Gerlach apparatus, how many beams does it split into?

[A] 3

[B] 9

[C] 25

[D] 7

99. The angle of incidence for which the reflected and refracted rays are perpendicular to each other is called

[A] Brewster's angle

[B] critical angle

[C] polarization angle

[D] double refraction angle

100. If a body loses half of its velocity on penetrating 3 cm in a wooden block, then how much will it penetrate more before coming to rest?

[A] 1 cm

[B] 5 cm

[C] 3 cm

[D] 2 cm

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POLITICAL SCIENCE

Question Booklet Number

Series : a

Time : 3 Hours **Maximum Marks : 200**

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1. Who is known as the 'Father of Political Science'?

[A] Plato

[B] Aristotle

[C] Machiavelli

[D] Hobbes

2. Which book was written by Niccoló Machiavelli?

[A] *Leviathan*

[B] *The Republic*

[C] *The Prince*

[D] *Politics*

3. Which political ideology emphasizes the abolition of private property and class struggle?

[A] Liberalism

[B] Socialism

[C] Conservatism

[D] Fascism

4. Kautilya's famous work on political science and economics is called

[A] *Arthashastra*

[B] *Manusmriti*

[C] *Ramayana*

[D] *Mahabharata*

5. According to Plato, the ideal State is ruled by

[A] the majority

[B] the philosopher king

[C] the military

[D] the meritocrats

6. Sri Aurobindo emphasized the integration of

[A] religion and State

[B] spirituality and politics

[C] economy and governance

[D] tradition and modernity

7. M. K. Gandhi's political philosophy was mainly based on

[A] armed struggle

[B] non-violence and truth (Satyagraha)

[C] Marxist revolution

[D] monarchical rule

8. M. N. Roy is best known for his theory of

[A] communism

[B] radical humanism

[C] anarchism

[D] fascism

9. According to Karl Marx, the proletariat is the

[A] ruling class

[B] working class

[C] landowners

[D] capitalists

10. The term 'Politics' is derived from

[A] Latin

[B] French

[C] Greek

[D] Sanskrit

11. Which of the following best describes the scope of Political Science?

[A] Study of human evolution

[B] Study of production and distribution

[C] Study of State, Government, political behavior and institutions

[D] Study of law and legal systems

12. How is Political Science related to History?

[A] Political Science uses historical events to understand current political systems

[B] History deals only with the future

[C] Political Science ignores historical context

[D] They are completely unrelated

13. Which of the following is a traditional approach to the study of Political Science?

[A] Behaviouralism

[B] Structural-functionalism

[C] Philosophical approach

[D] Systems theory

14. The systems approach in Political Science was developed by

[A] Gabriel Almond

[B] Harold Lasswell

[C] Max Weber

[D] David Easton

15. The Social Contract Theory suggests that the State was formed

[A] through religious institutions

[B] by conquest and force

[C] by voluntary agreement among people

[D] by hereditary succession

16. According to Marxist theory, the State originated as

[A] a moral institution

[B] a divine institution

[C] an instrument of class oppression

[D] a product of a social contract

17. Rights are best defined as

[A] powers given by the ruler

[B] privileges of the upper class

[C] claims recognized and protected by the State

[D] duties imposed on citizens

18. Liberty primarily means

[A] absence of any restrictions

[B] freedom to do whatever one wants

[C] absence of arbitrary restraint and presence of rational control

[D] freedom from duties

19. The rule of law implies

[A] rule by elected leaders

[B] rule according to the will of the king

[C] all are equal before the law

[D] law is made by police

20. According to John Rawls, justice is

[A] the will of the strongest

[B] the fair distribution of social status

[C] fairness in the distribution of resources and opportunities

[D] egalitarian institutional order and efficacy

21. Political culture refers to

[A] the economic structure of a country

[B] the military organization of a State

[C] the set of attitudes, beliefs and sentiments that shape political behavior

[D] the religious practices of a society behavior

22. Political socialization refers to

[A] political reforms by the Government

[B] the process through which individuals acquire political values and beliefs

[C] the collapse of political systems

[D] the military training of citizens' beliefs

23. Which of the following is a key principle of democracy?

[A] Centralized power

[B] Free and fair elections

[C] Hereditary rule

[D] Rule by military

24. Which of the following best defines Comparative Government and Politics?

[A] Study of economic policies only

[B] Study of political institutions and behavior across different nations

[C] Study of local Government structures only

[D] Study of international treaties

25. The nature of Comparative Politics is

[A] normative and speculative only

[B] empirical and analytical

[C] focused only on Western democracies

[D] limited to studying Constitutions

26. The traditional method of studying Comparative Politics is primarily focused on

[A] quantitative data and statistics

[B] normative and descriptive analysis of political institutions

[C] behavioral patterns of political actors

[D] experimental research

27. The modern approach in Comparative Politics is also known as the

[A] normative approach

[B] behavioral approach

[C] legal-institutional approach

[D] philosophical approach

28. Who among the following scholars is considered as the pioneer of the behavioral revolution in Comparative Politics?

[A] Gabriel Almond

[B] Lucian Pye

[C] Peter Calvocoressi

[D] Max Weber

29. Which of the following countries has a presidential system?

[A] United Kingdom

[B] India

[C] United States

[D] Canada

30. Federal Government is characterized by

[A] centralized power in one authority

[B] division of powers between Central and Regional Governments

[C] rule by a monarch

[D] absence of local Governments

31. A Unitary Government means

[A] sovereign power is concentrated in a Central Government

[B] multiple independent States share power

[C] the executive and legislature are separate

[D] power is shared equally between Regions and Central Government

32. The presidential system is characterized by

[A] the fusion of powers between executive and legislature

[B] the separation of powers between the executive and legislature

[C] no elections

[D] a monarch as the executive

33. Which of the following is ***not*** a method of political representation?

[A] Direct representation

[B] Indirect representation

[C] Proportional representation

[D] Authoritarian representation

34. What is the main purpose of an independent Election Commission?

[A] To conduct party campaigns

[B] To ensure free and fair elections

[C] To choose candidates for political parties

[D] To write election laws

35. Which of the following is ***not*** a characteristic of a free and fair election?

[A] Universal adult suffrage

[B] Secret ballot

[C] Use of coercion to influence voters

[D] Equal opportunity for all candidates

36. The judiciary in China is primarily controlled by

[A] The Communist Party of China

[B] The President of China

[C] The Prime Minister

[D] The National People's Congress

37. The doctrine of judicial review was established in the USA by the case

[A] *Marbury* vs. *Madison*

[B] *Brown* vs. *Board of Education*

[C] *Roe* vs. *Wade*

[D] *Dred Scott* vs. *Sandford*

38. The UK's highest court replaced which of the following previous judicial bodies in 2009?

[A] The House of Lords

[B] The Privy Council

[C] The Supreme Court of England

[D] The High Court

39. The year 1858 is significant in Indian constitutional history because

[A] the Indian Constitution was adopted

[B] the British Crown took over the control of India from the East India Company

[C] the first Constituent Assembly was formed

[D] India gained independence

40. The Constituent Assembly of India was established in

[A] 1947

[B] 1935

[C] 1946

[D] 1950

41. Who was the Chairman of the Drafting Committee of the Indian Constitution?

[A] Jawaharlal Nehru

[B] B. R. Ambedkar

[C] Sardar Patel

[D] Rajendra Prasad

42. The Indian Constitution is considered a/an

[A] rigid Constitution only

[B] flexible Constitution only

[C] partly rigid and partly flexible

[D] unwritten Constitution

43. The term 'Sovereign' in the Preamble means

[A] India is ruled by a king

[B] India has supreme authority internally and externally

[C] India is dependent on another country

[D] India is a federation

44. Which part of the Constitution elaborates on the Directive Principles of State Policy reflecting the socialist ideology?

[A] Part—III

[B] Part—IV

[C] Part—V

[D] Part—VI

45. The term 'Republic' in the Preamble means that

[A] the head of the State is a hereditary monarch

[B] the head of the State is elected and not hereditary

[C] there is no head of the State

[D] the head of the State is appointed by foreign powers

46. Which of the following is ***not*** a Fundamental Right?

[A] Right to Equality

[B] Right to Freedom of Speech and Expression

[C] Right to Property (as a Fundamental Right)

[D] Right against Exploitation

47. Fundamental Duties were added to the Constitution by

[A] The Original Constitution in 1950

[B] The 42nd Amendment Act, 1976

[C] The 44th Amendment Act, 1978

[D] The 73rd Amendment Act, 1992

48. Directive Principles of State Policy are

[A] justiciable and enforceable by courts

[B] non-justiciable guidelines for the Government

[C] the rights granted to citizens

[D] the duties of the judiciary

49. The Directive Principles aim to establish

[A] a welfare State

[B] a theocratic State

[C] a capitalist State

[D] an authoritarian regime

50. Which Article of the Constitution imposes Fundamental Duties on citizens?

[A] Article 42

[B] Article 51A

[C] Article 370

[D] Article 356

51. The Supreme Court has ruled that the State must try to harmonize the implementation of

[A] Fundamental Rights and Fundamental Duties

[B] Directive Principles and Fundamental Rights

[C] Fundamental Duties and Directive Principles

[D] Fundamental Rights and electoral laws

52. The 86th Amendment provided for

[A] Right to Education as a Fundamental Right

[B] Women's reservation in the Parliament

[C] Creation of the National Commission for Minorities

[D] Goods and Services Tax (GST) implementation

53. The Constitution can be amended by

[A] a simple majority in the Parliament

[B] a special majority in the Parliament and in some cases ratification by States

[C] the President alone

[D] a referendum

54. One of the major challenges to nation building in India was

[A] lack of natural resources

[B] regionalism and linguistic diversity

[C] absence of democracy

[D] external invasion only

55. The Planning Commission was replaced by which institution in 2015?

[A] NITI Aayog

[B] Finance Commission

[C] National Development Council

[D] Economic Advisory Council

56. Which of the following is an emerging trend in Centre-State relations?

[A] Increasing autonomy of States

[B] Declining role of States in policy making

[C] Centralisation of power in the Centre

[D] States abolishing their legislatures

57. The concept of 'quasi-federalism' in India refers to

[A] equal power-sharing between Centre and States

[B] strong Centre with limited State autonomy

[C] no States, only one Government

[D] complete independence of States from Centre

58. Who is the presiding officer of the Lok Sabha?

[A] The President of India

[B] The Prime Minister

[C] The Speaker of the Lok Sabha

[D] The Chief Justice of India

59. The President of India can be removed by

[A] the Lok Sabha only

[B] the Rajya Sabha only

[C] Impeachment by the Parliament

[D] the Supreme Court decision

60. The Supreme Court of India was established in

[A] 1947

[B] 1950

[C] 1952

[D] 1960

61. Which court has the power of judicial review in India?

[A] The High Courts only

[B] The Supreme Court only

[C] Both the Supreme Court and High Courts

[D] The District Courts

62. Which of the following is ***not*** a function of political parties?

[A] Contesting elections

[B] Formulating public policies

[C] Implementing laws

[D] Representing public opinion

63. Pressure groups primarily aim to

[A] form Government

[B] influence Government policies without contesting elections

[C] draft the Constitution

[D] conduct elections

64. The anti-defection law was introduced to prevent

[A] political instability caused by elected members switching parties

[B] corruption in the Government

[C] judicial interference in politics

[D] use of money power in elections

65. The first coalition Government at the Centre in India was formed in

[A] 1962

[B] 1977

[C] 1989

[D] 1996

66. What is the primary objective of the Special Intensive Revision (SIR) of electoral rolls conducted in States like Bihar and Delhi?

[A] To introduce Electronic Voting Machines (EVMs)

[B] To update and verify voter information to prevent duplication and ensure accuracy

[C] To implement mobile voting applications

[D] To conduct voter education campaigns

67. What significant electoral reform did the 106th Constitutional Amendment (2023) introduce?

[A] Introduction of proportional representation

[B] Reservation of 33% of seats in the Lok Sabha and State assemblies for women

[C] Abolition of the Rajya Sabha

[D] Implementation of electronic voting nationwide

68. When did the Cold War officially come to an end?

[A] 1985

[B] 1991

[C] 1979

[D] 2000

69. The end of bipolarity in world politics resulted in

[A] a unipolar world dominated by the United States

[B] emergence of two superpowers

[C] Cold War restarting

[D] increased influence of the Soviet Union

70. Which international financial institution is headquartered in Washington D. C., symbolizing US influence over the global economy?

