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Series :

a

Question Booklet No.

ESE/25/RT/ELE/2025

**ELECTRICAL
ENGINEERING**

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Time : 3 Hours

Maximum Marks : 200

ROLL NO.

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ESE/25/RT/ELE/2025/96-a



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1. For a load flow solution, the quantities normally specified at a voltage controlled bus are

- [A] P and Q
- [B] P and $|V|$
- [C] Q and $|V|$
- [D] P and δ

2. A shunt fault is characterized by

- [A] increase in current, frequency and p.f
- [B] increase in current, reduction frequency and p.f
- [C] increase in current, frequency and reduction in p.f
- [D] decrease in current, frequency and reduction in p.f

3. The inertia constant H of a machine of 200 MVA is 2 p.u, its value corresponding to 400 MVA will be

- [A] 4.0 p.u
- [B] 2.0 p.u
- [C] 1.0 p.u
- [D] 0.5 p.u

4. Corona loss is less when the shape of the conductor is

- [A] circular
- [B] flat
- [C] oval
- [D] independent of the shape

5. Ferranti effect on long overhead transmission line is experienced when it is

- [A] lightly loaded
- [B] on full load at unity p.f
- [C] on full load at 0.8 p.f lagging
- [D] All of the above

6. Surge impedance loading of 50 miles long underground cable is 50 ohms. For 25 miles, it will be

- [A] 25 ohms
- [B] 50 ohms
- [C] 100 ohms
- [D] 200 ohms



7. The most economic load on the overhead line is

- [A] greater than the natural load
- [B] less than the natural load
- [C] equal to the natural load
- [D] None of the above

8. The voltages at the two ends of a line are 132 kV and its reactance is 100 ohms. The capacity of the line is

- [A] 174.24 MW
- [B] 217.8 MW
- [C] 251.5 MW
- [D] 500 MW

9. Three insulating materials with same maximum working stress and permittivities 2.5, 3.5, 4.5 are used in a single core cable. The location of the materials with respect to the core of the cable will be

- [A] 2.5, 3.5, 4.5
- [B] 3.5, 2.5, 4.5
- [C] 4.5, 3.5, 2.5
- [D] 4.5, 2.5, 3.5

10. Which power plant has minimum operating cost?

- [A] Gas Turbine Power Plant
- [B] Thermal Power Plant
- [C] Nuclear Power Plant
- [D] Hydroelectric Power Plant

11. Which of the following equipments is **not** used for voltage control?

- [A] Tap changing transformers
- [B] Series compensators
- [C] Induction generators
- [D] Synchronous phase modifiers

12. In power system analysis, which of the following is used to determine equal-area criterion?

- [A] Steady state stability
- [B] Transient stability
- [C] Maximum reactive power limit
- [D] Both steady state and transient stability

13. A 200 bus power system has 160 PQ bus. For achieving a load flow solution by N-R in polar coordinates, the minimum number of simultaneous equations to be solved is

- [A] 359
- [B] 334
- [C] 357
- [D] 345

14. The area under the load curve represents

- [A] maximum demand
- [B] load factor
- [C] the average load on power system
- [D] number of units generated

15. Which of the following elements of hydroelectric power plant mainly prevents the penstock from water hammer phenomenon?

- [A] Surge tank
- [B] Draft tubes
- [C] Spillways
- [D] Valves and Gates

16. Which of the following is an essential requirement for a peak load plant?

- [A] Economical and speedy repair
- [B] Capability of working continuously
- [C] Low operating cost
- [D] Capability of quick start

17. Monthly consumption of a consumer is 500 kWh. What will be the monthly bill at the following rate?

First 100 units ₹0.4/kWh

Next 100 units ₹0.5/kWh

Remaining units ₹0.6/kWh

- [A] ₹250
- [B] ₹256
- [C] ₹270
- [D] ₹230

18. What is the primary purpose of sag in overhead lines?

- [A] To increase the line's electrical resistance
- [B] To reduce the mechanical stress on the supports
- [C] To improve the line's aesthetic appearance
- [D] To minimize the cost of the conductor material

