

in (M) Harris	000035	0 (/)	Question B	ooklet No. 300363
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(A) $-\frac{15}{4}$	ונים גער יעיי	(A) ₹268	r affi tri yri she follon mbuaruman i utri anafi
(B) $\frac{15}{4}$		(B) ₹270	
(C) 5	OB WORTSE' SHEE LEAD MOS WORTERNO -	(C) ₹272	A CANOLATINA (COMPLET)
(D) –5	ar annou scent mar	(D) ₹300	O TOM OG

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- **9.** The volume of a cylinder of radius r and height h is
 - (A) $4h\pi r^3$
 - (B) $\frac{3}{4}h\pi r^3$
 - (C) $h\pi r^2$
 - (D) $h\pi r^3$

10. If BOC is a diameter of a circle and AB = AC, then $\angle ABC = ?$

- (A) 30°
- (B) 45°
- (C) 60°
- (D) 90°
- Probability of drawing an ace from a deck of 52 is
 - (A) $\frac{1}{52}$ (B) $\frac{1}{26}$ (C) $\frac{1}{13}$ (D) $\frac{1}{2}$
- 12. Mode of the data
 15, 14, 19, 20, 16, 15, 16, 14, 15, 18, 14, 19, 16, 17, 16
 is
 (A) 17
 (B) 16
 (C) 15
 (D) 14

- 13. If $\frac{a}{b} + \frac{b}{a} = -1$, $(a, b \neq 0)$, then $a^3 b^3$ is equal to (A) -1 (B) 0
 - (C) $\frac{1}{2}$
 - (D) 1

14. The common factor of $8a^2b^4c^2$, $12a^4bc^4$ and $16a^3b^4c$ is

- (A) $a^2b^4c^2$
- (B) $4b^4c^2$
- (C) a^2bc
- (D) $4a^2bc$
- 15. Which of the following statements is true?
 - (A) Natural numbers are commutative for subtraction
 - (B) Whole numbers are commutative for subtraction
 - (C) Integers are commutative for subtraction
 - (D) Rational numbers are not commutative for subtraction
- 16. A man of 6 boys takes 2 of his boys at a time to a zoo, without taking the same pair of boys together more than once. How many times does the man go to the zoo?
 - (A) 6
 - (B) 12
 - (C) 15
 - (D) 18

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 Mirror image of the point (6, -8) in y-axis is

1- (A)

- (A) (6, 8)
- (B) (-8, 6)
- (C) (-6, -8)
- (D) (-6, 8)

18. Which of the following expressions is not true?

- (A) $\log 2 \times \log 3 = \log 6$
 - (B) $\log 2 \times \log 3 = \log 5$
 - (C) $\log 1 = 0$
 - (D) $\log 8 = 3\log 2$

19. Find the 15th term of the sequence 20, 15, 10,

in of the following

- (A) –55
- (B) -50
- (C) -45 (D) 0

20. The linear equation 4x - 10y = 14 has

- (A) no solution
 - (B) unique solution
 - (C) two solutions

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(D) infinitely many solutions

21. Let $A = \{1, 2, 3, \dots, n\}$ and $B = \{a, b\}$.

- Then the number of surjection from A to B is
 - (A) ${}^{n}P_{2}$
 - (B) $2^n 1$
 - (C) $2^n 2$
 - (D) 2^{n}

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22. What is the solution set for $\frac{|x-5|}{x-5} > 0$?

- (A) (5,∞)(B) (5,0)
- (C) (−5, ∞)
- (D) (-∞, 5)

23. The maximum number of equivalence relation on the set A = {1, 2, 3} is

- (A) 1
- (B) 3!
- (C) 3
- 11. Probability of drawing an accelin

24. In the formula of sample variance the $\Sigma(x-\overline{x})^2$ is called

- (A) total difference of squares
- (B) total sum of squares
- (C) multiplier of deviation
- (D) mean deviation

25. If a, 2a-1 and 2a+1 are three consecutive terms of an AP, then the value of a is

- (A) -2 (B) -3
- (C) 2
- (D) 3
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26. The tangents drawn at the extremities of the diameter of a circle are

- (A) perpendicular
- (B) parallel
- (C) equal
- (D) Cannot be said

27. When a line segment is divided in the ratio 2:3, how many parts is it divided into?

- $(A) \frac{2}{3}$
- (B) 2

(C) 3 ·

(D) 5 years and 10 years and 5 (D) 10 years

28. $K^2 - 1$ is divisible by 8, if K is

- (A) an even integer
- (B) an odd integer
- (C) a natural number

equation ax + bx + c = 0 is equal to

(D) a whole number

29. The surface area of a sphere is 616 cm², its radius is

- (A) 7 cm
- (B) 14 cm
- (C) 21 cm
- (D) 28 cm
- a a c a b

AA (A)

- **30.** If cos(A+B) = 0, then sin(A-B) is reduced to
 - (A) $\cos A$ OC (A)(B) $\cos 2B$ OC (A)(C) $\sin A$ OC (C)
 - (D) $\sin 2B$
- **31.** Find the value of $\sqrt[3]{216} \sqrt[5]{125}$.