[A] World Trade Organization (WTO)

[B] International Monetary Fund (IMF)

[C] United Nations (UN)

[D] World Bank

71. Which international organization primarily deals with regulating global trade and resolving trade disputes?

[A] World Bank

[B] International Monetary Fund (IMF)

[C] World Trade Organization (WTO)

[D] United Nations Development Programme (UNDP)

72. Which international agreement aims to reduce the emission of greenhouse gases to combat climate change?

[A] The Kyoto Protocol

[B] The Montreal Protocol

[C] The Geneva Convention

[D] The Paris Peace Accords

73. The term 'biodiversity' refers to the

[A] variety of animals only

[B] variety of plants only

[C] variety of living organisms in an ecosystem

[D] types of soil in a region

74. Which of the following is a key feature of economic globalization?

[A] Nationalization of industries

[B] Expansion of international trade and investment

[C] Reduction in global communication

[D] Strict border controls

75. Which consequence of globalization has led to environmental concerns worldwide?

[A] Increased cultural diversity

[B] Global spread of technology

[C] Overexploitation of natural resources and pollution

[D] Strengthened national borders

76. What does 'foreign policy' primarily refer to?

[A] Domestic law-making process

[B] A country's strategy in dealing with other nations

[C] Economic policies within a country

[D] Cultural exchange programs

77. Which term best describes the core goals that a country seeks to achieve in its foreign relations?

[A] National interest

[B] Cultural diplomacy

[C] Bilateral trade

[D] Political ideology

78. Which of the following is a basic principle of foreign policy?

[A] Expansionism

[B] Sovereignty and territorial integrity

[C] Isolationism

[D] Colonialism

79. The main goal of the Non-Aligned Movement (NAM) was to

[A] align with the US against the Soviet Union

[B] remain neutral and not formally align with any major power bloc

[C] support communism worldwide

[D] promote colonialism

80. The United States and India signed the Landmark Agreement in 2008 related to

[A] space exploration

[B] civil nuclear cooperation

[C] trade tariffs

[D] climate change

81. Which country is considered as India's 'all-weather friend' and long-term defense partner?

[A] United States

[B] Russia

[C] China

[D] Pakistan

82. Which treaty governs the Indus River water sharing between India and Pakistan?

[A] Tashkent Agreement

[B] Indus Waters Treaty

[C] Shimla Agreement

[D] Lahore Declaration

83. India's foreign policy towards the Middle East is largely influenced by

[A] economic interests and energy security

[B] military alliances only

[C] cultural dominance

[D] colonial legacy

84. The Chabahar port project is a collaboration between India and which country?

[A] Iraq

[B] Iran

[C] Palestine

[D] Saudi Arabia

85. Which of the following best describes India's approach in balancing relations in the Middle East?

[A] Aligning only with Arab States

[B] Maintaining friendly relations with both Arab countries and Israel

[C] Supporting one side in all conflicts

[D] Isolating from Middle East affairs

86. What is Local Self-Government?

[A] A system where the Central Government controls all local affairs

[B] A system of Governance where local authorities manage their own affairs independently

[C] A military governance system at the local level

[D] None of the above

87. Which of the following best describes the nature of Local Self-Government?

[A] Centralized and controlled directly by the State Government

[B] Autonomous and democratic institutions managing local affairs

[C] Military-controlled local administration

[D] None of the above

88. Which of the following is ***true*** about Local Self-Government compared to the State Government?

[A] Local Self-Government has sovereign powers like the State Government

[B] Local Self-Government operates under the supervision of the State Government

[C] Local Self-Government controls the military forces of the region

[D] Local Self-Government is responsible for foreign affairs

89. Who introduced the concept of Local Self-Government in India during British rule?

[A] Lord Curzon

[B] Lord Ripon

[C] Lord Mountbatten

[D] Lord Dalhousie

90. The 73rd Amendment Act of 1992 primarily deals with

[A] urban Local Self-Government

[B] rural Local Self-Government (Panchayati Raj Institutions)

[C] State Government reforms

[D] Central Government restructuring

91. The main purpose of the 74th Amendment Act was to

[A] abolish urban local bodies

[B] provide constitutional recognition and empower urban local bodies

[C] increase the powers of State Governments over cities

[D] centralize urban administration

92. The Assam Frontier Administration of Justice Regulation, 1945 was enacted to

[A] abolish tribal customary laws in frontier areas

[B] provide a formal legal framework for administration and justice in tribal frontier areas

[C] establish direct British military rule in Assam frontier

[D] promote unrestricted migration into tribal areas

93. The Assam Frontier Administration of Justice Regulation, 1945 recognized

[A] only the Indian Penal Code for justice in tribal areas

[B] tribal customary laws alongside formal legal procedures

[C] no laws in tribal areas

[D] Foreign laws for administration

94. The Daying Ering Committee emphasized the importance of

[A] ignoring customary laws in tribal areas

[B] protecting tribal identity and customs while promoting development

[C] encouraging migration of non-tribal people into tribal areas

[D] reducing the powers of local village councils

95. The NEFA Panchayati Raj regulation, 1967 emphasized

[A] complete abolition of traditional councils

[B] integration of traditional tribal Governance with modern Panchayati Raj structures

[C] ignoring tribal customs and laws

[D] direct control by the Central Government without local participation

96. The administrative setup of NEFA in 1964 was under the control of

[A] The Governor of Assam

[B] The Ministry of External Affairs (Government of India)

[C] The Government of Arunachal Pradesh

[D] The British Crown

97. The Arunachal Pradesh Panchayati Raj Act, 1997 was passed to

[A] replace the 73rd Constitutional Amendment Act entirely

[B] adapt Panchayati Raj system to the unique tribal socio-political setup of Arunachal Pradesh

[C] limit the role of local Self-Government

[D] centralize Administrative Control

98. Who among the following was ***not*** a member of Ering Committee constituted in 1964?

[A] Daying Ering

[B] G. P. Sen Choudhury

[C] B. D. Pandey

[D] L. B. Thanga

99. When was the North Eastern Council (NEC) established?

[A] 1947

[B] 1972

[C] 1985

[D] 1997

100. The NEC plays a vital role in improving which sectors in the North Eastern region?

[A] Infrastructure, education, health and industry

[B] Space research only

[C] Urban planning exclusively

[D] Foreign diplomatic missions

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BIOLOGY

Question Booklet Number

Series : a

Time : 3 Hours **Maximum Marks : 200**

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1. Coralloid roots are found in which of the following?

[A] *Ginkgo*

[B] *Gnetum*

[C] *Pinus*

[D] *Cycas*

2. The phylum that includes animals with an exoskeleton and jointed appendages, such as insects and spiders is

[A] Arthropoda

[B] Mollusca

[C] Echinodermata

[D] Annelida

3. During anaerobic respiration in plants, pyruvic acid is

[A] converted to amino acid

[B] converted to ethanol and carbon dioxide

[C] converted to protein

[D] oxidized to water

4. The tendency of an offspring to resemble its parent is known as

[A] epistasis

[B] heredity

[C] codominance

[D] pleiotropy

5. The enzyme catalyzes responsible for nitrogen fixation in symbiotic bacteria like *Rhizobium* is

[A] cellulase

[B] nitrogenase

[C] nitrate reductase

[D] protease

6. _____ is mainly responsible for converting milk to curd.

[A] *E. Coli*

[B] *Azotobacter*

[C] *Lactobacillus*

[D] *Streptococcus*

7. The wobble hypothesis explains the base pairing of

[A] DNA-tRNA

[B] tRNA-mRNA

[C] mRNA-rRNA

[D] rRNA-tRNA

8. In plants, the long-term storage form of carbohydrates is

[A] fructose

[B] galactose

[C] starch

[D] cellulose

9. _____ is a fossil considered as a 'transitional link' between reptiles and birds.

[A] *Archaeopteryx*

[B] *Dinosaur*

[C] *Avimimus*

[D] *Caudipteryx*

10. The endosymbiotic theory provides evidence for the origin of which two of the following organelles?

[A] Chloroplasts and ribosomes

[B] Mitochondria and chloroplasts

[C] Ribosomes and endoplasmic reticulum

[D] Mitochondria and vacuoles

11. _____ performs the function of mitochondria in bacteria.

[A] Mesosome

[B] Nucleus

[C] Protoplasm

[D] Plasmid

12. In a food chain, the primary consumers are typically

[A] decomposers

[B] carnivores

[C] herbivores

[D] insectivores

13. The primary carbon dioxide acceptor in C4 plants is

[A] ribulose-1,5-bisphosphate

[B] adenosine triphosphate

[C] phosphoenolpyruvate

[D] pyruvate

14. The five-kingdom classification system was proposed by

[A] Bentham and Hooker

[B] Robert H. Whittaker

[C] E. P. Odum

[D] Carolus Linnaeus

15. The bacterium *Bacillus thuringiensis* (Bt) is widely used as a/an

[A] phosphate solubilizer

[B] biopesticide

[C] antibiotic

[D] nitrogen fixer

16. _____ is an example of a CAM plant.

[A] Maize

[B] Sugarcane

[C] Pineapple

[D] Soybean

17. Which of the following is often referred to as the 'amphibians of the plant kingdom'?

[A] Fungi

[B] Pteridophyta

[C] Bryophyta

[D] Gymnosperms

18. Which one of the following kingdoms contains organisms that are eukaryotic, unicellular and can be either autotrophic or heterotrophic?

[A] Animalia

[B] Plantae

[C] Protista

[D] Monera

19. Secondary growth, which increases a plant's girth is attributed to the activity of which of the following tissues?

[A] Intercalary meristem

[B] Lateral meristem

[C] Apical meristem

[D] Lateral tissue

20. _____ is widely regarded as the 'Father of Taxonomy'.

[A] Charles Darwin

[B] Gregor Mendel

[C] Carolus Linnaeus

[D] Robert Whittaker

21. Fear of water is the most important characteristic symptom of which of the following diseases?

[A] Jaundice

[B] Rabies

[C] Polio

[D] Coronavirus

22. The cell wall of fungi is primarily composed of

[A] protein

[B] peptidoglycan

[C] chitin

[D] cellulose

23. The IUCN Red List primarily classifies species according to their

[A] diversity

[B] risk of extinction

[C] ecosystem diversity

[D] biological classification

24. The class of vertebrates characterized by having feathers and being warm-blooded is

[A] Amphibia

[B] Annelida

[C] Aves

[D] Mammalia

25. The shortest phase of the cell cycle is

[A] G_1

[B] S

[C] G_2

[D] M

26. A core principle of the modern cell theory is

[A] all living organisms have a nucleus

[B] all cells come from pre-existing cells

[C] all cells arise spontaneously from non-living matter

[D] all organisms are composed of multiple cells

27. The correct sequence of taxonomic categories is

[A] Genus → Family → Order → Class

[B] Family → Genus → Class → Order

[C] Genus → Order → Class → Family

[D] Order → Family → Genus → Class

28. _____ kingdom includes unicellular prokaryotic organisms.

[A] Protista

[B] Animalia

[C] Monera

[D] Plantae

29. The biological species concept defines a species as a population that

[A] is reproductively isolated from other populations

[B] shares the same ecological niche

[C] feeds on the same food sources

[D] can't interbreed

30. Which of the following is the most broadest taxonomic rank?

[A] Order

[B] Kingdom

[C] Class

[D] Phylum

31. _____ is the conservation strategy that involves protecting species in their natural habitats.

[A] *Ex-situ* conservation

[B] *In-situ* conservation

[C] *In-vivo* culture

[D] Gene bank

32. _____ glands secrete their products via ducts.

[A] Endocrine

[B] Pituitary

[C] Exocrine

[D] Mammary

33. Which of the following structures is absent in most eukaryotic plant cells?

[A] Plasma membrane

[B] Cell wall

[C] Centriole

[D] Ribosome

34. _____ do not have well-differentiated roots, stems and leaves.

[A] Thallophyta

[B] Pteridophytes

[C] Angiosperms

[D] Gymnosperms

35. In angiosperms, which one of the following components is typically absent from the phloem?

[A] Phloem parenchyma

[B] Tracheids

[C] Sieve tubes

[D] Companion cells

36. The fluid mosaic model of the cell membrane suggests that the membrane is composed of a

[A] fixed sheet of phospholipids and carbohydrates

[B] layer of proteins with attached carbohydrates

[C] phospholipid bilayer with proteins embedded in and attached to it

[D] wall of cellulose

37. _____ is the primary center for the regulation of breathing in humans.