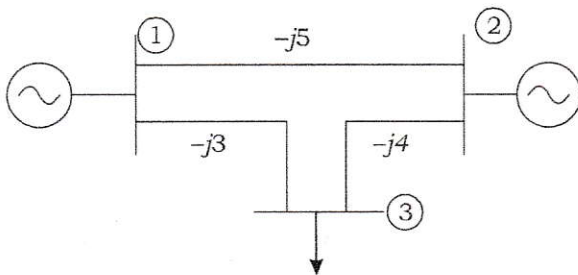
19. Which type of insulators are typically used at dead-ends or where the line changes direction?

- [A] Pin insulators
- [B] Suspension insulators
- [C] Strain insulators
- [D] Shackle insulators

20. What is the primary function of a cross-arm on a transmission tower?
- [A] To reduce the overall height of the tower
 - [B] To provide a platform for maintenance personnel
 - [C] To support the conductors and maintain separation
 - [D] To protect the conductors from lightning strikes
21. A transmission line consists of 9 discs of suspension insulators in each string. What is the operating voltage of the transmission line?
- [A] 11 kV
 - [B] 33 kV
 - [C] 66 kV
 - [D] 132 kV
22. A transmission line is said to be surge impedance loaded when
- [A] reactive power generated equals reactive power consumed
 - [B] active power generated equals active power consumed
 - [C] voltage is at its nominal value
 - [D] current is at its maximum value
23. Which of the following is **not** a method of reactive power compensation?
- [A] Shunt capacitors
 - [B] Series capacitors
 - [C] Shunt reactors
 - [D] Voltage regulators

24. What is the difference between unit commitment and economic dispatch?
- [A] Unit commitment determines which units are online, while economic dispatch determines how much power each online unit generates
 - [B] Unit commitment determines how much power each online unit generates, while economic dispatch determines which units are online
 - [C] They are the same thing
 - [D] Unit commitment is a short-term problem, while economic dispatch is a long-term problem
25. In optimal power flow solution, the equality constraints are basically
- [A] voltage equations
 - [B] power flow equations
 - [C] current flow equations
 - [D] Both [A] and [C]
26. Generally, Z bus matrix in power system analysis is
- [A] null matrix
 - [B] full matrix
 - [C] unit matrix
 - [D] sparse matrix
27. The size of Y bus matrix (or bus admittance matrix) for a given n -bus power system is
- [A] $(n-1) \times (n-1)$
 - [B] $(n) \times (n-1)$
 - [C] $(n-2) \times (n-2)$
 - [D] $(n) \times (n)$

28. Identify the admittance matrix by inspection, for given power system with relevant per unit admittances are indicated on the diagram shown in the following figure :



[A]
$$\begin{bmatrix} -j8 & j5 & j3 \\ j5 & -j9 & j4 \\ j3 & j4 & -j7 \end{bmatrix}$$

[B]
$$\begin{bmatrix} -j8 & -j5 & -j3 \\ -j5 & -j9 & -j4 \\ -j3 & -j4 & -j7 \end{bmatrix}$$

[C]
$$\begin{bmatrix} j8 & -j5 & -j3 \\ -j5 & j9 & -j4 \\ -j3 & -j4 & j7 \end{bmatrix}$$

[D]
$$\begin{bmatrix} j8 & j5 & j3 \\ j5 & j9 & j4 \\ j3 & j4 & j7 \end{bmatrix}$$

29. Where the voltages are high and current to be interrupted is low, the breaker preferred is

- [A] air blast Circuit Breaker (C.B)
- [B] oil C.B
- [C] vacuum C.B
- [D] None of the above



30. What is the primary purpose of using a distance relay in transmission line protection?

- [A] To detect faults based on voltage levels
- [B] To detect faults based on current levels
- [C] To detect faults based on frequency changes
- [D] To detect faults based on impedance to the fault location

31. A three-phase semi converter with RLE-load will work as three-pulse converter (that means, it produces three pulses in output voltage in every one time period of supply voltage) when firing angle (α) is

- [A] $\alpha > 60^\circ$
- [B] $\alpha < 60^\circ$
- [C] $\alpha > 90^\circ$
- [D] $\alpha < 90^\circ$

32. In a single-phase full converter circuit with RL load, with firing angle α and extinction angle β , the conduction angle γ is equal to

- [A] $\gamma = \beta + \alpha$
- [B] $\gamma = \beta - \alpha$
- [C] $\gamma = \beta/\alpha$
- [D] $\gamma = \alpha/\beta$

33. In a thyristor with terminals of anode (A), cathode (K), gate (G) and different junctions J_1 , J_2 and J_3 , when the thyristor is subjected to forward voltage without applying gate voltage, then the junctions

- [A] J_1 , J_2 and J_3 are forward biased
- [B] J_1 , J_2 and J_3 are reverse biased
- [C] J_1 and J_3 are forward biased and J_2 is reverse biased
- [D] J_1 and J_3 are reverse biased and J_2 is forward biased

34. Consider the following statements about a Silicon-Controlled Rectifier (SCR) :

- (a) It is a four-layer, three-terminal device.
- (b) It turns on during forward blocking mode and reverse blocking mode.
- (c) It is in forward blocking and off stage when forward voltage is applied between anode and cathode.
- (d) It conducts when forward voltage is applied between anode and cathode with sufficient gate voltage applied between gate and cathode.

Which of the following statements given above are **correct**?

- [A] (a), (b), (c) and (d)
- [B] (a), (b) and (c) only
- [C] (a) and (d) only
- [D] (a), (c) and (d) only

35. A Buck-Boost converter works like a Buck converter for which of the following duty cycle settings?

- [A] 0.4
- [B] 0.5
- [C] 0.6
- [D] 0.8

36. Which among the following devices is most suited for high frequency applications?

- [A] BJT
- [B] MOSFET
- [C] IGBT
- [D] SCR



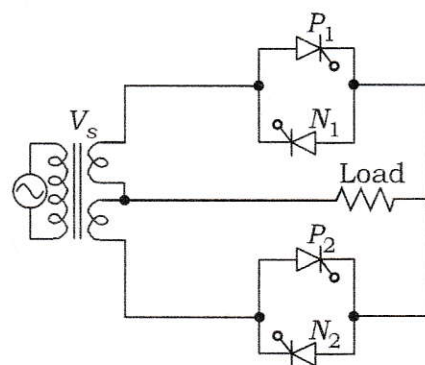
37. The main effect of source inductance on the performance of single-phase and three-phase full converters is

- [A] reduce the ripples in the load current
- [B] make discontinuous current as continuous
- [C] reduce the output voltage
- [D] increase the load voltage

38. To eliminate the 5th harmonic from the output voltage waveform of a single-pulse width modulation PWM inverter with the pulse width $2d$, the value of the pulse width ($2d$) must be equal to

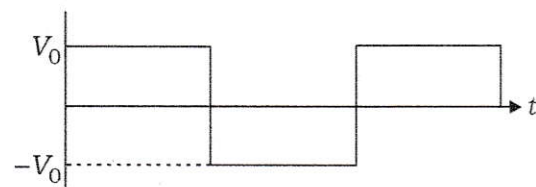
- [A] 72°
- [B] 36°
- [C] 144°
- [D] 108°

39. In the negative half cycle of supply voltage from $\omega t = \pi$ to 2π in the cycloconverter shown in the figure below



- [A] P_1 and P_2 are forward biased
- [B] N_1 and P_2 are forward biased
- [C] P_1 and N_2 are forward biased
- [D] P_2 and N_1 are forward biased

40. The output voltage waveform shown in the below figure is obtained by which of the following power electronic converters?