[A] Cerebrum

[B] Cerebellum

[C] Medulla oblongata

[D] Thyroid

38. The part of the flower that contains the male reproductive cells is

[A] pistil

[B] ovule

[C] stamen

[D] style

39. The PCR is used for

[A] isolating microbes

[B] amplifying a specific sequence of DNA

[C] separating RNA fragments by size

[D] inserting a gene into a host cell

40. Which of the following organisms has a closed circulatory system?

[A] Snail

[B] Earthworm

[C] Cockroach

[D] Crab

41. *Anabaena azollae* is used as a biofertilizer in paddy fields to

[A] enhance the phosphorus content of the soil

[B] produce antibiotics

[C] fix nitrogen

[D] provide a massive biomass for the crop

42. The primary building blocks of enzymes are

[A] sucrose

[B] fats

[C] amino acids

[D] vitamins

43. The process of double fertilization is a unique feature of

[A] viruses

[B] bryophytes

[C] bacteria

[D] angiosperms

44. A species whose removal from an ecosystem has a disproportionately large effect on other species is

[A] introduced species

[B] rare species

[C] keystone species

[D] invasive species

45. The process of transfer of pollen grains from the anther to the stigma is known as

[A] recombination

[B] pollination

[C] hybridization

[D] reproduction

46. Peptide synthesis within a cell occurs at the

[A] plastid

[B] ribosomes

[C] chloroplasts

[D] nucleolus

47. A cell organelle responsible for synthesizing rRNA and assembling ribosomes is

[A] Golgi apparatus

[B] nucleolus

[C] plastid

[D] rough endoplasmic reticulum

48. The movement of water from a region of higher concentration to a region of lower concentration through a semi-permeable membrane is

[A] transpiration

[B] translocation

[C] diffusion

[D] osmosis

49. Quinine is extracted from the bark of

[A] amla tree

[B] cinchona tree

[C] banyan tree

[D] neem tree

50. _____ is the 'powerhouse' of the cell and is the primary site of aerobic cellular respiration for ATP production.

[A] Nucleus

[B] Lysosome

[C] Nucleolus

[D] Mitochondria

51. A cell engulfing a substance from the external environment is

[A] exocytosis

[B] diffusion

[C] endocytosis

[D] passive transport

52. The AIDS-causing virus, HIV, attacks and weakens the immune system by targeting

[A] erythrocytes

[B] B-lymphocytes

[C] T-helper cells

[D] neutrophils

53. In recombinant DNA technology, the enzyme that joins the gene of interest into the plasmid vector is

[A] RNA polymerase

[B] DNA polymerase

[C] DNA ligase

[D] Endonuclease

54. Which of the following organisms is ***not*** a Genetically Modified Organism (GMO)?

[A] AquAdvantage Salmon

[B] Dolly the Sheep

[C] Bt Cotton

[D] Golden Rice

55. The final electron acceptor in the electron transport chain during aerobic respiration is

[A] nitrogen

[B] ADP

[C] oxygen

[D] ATP

56. In angiosperms, the ovary of a flower develops into the

[A] embryo

[B] fruits

[C] flowers

[D] seeds

57. The primary organelle for photosynthesis in the plant is

[A] endoplasmic reticulum

[B] nucleus

[C] chloroplast

[D] Golgi body

58. The waxy cuticle in a plant's epidermis primarily functions to

[A] prevent excessive water loss

[B] assist in photosynthesis

[C] assist in diffusion

[D] assist in food transportation

59. The Human Genome Project was launched in the year

[A] 1980

[B] 1970

[C] 1990

[D] 2000

60. The diagnostic test commonly used to confirm Coronavirus is the

[A] Widal test

[B] ELISA test

[C] RT-PCR test

[D] Mantoux test

61. DNA is made up of

[A] Adenine – Cytosine

[B] Cytosine – Thymine

[C] Adenine – Guanine – Cytosine – Thymine

[D] Guanine – Cytosine – Thymine

62. Microbes used to remove pollutants from the environment is known as

[A] biofertilizer

[B] bioremediation

[C] biopesticide

[D] bioinformatics

63. The key events that occur during the S phase of the cell cycle is

[A] synapsis

[B] mitosis

[C] DNA replication

[D] meiosis

64. _____ is at the center of the porphyrin ring in the chlorophyll molecule.

[A] Iron

[B] Boron

[C] Magnesium

[D] Sulphur

65. The process of _____ does not occur in prokaryotes.

[A] transduction

[B] splicing

[C] transformation

[D] replication

66. Sister chromatids separate and move to opposite poles during

[A] prophase

[B] metaphase

[C] anaphase

[D] telophase

67. The monotreme mammals are

[A] oviparous

[B] ovolarviparous

[C] ovoviviparous

[D] viviparous

68. Which one of the following is ***not*** a component of biodiversity?

[A] Reproductive diversity

[B] Genetic diversity

[C] Species diversity

[D] Ecosystem diversity

69. The enzyme responsible for intracellular digestion and the breakdown of waste is

[A] hydrolytic

[B] nitrogenase

[C] zymase

[D] cellulase

70. The smallest unit of genetic material that produces a phenotypic effect upon mutation is

[A] muton

[B] allele

[C] gene

[D] recon

71. The first act in taxonomy is

[A] identification

[B] preparation of herbarium

[C] binomial nomenclature

[D] classification

72. The function of a restriction enzyme in genetic engineering is to

[A] join DNA fragments

[B] cut DNA at specific nucleotide sequences

[C] cut the DNA double helix

[D] synthesize DNA strands

73. The process of the fusion of male gamete with the female gamete is called

[A] pollination

[B] sporulation

[C] fertilization

[D] hybridization

74. A key characteristic of a biodiversity hotspot is

[A] a high level of species richness and a high degree of endemism

[B] an area with a large number of plant population

[C] a region with high human population density

[D] an ecosystem undergoing significant climate change

75. The pyramid of energy is always

[A] inverted

[B] upright

[C] cylindrical

[D] irregular

76. Typically, spider blood is blue due to the presence of

[A] haemoglobin

[B] haemocyanin

[C] globin

[D] leghaemoglobin

77. The plant hormone responsible for promoting cell division is

[A] abscisic acid

[B] ethylene

[C] gibberellic acid

[D] cytokinin

78. The collective term for the petals of a flower is

[A] petal

[B] corolla

[C] gynoecium

[D] sepal

79. ICBN stands for

[A] International Code of Botanical Nomenclature

[B] Indian Congress of Botanical Nomenclature

[C] International Congress of Botanical Nomenclature

[D] Indian Code of Botanical Nomenclature

80. The process of conversion of ammonia into nitrites is

[A] phosphorylation

[B] ammonification

[C] denitrification

[D] nitrification

81. The enzyme _____ is responsible for unwinding the DNA double helix during replication.

[A] lipase

[B] polymerase

[C] helicase

[D] primase

82. Which of the following describes the most stable ecosystem?

[A] Degraded forest

[B] Desert

[C] Ocean

[D] Jhum field

83. The denaturation of an enzyme results in

[A] an increase in its catalytic efficiency

[B] a loss of its biological activity

[C] stronger binding to its product

[D] the formation of a new active site

84. The genotypic ratio of a monohybrid cross is

[A] 1 : 2 : 1

[B] 2 : 1 : 1

[C] 3 : 1 : 1

[D] 9 : 3 : 3 : 1

85. The fruit produced by parthenocarpy is generally

[A] seedless

[B] seeded

[C] small-seeded

[D] large-seeded

86. The site of embryo implantation and development in the female reproductive system of mammal is

[A] ovaries

[B] uterus

[C] fallopian tube

[D] vagina

87. The functional and structural unit of the nervous system is

[A] nephron

[B] cerebrum

[C] neuron

[D] axon

88. _____ is the crossing of F1 to either of the parents.

[A] Test Cross

[B] Back Cross

[C] F1 Cross

[D] F2 Cross

89. Crossing-over between homologous chromosomes, occurs during

[A] zygotene

[B] pachytene

[C] diplotene

[D] diakinesis

90. What is collagen?

[A] Protein

[B] Carbohydrate

[C] Fats

[D] Vitamins

91. Organisms responsible for decomposition and nutrient recycling are

[A] autotrophs

[B] carnivores

[C] herbvivores

[D] saprotrophs

92. The greenhouse gas which is the largest contributor to global warming is

[A] carbon dioxide

[B] nitrous oxide

[C] methane

[D] nitrogen

93. The molecular biology technique that is used for detection of protein in a sample is

[A] Southern blotting

[B] PCR

[C] Northern blotting

[D] Western blotting

94. The most effective way for a teacher to begin learning about the community knowledge system is to

[A] solely rely on information gathered from online and secondary sources

[B] collect a detailed list of community traditions villagers

[C] engage directly building relationships with elders and knowledge keepers

[D] implement a new curriculum and then seek feedback from community

95. PCR technique was invented by

[A] Kary Mullis

[B] Watson and Crick

[C] Sanger

[D] Meselson and Stahl

96. For wheat, which of the following combinations is ***correct***?

[A] Genus *Triticum,* family Poaceae, order Poales, Class Monocotyledonae

[B] Genus *Triticum,* family Poaceae, order Poales, Class Dicotyledonae

[C] Genus *Triticum,* family Poaceae, order Oryzales, Class Monocotyledonae

[D] Genus *Triticum,* family Poaceae, order Oryzales, Class Dicotyledonae

97. A 9 : 7 ratio in the F2 generation of a dihybrid cross represents

[A] incomplete dominance

[B] co-dominance

[C] epistasis

[D] dominance

98. "Central Dogma" is

[A] the process of nuclear division

[B] the flow of genetic information from DNA to RNA to protein

[C] the synthesis of RNA

[D] the structure of the cell membrane

99. The enzyme initiates the digestion of carbohydrates in the mouth is

[A] ligase

[B] endonuclease

[C] amylase

[D] trypsin

100. The 'fight or flight' hormone is

[A] insulin

[B] thyroxine

[C] adrenaline

[D] oxytocin

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8. Violation of any of the above Rules will render the candidate liable to be expelled and disqualified from the Examination and according to the nature and gravity of his/her offence, he/she may be debarred from future Examinations and interviews to be conducted by the Commission and other such organizations.

NB : CANDIDATES ARE ALLOWED TO TAKE THIS QUESTION BOOKLET WITH THEM ONLY AFTER COMPLETION OF 3 (THREE) HOURS OF EXAMINATION TIME.