- [A] AC-DC full bridge converter
- [B] Boost converter
- [C] Inverter
- [D] AC voltage controller

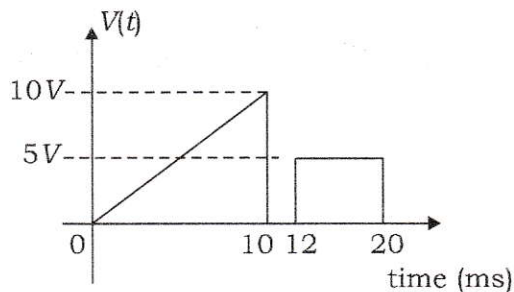
41. The output voltage waveform of a single-phase square-wave inverter contains

- [A] only even harmonics
- [B] both odd and even harmonics
- [C] only triple harmonics
- [D] only odd harmonics

42. The relation between output voltage (V_o) and input voltage (V_{in}) in terms of duty ratio (D) for a boost converter is

- [A] $V_o = D * V_{in} / (1 - D)$
- [B] $V_o = V_{in} / (1 - D)$
- [C] $V_o = D * V_{in}$
- [D] $V_o = (1 + D) * V_{in} / (1 - D)$

43. The following part of the periodic waveform is observed in the oscilloscope across the load. A Permanent Magnet Moving Coil (PMMC) voltmeter connected across the same load reads



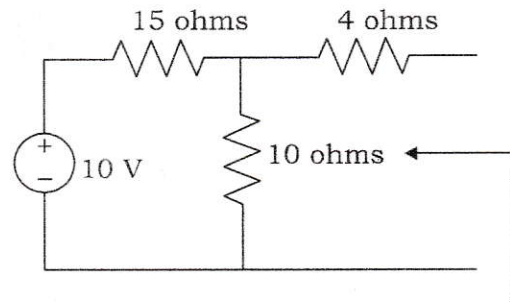
- [A] 4.5 V
- [B] 12 V
- [C] 8.5 V
- [D] 10 V



44. The average power delivered to an impedance of $(2 + j3)$ ohms by a current $i = 5 \cos(100\pi t + 100)$ A is

- [A] 100 W
- [B] 125 W
- [C] 75 W
- [D] 25 W

45. Norton equivalent current source and corresponding resistance respectively for the given circuit shown below is

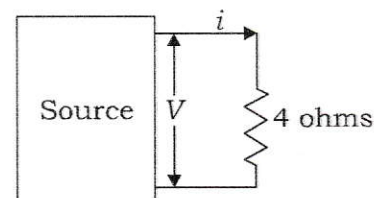


- [A] 0.4 A, 10 ohms
- [B] 0.8 A, 6 ohms
- [C] 0.4 A, 15 ohms
- [D] 0.8 A, 4 ohms

46. Two capacitors $C_1 = 0.005 \mu\text{F}$ and $C_2 = 0.02 \mu\text{F}$ are connected in series. The effective capacitance value is

- [A] $0.025 \mu\text{F}$
- [B] 4 nF
- [C] 1.75 nF
- [D] $8 \mu\text{F}$

47. In the following figure, a 4Ω resistor is connected across a source that has a load line $v + i = 100$. Then the current through the resistance is



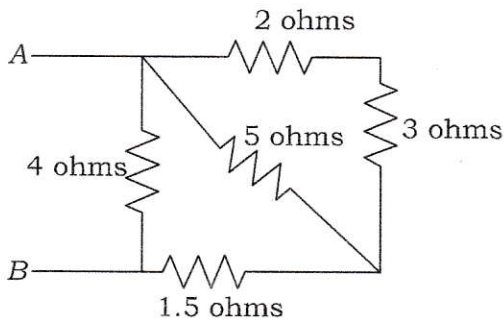
- [A] 20 A
- [B] 50 A
- [C] 80 A
- [D] 100 A

48. If four resistors, each of resistance $20\ \Omega$ are connected in parallel, then equivalent resistance is

[A] $80\ \Omega$
 [B] $10\ \Omega$
 [C] $5\ \Omega$
 [D] $60\ \Omega$



49. Calculate the equivalent resistance between A and B for the following network :



[A] $2.5\ \text{ohms}$
 [B] $8\ \text{ohms}$
 [C] $2\ \text{ohms}$
 [D] $11.5\ \text{ohms}$

50. Determine the time period of $x(t) = 3\sin(200t + 5)$.

[A] $100/\pi$
 [B] $\pi/100$
 [C] $\pi/200$
 [D] $20/\pi$

51. In a purely inductive load circuit, the average power dissipation and angle between voltage and current (θ) respectively are

[A] $0, 90^\circ$
 [B] $1, 90^\circ$
 [C] $1, 0^\circ$
 [D] $0, 0^\circ$

52. A voltage $v(t) = 100\sin\omega t$ is applied to a circuit. The current flowing through the circuit is $i(t) = 10\sin(\omega t - 60^\circ)$. Determine the average power delivered to the circuit.

[A] $1000\ \text{W}$
 [B] $250\ \text{W}$
 [C] $500\ \text{W}$
 [D] $100\ \text{W}$

53. In measurement of three-phase power using two-watt meter method, if the two-watt meter readings are equal, then the power factor of the circuit is

[A] zero
 [B] 0.8 lagging
 [C] 0.8 leading
 [D] unity

54. In a delta-connected load, the relation between line voltage and the phase voltage is

[A] line voltage = $\sqrt{3}$ (phase voltage)
 [B] line voltage = $\sqrt{2}$ (phase voltage)
 [C] line voltage = phase voltage
 [D] line voltage = $\sqrt[3]{2}$ (phase voltage)

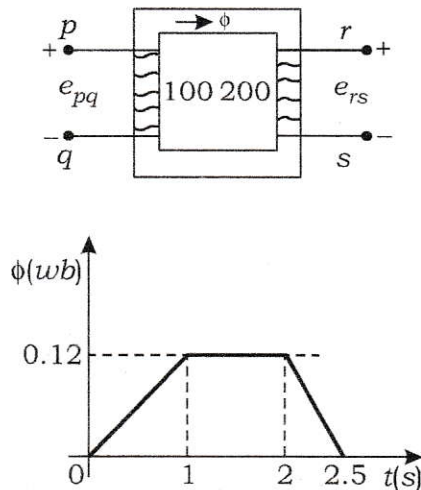
55. In measurement of three-phase balanced load using two-watt meter method, the watt meter readings are $W_1 = 500$ and $W_2 = 400$, then the total reactive power of the load in VAR is

[A] $\sqrt{3} \times 400$
 [B] $\sqrt{3} \times 900$
 [C] $\sqrt{3} \times 500$
 [D] $\sqrt{3} \times 100$

56. In a series resonance circuit, the impedance is

- [A] inductive
- [B] purely resistive
- [C] capacitive and inductive
- [D] purely capacitive

57. The core of a two-winding transformer is subjected to a magnetic flux variation as indicated in the figure :



The maximum induced e.m.f in the secondary winding during $t = 1$ to 2 sec is

- [A] 12 V
- [B] 24 V
- [C] 0 V
- [D] 36 V

58. A 4-pole induction motor, supplied by a slightly unbalanced three-phase 50 Hz source, is rotating at slip value of 0.04. The electrical frequency in Hz of the induced negative sequence current in the rotor is

- [A] 100
- [B] 50
- [C] 52
- [D] 98



59. Distributed winding and short chording employed in AC machines will result in

- [A] improvement in the waveform and reduction in harmonics
- [B] reduction in e.m.f and increase in harmonics
- [C] increase in both e.m.f and harmonics
- [D] No significant effect in both e.m.f and harmonics

60. The direction of rotation of a 3-phase induction motor is clockwise when it is supplied with 3-phase sinusoidal voltage having phase sequence A-B-C. For counterclockwise rotation of the motor, the phase sequence of the power supply should be

- [A] B-C-A
- [B] A-C-B
- [C] C-A-B
- [D] B-C-A or C-A-B

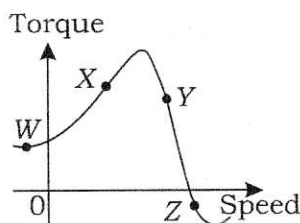
61. In a transformer, zero voltage regulation at full load is

- [A] not possible
- [B] possible at unity power factor load
- [C] possible at leading power factor load
- [D] possible at lagging power factor load

62. What is the main purpose of laminating the armature core in a DC machine?

- [A] To reduce eddy current losses
- [B] To reduce hysteresis losses
- [C] To increase the magnetic flux
- [D] To increase the armature resistance

63. On the torque/speed characteristics of the induction motor shown in the below figure, four points of operation are marked as W, X, Y and Z. Which one of them represents the stable operating point during motoring operation at a slip less than 1?