DO NOT OPEN THE SEAL UNTIL INSTRUCTED TO DO SO

1. If α and β are the roots of the polynomial $f(x)=x^2-5x+k$ such that $\alpha-\beta=1$, then find the value of k.

[A] 5

[B] 6

[C] 7

[D] 8

2. A relation R on set A is a subset of

[A] ϕ

[B] A

[C] $A \times A$

[D] None of the above

3. If A is a finite set with n elements, then the number of elements in the power set of $A \times A$ is

[A] 2^n

[B] 2^{n^2}

[C] 2^{2^n}

[D] None of the above

4. The number of equivalence relations of the set {1,2,3,4} is

[A] 4

[B] 15

[C] 16

[D] 24

5. A composite mapping $(f \circ g)(x)$ of the maps $f,\ g: R \to R$ such that $f(x)=\sin x$ and $g(x)=x^2$ is

[A] $\sin x + x^2$

[B] $(\sin x)^2$

[C] $\sin x^2$

[D] $x^2 \sin x$

6. The range of the function $f(x)=\dfrac{1}{2-\sin 3x}$, $-\infty < x < \infty$ is

[A] $\left[\frac{1}{3}, \frac{1}{2}\right]$

[B] $\left[\frac{1}{3}, 1\right]$

[C] $[1, 2]$

[D] None of the above

7. Let A and B be two sets having 5 common elements. The number of elements common to $A \times B$ and $B \times A$ is

[A] 2^5

[B] 5^2

[C] 0

[D] None of the above

8. Let $f: R \setminus \{n\} \to R$ be a function defined by $f(x)=\dfrac{x-m}{x-n}$. If $n \neq m$, then

[A] f is one-one into

[B] f is one-one onto

[C] f is many-one into

[D] f is many-one onto

9. A function $f(x)=x\sin\left(\dfrac{1}{x}\right)$ for $x \neq 0$ and $f(0)=0$. Then, at $x=0$, $f(x)$ is

[A] continuous but not differentiable

[B] discontinuous and non-differentiable

[C] continuous and differentiable

[D] None of the above

10. An angle $\frac{5\pi}{6}$ radians is equal to

[A] $120°$

[B] $150°$

[C] $210°$

[D] $300°$

11. Which of the following is equal to $\sin(2x)$?

[A] $\sin^2 x - \cos^2 x$

[B] $\cos^2 x - \sin^2 x$

[C] $2\sin x \cos x$

[D] $\tan x + \cot x$

12. The domain of $\sin^{-1}(x+1)$ is

[A] $(-\infty, \infty)$

[B] $(0, \pi)$

[C] $[-2, 0]$

[D] $[-1, 1]$

13. The inverse trigonometric identity $\sin^{-1} x + \cos^{-1} x$ is equal to

[A] $\frac{\pi}{2}$

[B] $\frac{\pi}{4}$

[C] π

[D] 0

14. The number of all onto functions from the set $\{1,2,3,4,5\}$ to itself is

[A] 2^5

[B] $2^5 - 1$

[C] $5!$

[D] $4!$

15. The value of $\lim_{x\to\infty}\left(1-\frac{1}{x}\right)^x$ is equal to

[A] 1

[B] 0

[C] e

[D] $\frac{1}{e}$

16. $\lim_{n\to\infty}\sum_{r=1}^{3n}\frac{r^2}{r^3+n^3}$ is equal to

[A] $\frac{1}{3}\log 2$

[B] $\frac{1}{3}\log 65$

[C] $\frac{1}{3}\log 28$

[D] $\frac{1}{4}\log 82$

17. A function $f(x)=\frac{1-\cos x}{x^2}$, $x \neq 0$ can be made continuous at $x=0$ by defining $f(0)$ to be equal to

[A] 1

[B] $\frac{1}{2}$

[C] 0

[D] 2

18. The value of $\lim_{x\to 0}\frac{(a^x + b^x - 2)}{2x}$, $a, b > 0$ is

[A] $\ln(a) + \ln(b)$

[B] $\ln(a) - \ln(b)$

[C] $\ln(\sqrt{ab})$

[D] $\ln(ab)$

19. What is the value of $\lim_{(x,y)\to(0,0)} \frac{xy}{x^2+y^2}$?

[A] 0

[B] Does not exist

[C] 1

[D] $\frac{1}{2}$

20. A sequence defined by $a_1 = 1$ and $a_{n+1} = \frac{1}{2}\left(a_n + \frac{2}{a_n}\right)$ converges to

[A] $\frac{3}{2}$

[B] $-\sqrt{2}$

[C] $\sqrt{2}$

[D] 0

21. A 30th term of the AP 10,7,4, ... is

[A] –77

[B] –87

[C] 87

[D] None of the above

22. If the sum of n terms of AP is given by $S_n = 3n^2 + 2n$, $\forall n \in N$. Then the n^{th} term of the AP is

[A] $6n+1$

[B] $6n-1$

[C] $3n^2+1$

[D] $6n+5$

23. The series $\sum_{n=1}^{\infty} \frac{\sqrt{n}}{2n^5+1}$ is

[A] divergent

[B] convergent

[C] oscillating

[D] None of the above

24. In the symmetric group S_3, which of the following subgroups is normal?

[A] $\langle(12)\rangle$

[B] $\langle(13)\rangle$

[C] $\{e,(123),(132)\}$

[D] None of the above

25. If H is a non-trivial subgroup of a group G with index 2, then

[A] H is normal in G

[B] H is not normal in G

[C] H is cyclic

[D] H must be equal to the center of G

26. If every element of a group G is its own inverse, then G is

[A] finite

[B] infinite

[C] abelian

[D] non-abelian

27. Let G be a group of order 30 and A, B be normal subgroups of orders 2 and 5 respectively. Then $O\left(\frac{G}{AB}\right)$ is

[A] 2

[B] 3

[C] 5

[D] 10

28. Let A be a commutative ring with unity. Then

[A] every unit element is a zero divisor

[B] every nilpotent element is a zero divisor

[C] every zero divisor is a unit element

[D] every zero divisor is a nilpotent element

29. Which of the following rings is an integral domain under the usual multiplication and addition?

[A] $R[x]$, the ring of all polynomials in one variable whose coefficients are real

[B] $C[0,1]$, the set of all continuous functions on $[0,1]$

[C] $M_n(R)$, the ring of all $n \times n$ real matrices

[D] None of the above

30. Let A be a commutative ring with two binary operations addition and multiplication, then A can be

[A] an empty set

[B] $\{2\}$

[C] $\{0\}$

[D] set of all natural numbers

31. According to Euler's theorem, if $f(x,y)$ is homogeneous of degree n, then

[A] $xf_x + yf_y = f(x,y)$

[B] $xf_x + yf_y = nf(x,y)$

[C] $xf_x + yf_y = n$

[D] $xf_x + yf_y = 0$

32. A differential equation $\left(\frac{d^2y}{dx^2}\right)^3 + \frac{dy}{dx} = x$ has

[A] order = 2 and degree = 3

[B] order = 3 and degree = 2

[C] order = 1 and degree = 3

[D] order = 2 and degree = 1

33. The orthogonal trajectories to the family $y = kx^2$ are given by

[A] $y^2 = -\frac{x^2}{2} + C$

[B] $x^2 + 2y = C$

[C] $y^2 = kx$

[D] $x^2 + y^2 = C$

34. A differential equation $M(x,y)dx + N(x,y)dy = 0$ is exact if

[A] $M(x,y) + N(x,y) = 0$

[B] $\frac{\partial M}{\partial y} = \frac{\partial N}{\partial x}$

[C] $M(x,y) = N(x,y)$

[D] None of the above

35. Which of the following represents Young's theorem?

[A] $\frac{\partial^2 f}{\partial x \partial y} = \frac{\partial^2 f}{\partial y \partial x}$

[B] $\frac{\partial^2 f}{\partial x \partial y} \neq \frac{\partial^2 f}{\partial y \partial x}$

[C] $\frac{\partial^2 f}{\partial x \partial y} = 0$

[D] f must be linear

36. If A and B are symmetric matrices, then AB is symmetric matrix if and only if

[A] $AB = BA$

[B] $AB = -AB$

[C] $AB^{-1} = B^{-1}A$

[D] None of the above

37. If A is a singular matrix, then $A \cdot \text{adj}(A)$ is equal to

[A] an identity matrix

[B] a null matrix

[C] a scalar matrix

[D] None of the above

38. If 1, ω, ω^2 are the cube roots of unity, then the value of the determinant

$$\begin{vmatrix} 1 & \omega^7 & \omega^{14} \\ \omega^{14} & 1 & \omega^7 \\ \omega^7 & \omega^{14} & 1 \end{vmatrix}$$

is

[A] ω

[B] ω^2

[C] 1

[D] 0

39. If α and β are the roots of the equation $2x^2 + 3x + 5 = 0$, then the value of the determinant $\begin{vmatrix} 0 & \beta & \beta \\ \alpha & 0 & \alpha \\ \beta & \alpha & 0 \end{vmatrix}$ is

[A] $-3/5$

[B] $-15/4$

[C] $3/5$

[D] $14/5$

40. If the circles $(x-1)^2 + (y-3)^2 = r^2$ and $x^2 + y^2 - 8x + 2y + 8 = 0$ intersect at two distinct points, then which of the following is ***correct***?

[A] $r = 1$

[B] $0 < r < 1$

[C] $r = 2$

[D] $2 < r < 8$

41. The straight lines $3x - 4y + 4 = 0$ and $6x - 8y + 13 = 0$ are tangents to the same circle. The radius of the circle is

[A] $\frac{1}{2}$

[B] $\frac{1}{4}$

[C] $\frac{3}{2}$

[D] 2

42. If a line $ax + by + c = 0$ is normal to the curve $xy = 4$, then

[A] $a < 0, b < 0$

[B] $a > 0, b > 0$

[C] $a > 0, b < 0$

[D] $a < 0, b = 0$

43. If the eccentricities of two ellipses $\frac{x^2}{169} + \frac{y^2}{25} = 1$ and $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ are equal, then the value of $\frac{a}{b}$ is

[A] $\frac{5}{13}$

[B] $\frac{13}{5}$

[C] $\frac{6}{13}$

[D] $\frac{13}{6}$

44. The radius of the circle $3x(x-2) + 3y(y+1) = 4$ is

[A] $\sqrt{\frac{15}{4}}$

[B] $\sqrt{\frac{31}{12}}$

[C] 2

[D] 3

45. If a non-zero vector is multiplied by a scalar –2, then

[A] only magnitude changes

[B] only direction changes

[C] both magnitude and direction change

[D] Neither changes

46. The magnitude of projection of vector $\hat{i}-2\hat{j}+\hat{k}$ on the vector $4\hat{i}-4\hat{j}+7\hat{k}$ is

[A] $\frac{\sqrt{6}}{19}$

[B] $\frac{9}{19}$

[C] $\frac{5\sqrt{9}}{19}$

[D] $\frac{19}{9}$

47. If $\left|\vec{a}+\vec{b}\right|=\left|\vec{a}\right|+\left|\vec{b}\right|$, where $\vec{a}$ and $\vec{b}$ are any vectors, then this equality

[A] always holds

[B] never holds

[C] holds only when $\vec{a}=k\vec{b}(k\geq 0)$ or one of $\vec{a}$ or $\vec{b}$ is zero

[D] holds only $\vec{a}=\vec{b}=0$

48. Which of the following represents Boolean values?

[A] 1 and 2

[B] 0 and 1

[C] True and false

[D] Both [B] and [C]

49. Which of the following is an idempotent law?

[A] $A+0=A$

[B] $A\cdot 1=A$

[C] $A+A=A$

[D] $A\cdot 0=A$

50. A Boolean expression $(A+B)(A+\overline{B})$ simplifies to

[A] A

[B] B

[C] $A+B$

[D] AB

51. How many distinct words can be formed from all letters of the word "ENGINEERING"?

[A] 277200

[B] 25200

[C] 1209600

[D] 39916800

52. How many different committees of 4 can be formed from 8 men and 5 women so that at least 1 woman is included?

[A] 495

[B] 585

[C] 715

[D] 645

53. Which of the following identities is ***true*** ?

[A] ${}^{n}C_{r} + {}^{n}C_{r+1} = {}^{n+1}C_{r}$

[B] ${}^{n}C_{r} + {}^{n}C_{r+1} = {}^{n+1}C_{r+1}$

[C] ${}^{n}C_{r} + {}^{n}C_{r+1} = {}^{n+1}C_{r-1}$

[D] ${}^{n}C_{r} - {}^{n}C_{r+1} = {}^{n+1}C_{r+1}$

54. What is the rank-nullity theorem for a linear transformation $T : V \to W$?

[A] $\dim(V) = \text{rank}(T) - \text{nullity}(T)$

[B] $\dim(V) = \text{rank}(T) + \text{nullity}(T)$

[C] $\dim(W) = \text{rank}(T) + \text{nullity}(T)$

[D] $\text{rank}(T) = \dim(W) - \text{nullity}(T)$

55. Let A be a 3×3 matrix with rank 2. What is the dimension of the null space (kernel) of A ?

[A] 0

[B] 1

[C] 2

[D] 3

56. Suppose V and W are vector spaces with that $\dim(V) = 5$ and $\dim(W) = 3$. If $T : V \to W$ is a linear transformation, what is the maximum possible rank of T ?

[A] 2

[B] 3

[C] 4

[D] 5

57. The indiscrete topology on a non-trivial set X is

[A] the topology containing all subsets of X

[B] the topology containing only ϕ and X

[C] the topology containing all open intervals

[D] the topology generated by all singletons

58. A topological space (X, τ) is said to be T_1 if

[A] for any two distinct points, there exist disjoint open sets containing them

[B] every singleton set $\{x\}$ is closed

[C] every open set is also closed

[D] the space has a countable basis

59. If the radius r of a sphere increases at a rate of 0.2 cm/s, find the rate of change of its volume when $r = 5$ cm.

[A] $4\pi \text{ cm}^3/\text{s}$

[B] $10\pi \text{ cm}^3/\text{s}$

[C] $20\pi \text{ cm}^3/\text{s}$

[D] $20\pi \times 5^2 \text{ cm}^3/\text{s}$

60. Find the maximum value of the function $f(x) = x^3 - 3x^2 + 2x$ in $[1,2]$.

[A] 1

[B] 2

[C] 1/2

[D] 0

61. In Pascal's triangle, each number is the _____ of the two numbers just above it.

[A] product

[B] difference

[C] sum

[D] quotient

62. Find the middle terms in the expansion of $(x+1)^9$.

[A] 5th and 6th terms

[B] 4th and 5th terms

[C] 6th and 7th terms

[D] 3rd and 4th terms

63. The polar form of $z = 1 + i$ is

[A] $\sqrt{2}(\cos\pi/3 + i\sin\pi/3)$

[B] $\sqrt{2}(\cos\pi/4 + i\sin\pi/4)$

[C] $2(\cos\pi/4 + i\sin\pi/4)$

[D] $(\cos\pi/2 + i\sin\pi/2)$

64. The cube roots of unity are

[A] 1, ω, ω^2 where $\omega = e^{\left(\frac{i\pi}{3}\right)}$

[B] 1, ω, ω^2 where $\omega = e^{\left(\frac{2i\pi}{3}\right)}$

[C] 1, ω, ω^2 where $\omega = e^{\left(\frac{i\pi}{2}\right)}$

[D] 1, ω, ω^2 where $\omega = e^{\left(\frac{i\pi}{4}\right)}$

65. If $z = -1 + i\sqrt{3}$, find arg(z) is

[A] $\pi/3$

[B] $2\pi/3$

[C] $4\pi/3$

[D] $-\pi/3$

66. If $y = 4x - 5$ is a equation of the tangent to the curve $y^2 = ax^3 + b$ at the point (2,3). Find the values of (a,b).