- [A] X
[B] Y
[C] W
[D] Z
64. In a capacitor start single-phase induction motor, when capacitor is short circuited, then
- [A] motor will not run
[B] motor will run at very high speed in same direction
[C] motor will run at very high speed in reverse direction
[D] motor will run at very low speed in reverse direction
65. The type of single-phase induction motor having the highest power factor at full load is
- [A] shaded pole type
[B] capacitor-start type
[C] split-phase type
[D] capacitor-run type

66. The synchronous speed for the seventh space harmonic m.m.f wave of a 3-phase, 8-pole, 50 Hz induction machine is

- [A] 107.14 r.p.m.
[B] 750 r.p.m.
[C] 1500 r.p.m.
[D] 525.15 r.p.m.



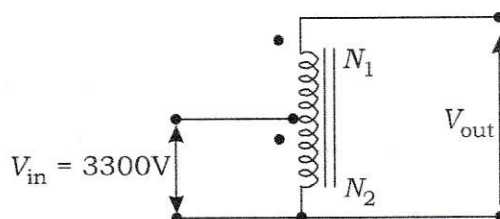
67. For a linear electromagnetic circuit, which of the following statements is **true**?

- [A] Field energy is equal to the co-energy
[B] Field energy is greater than the co-energy
[C] Field energy is lesser than the co-energy
[D] Co-energy is zero

68. Autotransformers are particularly economical, when

- [A] voltage ratio is very high
[B] voltage ratio is higher than 2 in smaller range
[C] voltage ratio is less than 2
[D] Can be used in any voltage ratio

69. A 23 kVA, 3300/230 V single-phase transformer is connected as an autotransformer shown in the figure. The nominal rating of the autotransformer will be



- [A] 50.0 kVA
[B] 717.4 kVA
[C] 53.5 kVA
[D] 353 kVA

70. It is desired to measure the parameters of 230 V/115 V, 2 kVA, single-phase transformer. The following wattmeters are available in a laboratory :

W1 : 250 V, 10 A, Low Power Factor

W2 : 250 V, 5 A, High Power Factor

W3 : 150 V, 10 A, High Power Factor

W4 : 150 V, 5 A, High Power Factor

The Wattmeter used in open circuit test of the transformer will be

- [A] W1
- [B] W2
- [C] W3
- [D] W4

71. Consider a feedback control system with loop transfer function

$$G(s)H(s) = \frac{K(1 + 0.5s)}{(1 + s)(1 + 2s)}$$

The type of the closed loop system is

- [A] type one
- [B] type two
- [C] type three
- [D] type zero

72. The point of intersection of the asymptotes of the root loci with the real axis for the following is

$$G(s)H(s) = \frac{K}{s(s+1)(s+3)}$$

- [A] 4
- [B] -1.33
- [C] 1.33
- [D] 5

73. The transfer function $Y(s)/U(s)$ of a system described by the state equations $dx/dt = -2x + 2u$ and $y(t) = 0.5x$ is

- [A] $0.5/(s-2)$
- [B] $1/(s+2)$
- [C] $1/(s-2)$
- [D] $0.5/(s+2)$



74. A linear system at rest is subject to an input signal $r(t) = 1 - e^{-t}$. The response of the system for $t > 0$ is given by $c(t) = 1 - e^{-2t}$. The transfer function of the system is

- [A] $(s+2)/(s+1)$
- [B] $(s+1)/(s+2)$
- [C] $2(s+1)/(s+2)$
- [D] $(s+1)/2(s+2)$

75. Feedback control system is basically

- [A] band pass filter
- [B] band stop filter
- [C] high pass filter
- [D] low pass filter

76. Nyquist plot of the given open-loop transfer function $G(s)H(s)$ consists of number of encirclements $N = 1$ and one right-hand pole ($P = 1$), then the closed-loop system is

- [A] always stable
- [B] unstable with one closed-loop right hand pole
- [C] unstable with two closed-loop right hand poles
- [D] unstable with three closed-loop right hand poles

77. If the characteristic equation of a closed-loop system is $s^2 + 2s + 2 = 0$, then the system is

- [A] overdamped
- [B] critically damped
- [C] underdamped
- [D] undamped



78. If root loci plots of a particular control system do not intersect the imaginary axis at any point, then the gain margin of the system will be

- [A] 0
- [B] 0.707
- [C] 1
- [D] infinite

79. When the number of poles is equal to the number of zeroes, how many branches of root locus tend towards infinity?

- [A] 1
- [B] 2
- [C] 0
- [D] Equal to number of poles

80. In an open-loop transfer function, the highest power of s in the denominator standard polynomial is

- [A] type of the system
- [B] number of differentiators in the system
- [C] number of integrators in the system
- [D] order of the system

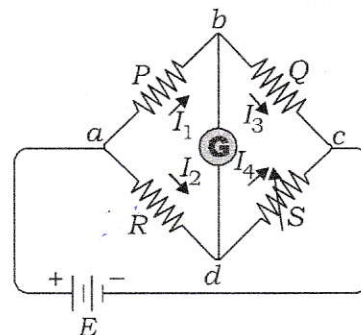
81. What is the **correct** sequence of the following types of ammeters and voltmeters with increasing accuracy?

- (a) Moving iron
- (b) Moving-coil permanent magnet
- (c) Induction

Select the **correct** answer using the code given below :

- [A] (a), (c), (b)
- [B] (a), (b), (c)
- [C] (c), (a), (b)
- [D] (b), (a), (c)

82. In the following Wheatstone bridge $P = 100 \Omega$; $Q = 20 \Omega$; $R = 250 \Omega$, $S = 50 \Omega$ and input voltage $E = 200 \text{ V}$, then the current flowing through the galvanometer is



- [A] 2 A
- [B] zero
- [C] 4 A
- [D] 1.5 A

83. A (0–100) V voltmeter has an accuracy of 1 percent at full-scale reading. What will be the limiting error in percentage if it reads 25 V?

- [A] 1 percent
- [B] 2 percent
- [C] 0.5 percent
- [D] 4 percent

84. Which of the following is **not** essential for the working of an indicating instrument?

- [A] Deflecting torque
- [B] Damping torque
- [C] Controlling torque
- [D] Braking torque

85. The simplest type of bridge used for the measurement of medium resistances is

- [A] Kelvin
- [B] Schering
- [C] Anderson
- [D] Wheatstone

86. A current $i = 5 + 10\sin(314t + 45^\circ)$ is passed through a centre-zero PMMC, hotwire and moving iron instrument. The respective readings are

- [A] $-5, 15, \sqrt{125}$
- [B] $5, \sqrt{75}, \sqrt{75}$
- [C] $-5, \sqrt{125}, 19.14$
- [D] $5, 10, 10$

87. For the signal $x(t) = p - qe^{-rt}$, what is the steady state value and the initial value?

- [A] p, q
- [B] $-q, p$
- [C] $p, p - q$
- [D] $q, p - q$

88. A time domain energy signal is defined as $x(t)$ with energy equal to 10 J, then the energy of the signal $2x(5t - 6)$ is equal to

- [A] 8 J
- [B] 40 J
- [C] 20 J
- [D] 60 J

89. For a periodic signal $v(t) = 30 \sin 100t + 10 \cos 300t + 6 \sin(500t + \pi/4)$, the fundamental frequency in rad/s is

- [A] 300
- [B] 100
- [C] 500
- [D] 1500

90. The impulse responses of two systems $h_1(t)$ and $h_2(t)$ are connected in a cascade. Then the overall impulse response of the cascaded system is