[A] (2,7)

[B] (2,–7)

[C] (7,2)

[D] (–7,2)

67. Find the area enclosed by the circle $x^2 + y^2 = 9$.

[A] π

[B] 3π

[C] 6π

[D] 9π

68. The principle of mathematical induction can be used to prove

[A] only statements about integers greater than or equal to a fixed n_0

[B] statements about real numbers

[C] statements about complex numbers

[D] only inequalities

69. Which of the following sets is a subspace of $\mathbb{R}^3$?

[A] $\{(x,y,z) \in \mathbb{R}^3 : x + y + z = 1\}$

[B] $\{(x,y,z) \in \mathbb{R}^3 : x = y = z\}$

[C] $\{(x,y,z) \in \mathbb{R}^3 : xyz = 0\}$

[D] $\{(x,y,z) \in \mathbb{R}^3 : x^2 + y^2 + z^3 = 0\}$

70. If $T:\mathbb{R}^4 \to \mathbb{R}^3$ is a linear transformation with nullity$(T)=2$, what is the rank of T?

[A] 1

[B] 2

[C] 3

[D] Cannot be determined

71. A linear transformation $T:V \to V$ is invertible if and only if

[A] it maps zero vector to non-zero vector

[B] it is linear and homogeneous

[C] its nullity is equal to dimension of V

[D] it is one-to-one and onto

72. Let $V=\mathbb{R}^3$ and $W=\{(x,y,z)\in\mathbb{R}^3 : x+y+z=0\}$. What is the dimension of the quotient space $\mathbb{R}^3/W$?

[A] 1

[B] 2

[C] 3

[D] 0

73. What is the dimension of complex plane C as a vector space over C?

[A] 1

[B] 2

[C] 0

[D] 4

74. The process of reducing a matrix to row echelon form involves

[A] row operations only

[B] column operations only

[C] both row and column operations

[D] multiplication by scalars only

75. The matrix A has the property that $A^5=0$. Which of the following is necessarily ***true***?

[A] A is diagonalizable

[B] All eigenvalues of A are 0

[C] A is invertible

[D] The rank of A is 5

76. If z is a complex number, then the modulus of e^{iz} is

[A] 0

[B] 1

[C] $|z|$

[D] e^z

77. Gregory's series is a power series expansion of which of the following functions?

[A] $\sin(x)$

[B] $\sin^{-1}(x)$

[C] $\tan(x)$

[D] $\tan^{-1}(x)$

78. The Beta function, $B(m,n)$, can be expressed in terms of Gamma functions. Which of the following is the ***correct*** relationship?

[A] $B(m,n)=\dfrac{\Gamma(n)\,\Gamma(m)}{\Gamma(m+n)}$

[B] $B(m,n)=\Gamma(n)\,\Gamma(m)\,\Gamma(m+n)$

[C] $B(m,n)=\dfrac{\Gamma(n+m)}{\Gamma(n)\,\Gamma(m)}$

[D] $B(m,n)=\Gamma(n)+\Gamma(m)-\Gamma(m+n)$

79. Which of the following is the most accurate statement of the fundamental theorem of algebra?

[A] Every polynomial has at least one real root

[B] Every polynomial of degree n has exactly n roots (counting multiplicity and complex roots)

[C] Every polynomial with real coefficients has only real roots

[D] Every polynomial equation can be solved using basic arithmetic operations

80. If z is a non-zero complex number such that $\left|\frac{z-4}{z-8}\right|=1$, then which of the following is always ***true***?

[A] Im(z)=1

[B] Re(z) = 6

[C] $|z|$ = 1

[D] None of the above

81. Which of the following is ***true***?

[A] $\Gamma(n+1)=(n+1)\,\Gamma(n)$

[B] $\Gamma\left(\frac{1}{2}\right)=2\sqrt{\pi}$

[C] $\Gamma(n)=(n-1)!$ for integer n

[D] All of the above

82. Which property of the derivative function is guaranteed by Darboux's theorem?

[A] Continuity

[B] Differentiability

[C] The intermediate value property

[D] Monotonicity

83. For two partitions P and Q of the interval $[a,b]$, Q is a refinement of P if

[A] $P \subseteq Q$

[B] $P \supseteq Q$

[C] $P = Q$

[D] None of the above

84. If $B(3,4)=1/k$, where B denotes the Beta function, then the value of k is

[A] 60

[B] 120

[C] 20

[D] 40

85. For scalar function $\phi = x+y+z$, find the gradient of ϕ.

[A] (1,1,1)

[B] (0,0,0)

[C] (x,y,z)

[D] None of the above

86. If $\phi = e^{x^2+y^2+z^2}$, then the magnitude of the gradient ϕ at (1, 0, 0) is

[A] $2e$

[B] e

[C] 0

[D] 1

87. If $\alpha(x)=x^2$ and $f(x)=x$ on [0, 1], then $\int_0^1 f(x)d\alpha(x)$ is equal to

[A] 1/2

[B] 1/3

[C] 2/3

[D] 3/2

88. Let $f:[0,1]\to R$ be a monotonic function. Which of the following statements is ***true***?

[A] Riemann integrable on [0,1]

[B] Not Riemann integrable on [0,1]

[C] f is always continuous on [0,1]

[D] f is always discontinuous on [0,1]

89. The mean value of a function $f(x)=x$ from point *'a'* to point *'b'* is given by

[A] $(a+b)/2$

[B] $a+b$

[C] $\int_a^b f(x)dx$

[D] None of the above

90. Let $f:[0,1]\to R$ be defined as $f(x)=100x^2\sin\left(\frac{1}{x}\right)$ if $x\in(0,1]$ and $f(0)=0$ if $x=0$. Then, which of the following is ***correct***?

[A] f is Riemann integrable on [0,1]

[B] The lower Riemann integral of f is $\frac{1}{3}$

[C] f is not Riemann integrable on [0,1]

[D] The lower Riemann integral of f is $\frac{1}{9}$

91. A plane $lx+my+nz=p$ touches the sphere $x^2+y^2+z^2+2ux+2vy+2uz+d$ if

[A] $(ul+vm+wn+p)^2=$
$\left(l^2+m^2+n^2\right)\left(u^2+v^2+w^2-d\right)$

[B] $(ul+vm+wn+p)^2=$
$\left(l^2+m^2+n^2\right)\left(u^2+v^2+w^2+d\right)$

[C] $(ul+vm+wn+p)^2\neq$
$\left(l^2+m^2+n^2\right)\left(u^2+v^2+w^2-d\right)$

[D] $(ul+vm+wn+p)^2\neq$
$\left(l^2+m^2+n^2\right)\left(u^2+v^2+w^2+d\right)$

92. The shortest distance between the lines $x+1=2y=-12z$ and $x=y+2=6z-6$ is

[A] 2

[B] 3

[C] 1

[D] 0

93. In a diet problem, if a nutrient must be at least 50 units, the corresponding constraint will be

[A] nutrient expression ≤ 50

[B] nutrient expression ≥ 50

[C] nutrient expression $=50$

[D] nutrient expression <50

94. In a transportation problem with m sources and n destinations, the total number of basic variables in a basic feasible solution is

[A] $m+n$

[B] $m+n-1$

[C] $m\times n$

[D] $m+n+1$

95. Vogel's approximation method is connected to

[A] inventory problem

[B] assignment problem

[C] transportation problem

[D] None of the above

96. A and B each rolls a fair six-sided die. What is the probability that A's roll is greater than B's?

[A] $\frac{5}{12}$

[B] $\frac{5}{6}$

[C] $\frac{1}{2}$

[D] $\frac{7}{12}$

97. Let A and B be two events such that $P(B) = 0{\cdot}4$ and $P(A \cup B) = 0{\cdot}6$. If A and B are independent, then $P(A)$ is

[A] $\frac{1}{2}$

[B] $\frac{1}{3}$

[C] $\frac{2}{3}$

[D] $\frac{2}{5}$

98. Three mangoes and three apples are in a box. If two fruits are chosen at random, the probability that one is a mango and the other is an apple is

[A] $\frac{2}{3}$

[B] $\frac{3}{5}$

[C] $\frac{1}{3}$

[D] $\frac{4}{5}$

99. Four dice are rolled. The number of possible outcomes in which at least one die shows 2 is

[A] 1296

[B] 671

[C] 625

[D] None of the above

100. If A and B are events such that $P(A \cup B) = \frac{5}{6}$, $P(A \cap B) = \frac{1}{3}$ and $P(B) = \frac{1}{2}$, then the events A and B are

[A] independent

[B] dependent

[C] mutually exclusive

[D] None of the above

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Series : a

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1. The ancient manuscripts of India were written on which of the following materials?

[A] Wooden tablets

[B] Copper plate

[C] Sheep leather

[D] Birch bark

2. Which of the following pairs is/are ***not*** matched ***correctly***?

[A] *Harshacharita* - Sandhyakar Nandi

[B] *Vikramankadevacharita* - Bilhana

[C] *Mushika Vamsha* - Atula

[D] All of the above

3. The people of Indus Valley Civilization were well versed in

[A] architecture

[B] sculpture

[C] painting

[D] All of the above

4. Match the following sites ***(List—I)*** of the Harappan Civilization with their corresponding present States ***(List—II)*** where found and choose the ***correct*** answer.

List—I	***List—II***
(a) Ropar	*(i)* Rajasthan
(b) Lothal	*(ii)* Haryana
(c) Kalibangan	*(iii)* Gujarat
(d) Banwali	*(iv)* Punjab

Code **:**

	(a)	*(b)*	*(c)*	*(d)*
[A]	*(i)*	*(ii)*	*(iii)*	*(iv)*
[B]	*(ii)*	*(i)*	*(iv)*	*(iii)*
[C]	*(iii)*	*(iv)*	*(ii)*	*(i)*
[D]	*(iv)*	*(iii)*	*(i)*	*(ii)*

5. Arrange the following Buddhist councils in ***List—I*** with places they were held in ***List—II*** and choose the ***correct*** answer.

List—I	***List—II***
(a) First Council	*(i)* Pataliputra
(b) Second Council	*(ii)* Vaishali
(c) Third Council	*(iii)* Kashmir
(d) Fourth Council	*(iv)* Rajagriha

Code **:**

	(a)	*(b)*	*(c)*	*(d)*
[A]	*(iv)*	*(ii)*	*(i)*	*(iii)*
[B]	*(iii)*	*(ii)*	*(iv)*	*(i)*
[C]	*(i)*	*(ii)*	*(iii)*	*(iv)*
[D]	*(ii)*	*(iv)*	*(i)*	*(iii)*

6. What does Sigillography stand for?

[A] Study of stone

[B] Study of coins

[C] Study of seals

[D] Study of birch bark

7. The oldest Brahmanic literature is

[A] *Upanishad*

[B] *Veda*

[C] *Aranyak*

[D] *Smriti*

8. With reference to later Vedic period, which of the following statements is ***incorrect***?

[A] Hereditary kingship was emerging in this period.

[B] Bali became obligatory in the later Vedic period.

[C] The power of democratic assemblies like Sabha and Samiti, increased during this period.

[D] Various theories and ideas on the creation of the universe are mentioned in the later Vedic literature.

9. Who is called the 'Napoleon of Ancient India'?

[A] Chandragupta Maurya

[B] Pushyamitra

[C] Kanishka

[D] Samudragupta

10. Which book was written by Banabhatta?

[A] *Nagananda*

[B] *Harshacharita*

[C] *Kadambari*

[D] None of the above

11. Which Chinese traveller visited India during Harshavardhana's rule?

[A] Fa-Hien

[B] Hiuen Tsang

[C] I-Tsing

[D] Taranath

12. Who first deciphered the Brahmi script?

[A] A. Cunningham

[B] A. H. Dani

[C] Buhler

[D] James Prinsep

13. Anga, Magadha, Vatsa and Surasena were one of the 16 Mahajanapadas. Arrange the capitals of these Mahajanapadas in order.

[A] Rajagriha, Ujjain, Shravasti, Kausambi

[B] Rajagriha, Shravasti, Kausambi, Ujjain

[C] Champa, Rajagriha, Kausambi, Mathura

[D] Rajagriha, Champa, Kausambi, Mathura

14. Where did Mahatma Buddha's 'Mahaparinirvana' take place?

[A] Lumbini

[B] Bodh Gaya

[C] Kushinagar

[D] Kapilvastu

15. Which of the following is ***correctly*** matched?

(Sacrifices)		***(Reason)***
[A] Vajapeya	–	To restore the strength of a middle aged king
[B] Rajasuya	–	To imbue the king with divine power
[C] Aswamedha	–	To confer sovereignty on the king
[D] Purushamedha	–	To secure entry into Sabha and Samiti

16. With reference to the administration of the Gupta period, Hiranya refers to

[A] a tax on permanent tenants

[B] tax imposed on farmers without any proprietary rights in the soil

[C] periodical supplies of fruit, firewood and flowers

[D] kings' share of the agricultural produce in cash

17. The word 'Yava' mentioned in *Rig Veda* is used for which agricultural product?

[A] Barley

[B] Gram

[C] Rice

[D] Wheat

18. Who was the author of *Indica*?

[A] Plutarch

[B] Justin

[C] Herodotus

[D] Megasthenes

19. Lord Mahavira received 'Kevalya' at the bank of which river?

[A] Rijupalika

[B] Sharda

[C] Saryu

[D] Sindhu

20. Emperor Harsha had shifted his capital from Thanesar to

[A] Prayaga

[B] Kannauj

[C] Delhi

[D] Rajgriha

21. Sallekhana is recommended to

[A] Ajivika monks

[B] Jaina monks and pious laymen

[C] Buddhist monks and pious laymen

[D] Kapalikas

22. Language used in the inscriptions of Ashoka is

[A] Sanskrit

[B] Prakrit

[C] Pali

[D] Hindi

23. 'Syadvada' is related to

[A] Charvaka

[B] Jaina

[C] Bauddha

[D] Samkhya

24. The Mauryan dynasty was overthrown by

[A] Pushyamitra Shunga

[B] Samudragupta

[C] Harsha

[D] Kanishka

25. The Vedic river Kubha was located in

[A] Afghanistan

[B] Kashmir

[C] Punjab

[D] Chinese Turkistan

26. Who was called 'a slave of a slave'?

[A] Mohd. Ghori

[B] Qutb ud-Din Aibak

[C] Balban

[D] Iltutmish

27. Which Sultan of Delhi Sultanate is known as 'Lakh Baksh'?

[A] Iltutmish

[B] Balban

[C] Muhammad-bin-Tughluq

[D] Qutb ud-Din Aibak

28. Which medieval Indian empire was famous for elaborated local self-government?

[A] Chalukya

[B] Chola

[C] Solanki

[D] Parmar

29. The famous South Indian 'Battle of Takkolam' was fought between

[A] Cholas and North Chalukyas

[B] Cholas and Rashtrakutas

[C] Cholas and Hoyasalas

[D] Cholas and Pandyas

30. Who was the founder of the Chola dynasty?

[A] Vijayalaya

[B] Karikala

[C] Aditya I

[D] Rajaraja I

31. The mighty gateways found at the temples of South India are called

[A] Shikhars

[B] Gopurams

[C] Devalayas

[D] Mandapams

32. Who was the first ruler of the Slave dynasty?

[A] Iltutmish

[B] Qutb ud-Din Aibak

[C] Raziya

[D] Balban

33. Which Sultan of Delhi assumed the title of Alexander the Second?

[A] Balban

[B] Alauddin Khalji

[C] Muhammad-bin-Tughluq

[D] Sikandar Lodi

34. Padmini is associated with Alauddin's conquest of Chittor. She was the wife of

[A] Maharana Pratap Singh

[B] Ranjit Singh

[C] Raja Man Singh

[D] Rana Ratan Singh

35. Who was known as 'Hazar-Dinari'?

[A] Balban

[B] Malik Kafur

[C] Sikandar Lodi

[D] Qutb ud-Din Aibak

36. Who was the founder of Vijayanagara Empire?

[A] Deva Raya I

[B] Krishnadevaraya

[C] Harihara-Bukka Raya

[D] Vira Narasimha Raya

37. With whom the king of Vijayanagara, Krishnadevaraya fought the battle of Golconda?

[A] Quli Qutb Shah

[B] Qutb ud-Din Aibak

[C] Ismail-Adil-Khan

[D] Gajapati

38. Who among the following was known as 'Andhra Bhoj'?

[A] Krishnadevaraya

[B] Rajendra Chola

[C] Harihara

[D] Bukka

39. Which Sultan of Delhi was the first to charge 'Ghari' or House-tax?

[A] Balban

[B] Alauddin Khalji

[C] Mahammad-bin-Tughluq

[D] Firuz Shah Tughluq

40. Where is the famous Vijaya Vitthala Temple, having its 56 carved pillars emitting musical notes located?

[A] Belur

[B] Bhadrachalam

[C] Hampi

[D] Srirangam

41. The Bhakti movement was started by

[A] Alwar Saints

[B] Sufi Saints

[C] Surdas

[D] Tulsidas

42. The Bhakti culture was reborn in India during

[A] Vedic age

[B] 10th century A.D.

[C] 12th century A.D.

[D] 15th–16th century A.D.

43. Chaitanya Mahaprabhu is related to which sect?

[A] Vaishnava

[B] Shaiva

[C] Buddhist

[D] Sufi

44. The Mughal rulers of medieval India were

[A] Persian (Iranian)

[B] Afghans

[C] Chagatai Turks

[D] None of the above

45. Which Mughal emperor followed Ottoman system of war in India?

[A] Akbar

[B] Shah Jahan

[C] Babar

[D] None of them

46. Who among the following Muslim rulers abolished the pilgrimage tax?

[A] Bahlul Lodi

[B] Sher Shah

[C] Humayun

[D] Akbar

47. When did Shivaji assume the title of Chhatrapati?

[A] 1669

[B] 1671

[C] 1661

[D] 1674

48. The Maratha claim of revenue for protection is known by which name?

[A] Sardeshmukhi

[B] Chauth

[C] Abwab

[D] Jamdani

49. During the reign of Shivaji, the foreign minister was known as

[A] Sumant

[B] Amatya

[C] Sar-i-Naubat

[D] Sachiv

50. The disciples in Sufi system were known as

[A] Pirs

[B] Murids

[C] Hadis

[D] Walis

51. Who granted the Diwani of Bengal to the East India Company in 1765?

[A] Nawab of Bengal

[B] Mughal Emperor

[C] British Monarch

[D] The Afghan King

52. Which of the following pairs in ***List—I*** and ***List—II*** are ***correctly*** matched?

List—I ***(Factories)***	***List—II*** ***(European powers)***
(a) Kasimbazar	Dutch
(b) Cochin	English
(c) Cannanore	Portuguese
(d) Goa	Danish

[A] *(a)* and *(c)* only

[B] *(b)* and *(d)* only

[C] *(a)*, *(c)* and *(d)* only

[D] *(a)*, *(b)*, *(c)* and *(d)*

53. The British army against the Indian rulers in the Battle of Buxar was led by

[A] Robert Clive

[B] Hector Munro

[C] Watson

[D] Eyre Coote

54. Who among the following social reformers is credited with the authorship of 'Precepts of Jesus'?

[A] Raja Ram Mohan Roy

[B] Swami Dayanand Saraswati

[C] Swami Vivekananda

[D] Sir Syed Ahmed Khan

55. Match the following :

(a)	Raja Ram Mohan Roy	*(i)*	Prarthana Samaj
(b)	M. G. Ranade	*(ii)*	Arya Samaj
(c)	Dayanand Saraswati	*(iii)*	Satyashodhak Samaj
(d)	Jyotiba Phule	*(iv)*	Brahmo Samaj

[A] *(a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)*

[B] *(a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)*

[C] *(a)-(iii), (b)-(ii), (c)-(i), (d)-(iv)*

[D] *(a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)*

56. Given below are two statements, one is labelled as **Assertion (A)** and other is labelled as **Reason (R)**.

Assertion (A) : Assessment forever was the central point in the Permanent Settlement of Bengal introduced in 1793.

Reason (R) : Cornwallis believed that the Zamindar will develop their lands.

In the context of above two statements, which one of the following is ***correct***?

[A] Both **(A)** and **(R)** are true and **(R)** is the correct explanation of **(A)**

[B] Both **(A)** and **(R)** are true and **(R)** is not the correct explanation of **(A)**

[C] **(A)** is true but **(R)** is false

[D] **(A)** is false but **(R)** is true

57. Who was the exponent of the theory of "Economic Drain" of India during the British rule?

[A] M. N. Roy

[B] Jai Prakash Narayan

[C] Ram Manohar Lohia

[D] Dadabhai Naoroji

58. The author of the drama *Nil Darpan* was

[A] Dinabandhu Mitra

[B] Bishnu Charan Biswas

[C] Kanhu Charan Biswas

[D] Harish Chandra Mukherjee

59. The Dual System of Government in Bengal was abolished in the year

[A] 1765

[B] 1772

[C] 1776

[D] 1784

60. The Ryotwari system was first implemented in

[A] Gujarat

[B] Madras

[C] Bombay

[D] Orissa

61. Consider the following events :

(i) Royal visit of the King Emperor George

(ii) Partition of Bengal

(iii) Shimla Deputation

(iv) Birth of Muslim League

Which one of the following is the ***correct*** chronological sequence of the above events?

[A] *(i)-(ii)-(iii)-(iv)*

[B] *(ii)-(iii)-(iv)-(i)*

[C] *(iii)-(ii)-(i)-(iv)*

[D] *(iv)-(ii)-(i)-(iii)*

62. Who gave Ram Mohan Roy the title of 'Raja'?

[A] Lord William Bentinck

[B] Akbar II

[C] The followers of Brahmo Samaj

[D] Intellectuals who opposed Sati Practice

63. Where did the Revolt of 1857 begin first?

[A] Meerut

[B] Delhi

[C] Kanpur

[D] Jhansi

64. Who was ***not*** a member of the Cabinet Mission Delegation (1946)?

[A] Clement Attlee

[B] Pethick Lawrence

[C] A. V. Alexander

[D] Stafford Cripps

65. The 'Shuddhi Movement' is associated with

[A] Arya Samaj

[B] Prarthana Samaj

[C] Brahmo Samaj

[D] Adi Brahmo Samaj

66. Who presided over the Surat session of INC in 1907?

[A] Lal Mohan Bose

[B] Rash Behari Ghosh

[C] Bhupendra Nath Bose

[D] M. M. Malaviya

67. *Elementary Aspects of Peasant Insurgency in Colonial India* is authored by

[A] Partha Chatterjee

[B] Dipesh Chakrabarty

[C] Gyanendra Pandey

[D] Ranajit Guha

68. Who among the following was the leader of the revolution of 1857 in Assam?

[A] Maniram Dewan

[B] Kandar Peshawar Singha

[C] Purandar Singh

[D] Piyali Baruah

69. Who was the Governor-General of India during the Revolt of 1857?

[A] Lord Dalhousie

[B] Lord Minto

[C] Lord Canning

[D] Lord Bentinck

70. Who said, "Political Freedom is the life-breath of a nation"?

[A] Bal Gangadhar Tilak

[B] Aurobindo Ghosh

[C] Bipin Chandra Pal

[D] Mahatma Gandhi

71. Who was the first person to call Mahatma Gandhi, 'Father of Nation'?

[A] Jawaharlal Nehru

[B] Vallabhbhai Patel

[C] C. Rajagopalachari

[D] Subhash Chandra Bose

72. In which year did Gandhi return from South Africa?

[A] 1915

[B] 1917

[C] 1916

[D] 1918

73. The Muhammadan Anglo-Oriental College at Aligarh was established in the year

[A] 1873

[B] 1874

[C] 1875

[D] 1876

74. Which one of the following is ***wrongly*** matched?

[A] Wavell Plan — 1943

[B] Rajagopalachari Plan — 1944

[C] Bhulabhai Desai-Liaquat Ali Pact — 1945

[D] Cabinet Mission Plan — 1946

75. The newspaper *Mahratta* edited by B. G. Tilak was published in

[A] Hindi

[B] Marathi

[C] English

[D] Gujarati

76. Which country was ***not*** a member of the Triple Entente?

[A] Great Britain

[B] France

[C] Hungary

[D] Russia

77. Which was ***not*** one of the war goals of United States of America during the First World War?

[A] To colonise defeated Germany colonies

[B] War to end the war

[C] Mission to preserve democracy

[D] To bring new international order

78. In 1941, F. D. Roosevelt declared that the United States must become the 'great arsenal of democracy', what was the purpose of this declaration?

[A] To remain neutral

[B] To end the depression

[C] To help the Axis powers

[D] To help Great Britain fight Germany

79. In whose reign did Reformation make its beginning in England?

[A] Henry VIII

[B] Edward VI

[C] Elizabeth

[D] James I

80. Which was ***not*** a part of the programme under the Marshal Plan of United States of America after the Second World War?

[A] Machines

[B] Materials

[C] Weapon

[D] Food

81. Which of the following characteristics was ***not*** associated with the term 'Third World'?

[A] Advanced infrastructure

[B] Colonial or semi-colonial political background

[C] Low living standard

[D] High population growth rate

82. Which of the following was ***not*** a key factor that led to the formation of Non-Alignment Movement?

[A] Struggle against imperialism

[B] Struggle against neo-colonialism

[C] Support the super powers

[D] Sovereign equity

83. Who among the following leaders was ***not*** a founding member of the Non-Alignment Movement?

[A] Gamal Abdel Nasser

[B] Winston Churchill

[C] Josip Broz Tito

[D] Sukarno

84. Which of the following statements on the objectives of the United Nations is ***false***?

[A] To encourage the treaty among the nations

[B] Maintenance of International peace and security

[C] Settlement of International dispute

[D] To safeguard human rights

85. The headquarters of NATO is at

[A] New York

[B] Paris

[C] Brussels

[D] Geneva

86. Which of the following pairs is ***not correct***?

[A] 1961 — Berlin Wall

[B] 1954 — SEATO

[C] 1955 — Baghdad Pact

[D] 1946 — Truman Doctrine

87. Charles De Gaulle is associated with which of the following countries?

[A] England

[B] USA

[C] France

[D] Germany

88. Which of the following is ***not*** associated with Disarmament?

[A] ASEAN

[B] NPT

[C] CTBT

[D] SALT

89. Who was the leader of the Chinese Communist party during the Chinese Revolution?

[A] Sun Yat-sen

[B] Mao Tse -tung

[C] Chiang Kai-Shek

[D] None of them

90. Which of the following was ***not*** the part of apartheid in South Africa?

[A] Racial segregation

[B] Equal legal protection

[C] White superiority

[D] No universal suffrage

91. In which year did the British Government annex Assam?

[A] 1824

[B] 1826

[C] 1838

[D] 1825

92. Which of the following statements is ***correct*** on trade fairs?

(i) British Government arranged trade fairs to make it a rendezvous for tribal chiefs.