- [A] product of $h_1(t)$ and $h_2(t)$
- [B] sum of $h_1(t)$ and $h_2(t)$
- [C] convolution of $h_1(t)$ and $h_2(t)$
- [D] subtraction of $h_1(t)$ and $h_2(t)$

91. The average value of the waveform representing $x(t) = 2 \cos(400t) - 3 \sin(500t)$ is

- [A] $\frac{2}{\pi}$
- [B] $-\left(\frac{2}{\pi}\right)$

[C] $\frac{20}{\pi}$

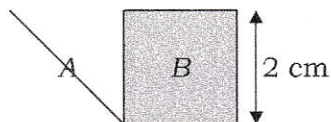
- [D] 0

92. The Gaussian surface for a line charge will be

- [A] sphere
- [B] cylinder
- [C] cube
- [D] cuboid



93. A parallel plate capacitor filled with two dielectrics is shown in the figure below. If the electric field in the region A is 24 kV/cm with $\epsilon_r = 1$, the electric field in the region B when $\epsilon_r = 4$, in kV/cm, is



- [A] 32
[B] 16
[C] 8
[D] 24
94. The minimum number of 2-input NAND gates required to implement a 2-input XOR gate is
- [A] 2
[B] 3
[C] 4
[D] 6
95. The number of comparators required for a 3-bit comparator type ADC is
- [A] 8
[B] 7
[C] 6
[D] 4
96. When a bipolar junction transistor is operating in the saturation mode, which one of the following statements is **true** about the state of its Collector-Base (CB) and the Base-Emitter (BE) junctions?
- [A] The CB junction is forward biased, and the BE junction is reverse biased
[B] The CB junction is reverse biased and the BE junction is forward biased
[C] Both CB and BE junctions are forward biased
[D] Both CB and BE junctions are reverse biased

97. If input supply frequency is 50 Hz for a single-phase full wave rectifier, then the ripple frequency of output voltage is equal to

- [A] 50 Hz
[B] 100 Hz
[C] 150 Hz
[D] 250 Hz

98. A circuit that removes positive or negative parts of waveform is called

- [A] clamper
[B] diode clamp
[C] limiter
[D] clipper

99. Which of the following electrical characteristics is **not** exhibited by an ideal op-amp?

- [A] Infinite voltage gain
[B] Infinite bandwidth
[C] Infinite output resistance
[D] Infinite slew rate

100. The output voltage (V_o) equation of an ideal op-amp, when V_1 and V_2 are the two input voltages and M is the gain, is

- [A] $V_o = V_1 - V_2$
[B] $V_o = M \times (V_1 - V_2)$
[C] $V_o = M \times (V_1 + V_2)$
[D] $V_o = M \times V_1 \times V_2$



SPACE FOR ROUGH WORK



FINAL ANSWER KEY OF
ARUNACHAL ENGINEERING SERVICE
(RECRUITMENT TEST) EXAMINATION-2025
ELECTRICAL ENGINEERING
SET- A

Q NO.	ANS
1	B
2	B
3	C
4	A
5	A
6	B
7	A
8	A
9	C
10	D
11	C
12	B
13	A
14	D
15	A
16	D
17	C
18	B
19	C
20	C
21	D
22	A
23	D
24	A
25	B

Q NO.	ANS
26	B
27	D
28	A
29	C
30	D
31	A
32	B
33	C
34	D
35	A
36	B
37	C
38	A
39	B
40	C
41	D
42	B
43	A
44	D
45	A
46	B
47	A
48	C
49	C
50	B

Q NO.	ANS
51	A
52	B
53	D
54	C
55	D
56	B
57	C
58	D
59	A
60	B
61	C
62	A
63	B
64	A
65	D
66	A
67	A
68	C
69	D
70	D
71	D
72	B
73	B
74	C
75	D

Q NO.	ANS
76	A
77	C
78	D
79	C
80	D
81	C
82	B
83	D
84	D
85	D
86	B
87	C
88	A
89	B
90	C
91	D
92	B
93	D
94	C
95	B
96	C
97	B
98	D
99	C
100	B