(ii) During trade fairs British Government also paid Posa to tribal recipients.

[A] Only *(i)* is correct

[B] Only *(ii)* is correct

[C] Both *(i)* and *(ii)* are correct

[D] Neither *(i)* nor *(ii)* is correct

93. That Kamrupa was a border State of the Gupta Empire is referred to in the

[A] Mahabharata

[B] Allahabad Pillar Inscriptions

[C] Nidhanpur Copper Plate Inscriptions

[D] Kalika Purana

94. Match the ***correct*** pairs and choose the ***correct*** answer.

(a) Tsorgen	*(i)* Adi
(b) Buliang	*(ii)* Monpa
(c) Ngowang	*(iii)* Apatani
(d) Kebang	*(iv)* Wancho

[A] *(a)-(iii), (b)-(i), (c)-(ii), (d)-(iv)*

[B] *(a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)*

[C] *(a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)*

[D] *(a)-(ii), (b)-(iv), (c)-(iii), (d)-(i)*

95. Which was ***not*** a part of the traditional economic activities among the tribes of Arunachal Pradesh?

[A] Timber logging

[B] Fishing

[C] Trade

[D] Gathering

96. The author of *Arunachal Pradesh - Rich Land and Poor People* is

[A] Verrier Elwin

[B] Parul Dutta

[C] J. N. Chowdhury

[D] S. D. Jha

97. Who wrote the book *Democracy in NEFA*?

[A] N. K. Rustomji

[B] Alexander Mackenzie

[C] Verrier Elwin

[D] L. N. Chakravarty

98. In which year was name NEFA given to Arunachal Pradesh?

[A] 1914

[B] 1935

[C] 1946

[D] 1954

99. What was Inner Line?

[A] Political boundary line between British Government and Hill tribes

[B] Land demarcation line between hills and plain

[C] Regular British Administrative jurisdiction

[D] None of the above

100. Match the ***correct*** pairs and choose the ***correct*** answer.

(a) Chindang	*(i)* Tangsa
(b) Gumkum Gumpa	*(ii)* Nocte
(c) Moh-Mol	*(iii)* Sajolang
(d) Chalo Loku	*(iv)* Puroik

[A] *(a)-(iii), (b)-(i), (c)-(ii), (d)-(iv)*

[B] *(a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)*

[C] *(a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)*

[D] *(a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)*

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6. **Candidates are strictly prohibited to possess any book, notebook or loose paper, calculator, mobile phone, any electronic gadget, digital wristwatch etc. inside the Examination Hall, except his/her Unique ID, Admit Card and writing materials only.**
7. Immediately after the final bell, indicating the closure of the Examination, candidates should stop marking answers. Candidates should remain seated till the collection of OMR RESPONSE SHEET by the Invigilator. They will leave the Examination Hall after submission of OMR only after they are permitted by the Invigilator.
8. Violation of any of the above Rules will render the candidate liable to be expelled and disqualified from the Examination and according to the nature and gravity of his/her offence, he/she may be debarred from future Examinations and interviews to be conducted by the Commission and other such organizations.

NB : CANDIDATES ARE ALLOWED TO TAKE THIS QUESTION BOOKLET WITH THEM ONLY AFTER COMPLETION OF 3 (THREE) HOURS OF EXAMINATION TIME.

DO NOT OPEN THE SEAL UNTIL INSTRUCTED TO DO SO

Choose the best answer.

1. **Actually** he doesn't work at home **now a days**.

   [A] Adjectives

   [B] Articles

   [C] Adverbs

   [D] Appositions

2. **Law, chorus, mutton** and **burrito** are known for the _____ type of word formation in English.

   [A] blending

   [B] borrowing

   [C] irregular

   [D] backformation

3. Irregular plurals

   [A] add '-s' to the singular noun

   [B] change '-y' to '-ies'

   [C] change '-f to '-ves'

   [D] change vowel(s) internally

4. You can **play it by ear**.

   [A] Respond to the situation before it occurs

   [B] Respond to the situation as it occurs

   [C] Respond to the situation after it occurs

   [D] Don't respond to the situation

5. **Breathe down someone's neck** means

   [A] smother someone by closing mouth and nose

   [B] watch someone closely

   [C] strangle someone by constricting the neck

   [D] surprise someone unwittingly

6. The first Nigerian writer, Sir Ben Golden Emuobowho Okri's novel _____ won the Booker Prize in 1991.

   [A] *The Famished Road*

   [B] *Songs of Enchantment*

   [C] *Infinite Riches*

   [D] *Every Leaf a Hallelujah*

7. **RSVP**, an acronym stands for _____.

   [A] reply shortly and visit promptly

   [B] please call me

   [C] please respond

   [D] reply soon very positively

8. Select the appropriate word for the blank :

   When Sita switched the bathroom light on, she was horrified to catch a glimpse of cockroaches _____ away into cracks in the tiles.

   [A] plummeting

   [B] creeping

   [C] scuttling

   [D] nipping

9. Their company used to make robots only but they've now _____ into a range of other robotic products.

[A] commingled

[B] diversified

[C] homogenized

[D] distinguished

10. _____ of wolves.

[A] A herd

[B] A flock

[C] A colony

[D] A pack

11. *To India-My Native Land* was written by

[A] H. L. V. Derozio

[B] Rabindranath Tagore

[C] Kamala Das

[D] Nissim Ezekiel

12. Who won the First Prize for the poem titled *'Kali'* in the "All India Poetry Competition" in 1990 organized by the Poetry Society of India in collaboration with British Council?

[A] Meena Kandasamy

[B] Sudha Iyer

[C] Mani Rao

[D] Rukmini Bhaya Nair

13. Sometimes,
You want to talk about
Love and despair and the ungratefulness of children
A man is no use whatever then.
Name the Indian female writer who wrote the stanza in *The Female of the Species*.

[A] Anita Desai

[B] Gauri Deshpande

[C] Jhumpa Lahiri

[D] Chitra Banerjee Divakaruni

14. Which Indian Writer is called as the *Jackie Collins of India*?

[A] Shobhaa De

[B] Manju Kapur

[C] Sudha Murthy

[D] Shashi Deshpande

15. Who are the other two characters in the drama *Nalini* (by Nissim Ezekiel) who revolve around the main character Nalini?

[A] Raju and Rosie

[B] Bharat and Raj

[C] Anna and Marco

[D] Velan and Raju

16. "Love looks not with the eyes, but with the mind;
and therefore is winged Cupid painted blind."
Who utters these lines in Act 1, Scene 1 in William Shakespeare's play *A Midsummer Night's Dream*?

[A] Demetrius

[B] Hermia

[C] Helena

[D] Puck

17. _____ is a style of a literary work that presents a realistic view of the world while incorporating magical elements.

[A] Fiction

[B] Supernatural phenomena

[C] Fantasy literature

[D] Magical realism

18. Mamang Dai received Sahitya Akademi Award in 2017 for the work

[A] *The Legends of Pensam*

[B] *The Black Hill*

[C] *Stupid Cupid*

[D] *Hambreelmai's Loom*

19. *Funeral Nights* was written by

[A] Queenie Madaline Rynjah

[B] Daisy Hasan

[C] Pradip Kurbah

[D] Kynpham Sing Nongkynrih

20. Which of the following literary works was ***not*** written by Walt Whitman?

[A] *Hugh Selwyn Mauberley*

[B] *Franklin Evans; or The Inebriate : A Tale of the Times*

[C] *The Half-Breed; A Tale of the Western Frontier*

[D] *Drum-Taps*

21. Who is the main antagonist in the novel *The Old Curiosity Shop* by Charles Dickens?

[A] Little Nell

[B] Nell Trent

[C] Christopher

[D] Daniel Quilp

22. What is the name of the professor character in *Pygmalion?*

[A] Alexander Melville Bell

[B] Henry Higgins

[C] Alexander J. Ellis

[D] Henry Sweet

23. _____ is the fictional city in the poem *Kubla Khan.*

[A] Shangri La

[B] Neverland

[C] Xanadu

[D] Oz

24. Which of the following is ***not*** Mulk Raj Anand's autobiographical narrative?

[A] *Seven Summers*

[B] *My Days*

[C] *Morning Face*

[D] *Confession of a Lover*

25. The character Dorothea Brooke appears in which of the following novels by George Eliot?

[A] *The Mill on the Floss*

[B] *Adam Brooke*

[C] *Felix Holt, the Radical*

[D] *Middlemarch*

26. Who is the only one Australian writer honored with the Nobel laureates in Literature?

[A] Patrick White

[B] Christina Stead

[C] David Malouf

[D] Peter Carey

27. Kurt Vonnegut's first novel *Player Piano* deals the central theme of

[A] negative impact of technology

[B] romantic love story of piano player

[C] artificial love theme of a couple

[D] love between a musician and a piano

28. Frank L. Baum's *The Wonderful Wizard of Oz* portraits which of the following popular child characters?

[A] Kanga

[B] Pippi

[C] Dorothy

[D] Narnia

29. The Time Traveller in *The Time Machine* written by H. G. Wells goes to

[A] A.D. 807,201

[B] A.D. 809,701

[C] A.D. 802,701

[D] A.D. 802,901

30. The Nebula Awards annually recognize the best works of

[A] diaspora novels

[B] sci-fi novels

[C] African novels

[D] historical novels

31. "Her lips were red, her looks were free,

Her locks were yellow as gold:

Her skin was as white as leprosy,

The Nightmare Life-in-Death was she,

Who thicks man's blood with cold."

Which poem does carry the above lines written by S. T. Coleridge?

[A] *The Rime of the Ancient Mariner*

[B] *On a Lady Weeping*

[C] *To a Young Lady On her Recovery From a Fever*

[D] *To a Lady, with Falconer's Shipwreck*

32. Who is the American writer and poet who criticized Transcendentalism?

[A] Ralph Waldo Emerson

[B] Frederic Henry Hedge

[C] Sophia Ripley

[D] Edgar Allan Poe

33. What is the name of the essay written by R. W. Emerson, formulating and expressing the philosophy of Transcendentalism?

[A] *Nature*

[B] *Self-Reliance*

[C] *The Poet*

[D] *Experience*

34. Who is the author of *Ode to the West Wind?*

[A] Harry Rowe Shelley

[B] Kate Shelley

[C] Percy Bysshe Shelley

[D] Sir Sidney Shelley

35. Who is the first poet who used iambic pentameter verse in his poem?

[A] John Gower

[B] Geoffrey Chaucer

[C] William Langland

[D] John Wycliffe

36. An elegy is a

[A] humorous poem

[B] satirical poem

[C] praising poem

[D] mourning poem

37. *The Monastery : A Romance* (1820), a historical novel by Walter Scott, has _____ volumes in its first edition.

[A] 1

[B] 2

[C] 3

[D] 4

38. *Mac Flecknoe* is a verse mock-heroic satire written by John Dryden to directly attack

[A] Alexander Pope

[B] Thomas Shadwell

[C] John Milton

[D] Samuel Pepys

39. Christopher Marlowe belongs to the

[A] Transition Age

[B] Elizabethan Age

[C] Victorian Age

[D] Romantic Age

40. T. S. Eliot's popular modernist poem *The Waste Land* was published in

[A] 1925

[B] 1930

[C] 1932

[D] 1922

41. What is the name of Milton's heavenly muse in *Paradise Lost?*

[A] Urania

[B] Titan

[C] Michael

[D] Sin

42. Choose the best synonym.
Dave was **seething** when he got a parking ticket.

[A] Angry

[B] Uninterested

[C] Calm

[D] Tired

43. Choose the best synonym.

Juliet is hard-working. She **takes after** her mother.

[A] Takes care of her mother

[B] Takes the business after her mother

[C] Resembles her mother

[D] Differs from her mother

44. An extensive study into the cognitive effects of sleep deprivation will be conducted by researchers over the coming year. Identify the ***correct*** tense.

[A] Simple future tense

[B] Future continuous tense

[C] Future perfect tense

[D] Future perfect continuous tense

45. Manvi will meet you _____ the library _____ Friday _____ the evening. Choose the ***correct*** prepositions.

[A] in, on, at

[B] in, at, on

[C] at, on, in

[D] on, in, at

46. I went to _____ University of Delhi where I met _____ senior professor. _____ professor taught me how to write _____ application. Choose the ***correct*** articles.

[A] a, a, the, an

[B] the, a, the, an

[C] an, a, the, the

[D] the, the, the, an

47. We _____ (study) hard so we _____ (pass) the exam. Choose the ***correct*** verb form.

[A] have studied, passed

[B] studied, passed

[C] study, passed

[D] had studied, passed

48. It was noisy next door last night. Our roommates _____ a party. Choose the ***correct*** verb form.

[A] is having

[B] had been

[C] have

[D] were having

49. Thirty people _____ (employ) by the company. Choose the ***correct*** passive form.

[A] is employed

[B] will employ

[C] are employed

[D] are employee

50. She hasn't received the letter yet. It might _____ to the wrong address. Choose the best verb form.

[A] been send

[B] have been sent

[C] be send

[D] sent

51. What is the plural form of fungus?

[A] Fungi

[B] Fungus'

[C] Fungu's

[D] Fungis

52. Sung isn't popular in the village. She has _____ friends. Choose the best answer.

[A] much

[B] few

[C] many

[D] little

53. The phrase *Dear Sir/Madam* is called _____ in letter writing.

[A] sign off

[B] salutation

[C] greetings

[D] opening remarks

54. Choose the ***correct*** chronological order of the following Shakespearean tragedies.

[A] Antony and Cleopatra, Hamlet, Romeo and Juliet and Othello

[B] Hamlet, Othello, Antony and Cleopatra, and Romeo and Juliet

[C] Othello, Hamlet, Antony and Cleopatra, and Romeo and Juliet

[D] Romeo and Juliet, Hamlet, Othello and, Antony and Cleopatra

55. Who did Orsino marry at the end of the play *Twelfth Night?*

[A] Maria

[B] Malvolio

[C] Olivia

[D] Viola

56. *The Comedy of Errors* is set in the city of

[A] Denmark

[B] Ephesus

[C] Egypt

[D] Scotland

57. Jonathan Swift was

[A] an Anglo-Irish poet

[B] an Anglo-Greek poet

[C] an Anglo-Scottish poet

[D] an Anglo-Saxon poet

58. He burnt his fingers and to cool them he applied them in his booby fashion to his mouth. Some of the crumbs of the scorched skin had come away with his fingers and for the first time in his life (in the world's life indeed, for before him no man had known it) he tasted—crackling!

The above mouth-watering lines were written by

[A] John Keats

[B] Lord Byron

[C] Charles Lamb

[D] William Hazlitt

59. Who did write the essay *The Indian Jugglers?*

[A] Ruskin Bond

[B] William Hazlitt

[C] V. S. Naipaul

[D] Shashi Tharoor

60. _____ novel was written in 1927 employing the stream of consciousness as a narrative mode.

[A] *How Late It Was, How Late*

[B] *Mrs Dalloway*

[C] *Ulysses*

[D] *To the Lighthouse*

61. The play *Waiting for Godot* has _____ act(s).

[A] 4

[B] 3

[C] 2

[D] 1

62. What is the character name of James Joyce's literary alter ego in *Ulysses?*

[A] Stephen Dedalus

[B] Molly Bloom

[C] Ulysses

[D] Leopold Bloom

63. "Beauty lay not in the thing, but in what the thing symbolized" is from Thomas Hardy's novel

[A] *Far from the Madding Crowd*

[B] *The Return of the Native*

[C] *The Mayor of Casterbridge*

[D] *Tess of the D'Urbervilles*

64. Pick the work of Samuel Johnson.

[A] *A Dictionary of the English Language*

[B] *Universal Etymological Dictionary*

[C] *A New English Dictionary*

[D] *The New World of English Words*

65. The character Falstaff appeared in _____, _____ and _____ plays of Shakespeare.

[A] Henry IV Part-One, Henry IV Part-Two, King Richard III

[B] Henry IV Part-One, Henry IV Part-Two, The Merry Wives of Windsor

[C] Henry IV Part-One, Henry IV Part-Two, The Comedy Of Errors

[D] Henry IV Part-One, Henry IV Part-Two, Much Ado About Nothing

66. What is the genre of the work *A Modest Proposal* by Jonathan Swift?

[A] Romantic

[B] Tragedy

[C] Satire

[D] Comedy

67. How many years did the hero Robinson Crusoe spend on his desert island?

[A] 22 years

[B] 25 years

[C] 27 years

[D] 28 years

68. *Aisha,* a 2010 Indian Hindi-language romantic comedy-drama, directed by Rajshree Ojha is an adaptation of Jane Austen's novel of

[A] *Mansfield Park*

[B] *Emma*

[C] *Pride and Prejudice*

[D] *Sense and Sensibility*

69. Which play of Oscar Wilde was banned in London in 1892 while rehearsals were underway?

[A] *A Woman of No Importance*

[B] *An Ideal Husband*

[C] *Salomé*

[D] *The Importance of Being Earnest*

70. Things fall apart; the centre cannot hold;

Mere anarchy is loosed upon the world.

Name the poem of William Butler Yeats.

[A] *The Second Coming*

[B] *Easter, 1916*

[C] *Politics*

[D] *Under Ben Bulben*

71. Who is the writer of *The Hairy Ape?*

[A] Sophie Treadwell

[B] Elmer Rice

[C] Marsha Norman

[D] Eugene O'Neill

72. Where did the Harlem Renaissance start in early 20th century?

[A] Europe

[B] Africa

[C] America

[D] South Asia

73. Who is the author of the confessional poem *Daddy?*

[A] Anne Sexton

[B] W. D. Snodgrass

[C] Sylvia Plath

[D] John Berryman

74. Who was appointed as the United States Poet Laureate in 1958?

[A] Ezra Pound

[B] Robert Frost

[C] W. B. Yeats

[D] E. E. Cummings

75. John Keats was born in

[A] London

[B] Edinburgh

[C] Dublin

[D] Helsinki

Reading Comprehension

Reasoning about our own and others' minds involves a special kind of understanding that researchers in psychology and neuroscience call theory of mind. Theory of mind is the ability to consider or infer one's own and others' mental and emotional states, such as thoughts, feelings, desires, motives, or intentions and use those to make predictions and generate explanations for others' behavior. In addition, like other executive skills, theory of mind develops in childhood and varies considerably in children and adults. Children's developing theory of mind abilities provide the foundation for the development of their metacognitive skills and theory of mind is related to social competence and successful peer relations from preschool to adolescence. Other terms used to describe this kind of reasoning are social understanding, social imagination and mentalizing. As I noted above, sometimes comprehension fails because students do not make the social inferences necessary for understanding texts. In other words, they don't understand psychological causality and make inferences about actions rather than inferences about characters' internal responses. But, as shown later in this chapter, this kind of reasoning can be taught, resulting in improvements in reading comprehension.

Another aspect of social understanding that is related to theory of mind is counterfactual thinking, the ability to consider alternatives to events that have already taken place, which is usually motivated by a desire to improve on a situation. Counterfactual thinking and theory of mind are related and the development of cool executive skills supports both of these aspects of social understanding. When readers consider what characters could have done to change a situation in positive or negative ways, they are engaging in counterfactual thinking. For example, if, while reading the book *The Day the Crayons Quit* by Drew Daywalt (2013), a reader considers what Duncan could have done differently so that his crayons would not have quit, she is engaging in counterfactual thinking. Similarly, when reading an informational text on the Titanic, readers would be using counterfactual thinking when they consider alternative outcomes, such as the number of lives that would have been saved had the builders of the Titanic included enough lifeboats for all of the passengers aboard the ship. You can see how this kind of reasoning also involves thinking about others' thoughts, intentions, feelings and motivations because one must consider characters' existing motivations to suggest alternative ones. And, as you might expect, counterfactual thinking is also related to reading comprehension in children and adults.

76. What is the term used in psychology and neuroscience for understanding one's own and others' minds?

[A] Social competence

[B] Cognitive flexibility

[C] Theory of mind

[D] Emotional intelligence

77. Which of the following is ***not*** another term used for the theory of mind in the passage?

[A] Social imagination

[B] Social understanding

[C] Mentalizing

[D] Introspective logic

78. What kind of executive skills support both theory of mind and counterfactual thinking?

[A] Cool executive skills

[B] Warm executive skills

[C] Procedural executive skills

[D] Creative executive skills

79. According to the passage, what is the result of explicitly teaching theory of mind reasoning?

[A] Enhanced reading comprehension

[B] Improvement in writing skill

[C] Increase in vocabulary

[D] Better factual recall

80. In the example from *The Day the Crayons Quit,* what does considering Duncan's possible alternative actions demonstrate?

[A] Empathy training

[B] Literal comprehension

[C] Predictive reasoning

[D] Counterfactual thinking

81. Which of the following best describes the primary function of theory of mind as explained in the passage?

[A] The ability to memorize others' actions accurately

[B] The ability to predict and explain others' behavior based on mental states

[C] The capacity to control emotional impulses

[D] The skill of distinguishing between reality and imagination

82. According to the passage, which pair of skills share a developmental relationship?

[A] Counterfactual thinking and rote learning

[B] Theory of mind and mechanical reasoning

[C] Theory of mind and metacognitive skills

[D] Emotional memory and perceptual awareness

83. Why do some students fail in reading comprehension, according to the author?

[A] They cannot recall narrative events in order

[B] They fail to make social inferences about characters' internal states

[C] They depend too much on literal meanings of words

[D] They confuse main ideas with minor details

84. How does the passage link counterfactual thinking with theory of mind?

[A] By suggesting they are unrelated cognitive processes

[B] By claiming counterfactual thinking replaces emotional reasoning

[C] By viewing one as a barrier to social understanding

[D] By showing both rely on understanding others' thoughts and motives

85. When a reader imagines how Titanic's outcome could have changed, what type of reasoning is being applied?

[A] Hypothetical problem solving

[B] Counterfactual reasoning

[C] Metacognitive reflection

[D] Abstract generalization

Choose the best answer.

86. A sonnet is a poetic form of _____ with a set rhyming scheme.

[A] 14 lines

[B] 8 lines

[C] 12 lines

[D] 10 lines

87. Who among the following is ***not*** a Victorian Poet?

[A] Thomas Carlyle

[B] John Ruskin

[C] Robert Southey

[D] Alfred Tennyson

88. Vikram Seth's work *Two Lives,* published in 2005, is _____ of the marriage of his great-uncle and aunt.

[A] a biography

[B] a fantasy

[C] a melodrama

[D] a memoir

89. Who is the winner of the 2025 Nobel prize in literature?

[A] Can Xue

[B] László Krasznahorkai

[C] Haruki Murakami

[D] Margaret Atwood

90. The title of the novel *Nectar in a Sieve* of Kamala Markandaya is taken from the poem _____ by Samuel Taylor Coleridge.

[A] *Frost at Midnight*

[B] *Work Without Hope*

[C] *The Rime of the Ancient Mariner*

[D] *The Nightingale*

91. Who is the first winner of Jnanpith Award for Indian writing in English?

[A] Amitav Ghosh

[B] R. K. Narayan

[C] Kamla Markandaya

[D] Anita Desai

92. Who among the following South Asian writers was awarded the SAARC Literary Award in 2023?

[A] Mohammad Nurul Huda

[B] Ashraf Ali

[C] Chador Wangmo

[D] Bhishma Upreti

93. Ambiguity means

[A] unusually far-fetched or elaborate meaning

[B] a second distinct meaning partially hidden

[C] a spiritual interpretation behind the literal meaning of a text

[D] openness to different interpretations

94. The term metaphor refers to

[A] an indirect or passing reference to some event

[B] one thing, idea or action which is referred to by a word or expression

[C] an explicit comparison between two different things

[D] an illustration of an idea by means of a more familiar idea

95. The Touchstone Method of literary criticism was introduced by Matthew Arnold in his essay

[A] *The Study of Novel*

[B] *The Study of Drama*

[C] *The Study of Essay*

[D] *The Study of Poetry*

96. Francis Bacon was

[A] an essayist

[B] a poet

[C] a novelist

[D] a playwright

97. When were Edmund Spenser's *The Faerie Queene*, Books 1-3 published?

[A] 1596

[B] 1590

[C] 1591

[D] 1593

98. Who among the following is the Metaphysical Poet?

[A] John Dryden

[B] Alexander Pope

[C] John Donne

[D] Edmund Spenser

99. Which of the following is the last completed fictional work of Ernest Hemingway?

[A] *The Fifth Column and the First Forty-Nine Stories*

[B] *For Whom the Bell Tolls*

[C] *Across the River and into the Trees*

[D] *The Old Man and the Sea*

100. Who is the character who sold his wife Susan and daughter Elizabeth-Jane to Richard Newson in T. Hardy's Novel *The Mayor of Casterbridge?*

[A] Michael Henchard

[B] Donald Farfrae

[C] Lucetta Templeman

[D] Joshua Jopp

SPACE FOR ROUGH WORK

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★ ★ ★