(A) 0

(B) 1

So, is a frequency distribut $\mathbf{10} \notin (\mathbf{O})$ and value of a class is 40 and the width of the class is 6. The upper \mathbf{E} at all the class is 6. The upper \mathbf{E} at all \mathbf{O}

- **32.** If the points M(2,0), N(-6,0) and P(3, k-3) lie on the x-axis, then the value of k is
 - (A) -4
- 37., The measure of each exterior cuple a a regular polygon of 15 and \mathbf{E} (**B**).
 - (C) 0
 - (D) 3

33. The angles of a triangle are in the ratio 5:3:7, the triangle is

- (A) a right-angled triangle
- (B) an obtuse-angled triangle
- 1 2-5×107 m
- (C) an acute-angled triangle

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(D) an isosceles triangle

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34.	If $3\tan(\theta - 15) = \tan(\theta + 15)$, then the value of θ is	39.	For any natural divisible by	number $n, 7^n - 2^n$ is
÷.)	(A) 30		(A) 2	Los de maine (34)
	(B) 45	i I iř	(P) 5	
	(C) 60		с [,] (а)	(B) minite
	(D) 90	·	(C) 7	ographi(D)
	A State of the sta		(D) 9	in more 3 laboration
35.	Two planes intersect each other to form			
	(A) a straight line	40.	How many 2-digi	t positive integers are
	(B) a new plane	2011	divisible by 4 or	9?
	(C) a point		(A) 24	No. A bian
	(D) an angle		(B) 30	
36.	In a frequency distribution, the mid-		(C) 36	14) 3
19,	value of a class is 10 and the width of	1.2.2.2	(D) 40	5 (85)
1	class is			• 2 0
	(A) 9	41.	The ratio of the p	resent ages of Ravi and
	(B) 10	A.	Virat is 6:4. Five	years ago their ages
	(C) 13 (0.2) in straight and 11.20		are	5.5. Then present ages
	(D) 16		(A) 36, 24	$28x K = 1 \times dim h$
	-100 - 1(6)		(B) 30, 20	(A) an even unit
37.	The measure of each exterior angle of a regular polygon of 15 sides is	196	(C) 25, 15	an a
	(A) 60°		(D) 20, 12	
	(B) 45°	8		
	(C) 30°	2	± 1974 1	(D) nucleolo in (D)
	(D) 24°	42.	If the sum of the equation $ax^2 + b$	roots of the quadratic $bx + c = 0$ is equal to
otten	3.5. The angles of a margin are in the		the sum of th	e squares of their
38.	Correct representation of 0.00000025 m is		reciprocals, then	$\frac{a}{c}, \frac{b}{a}, \frac{c}{b}$ are in
	(A) 2.5×10^{-5} m		(A) AP	
	(P) 2.5×10^{-6} m		(B) GP	
	$(0) 2 5 \times 10^{-7} m$	2	(C) HP	
	$[C] 2.5 \times 10^{-8}$			
	(D) 2.5×10^{-9} m	1. C	(D) AGP	mo BS (Ep.

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- 43. Suppose today is Monday. After 61 days, it will be
 - (A) Wednesday
 - (B) Thursday
 - (C) Friday
 - (D). Saturday

44. Through what angle does the minute hand of a clock turn in 5 minutes?

- (A) 30°
- (B) 35°
- (C) 45°
- (D) 60°
- 45. Which of the following is a perfect square number?
 - (A) 888
 - (B) 2222
 - (C) 32457
 - (D) 10000
- 46. The reciprocal of a positive rational number is
 - (A) 0
 - (B) 1
 - (C) a positive rational number
 - (D) a negative rational number
- 47. Equation of the line passing through (0,0) and slope *m* is
 - (A) y = mx
 - (B) x = my
 - (C) y = mx + c
 - (D) x = my + c

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48. Which of the following is a proper fraction?

24

- (A) $\frac{5}{3}$ (B) $\frac{7}{2}$ (C) (D) $\frac{9}{4}$
- 49. Express 98 as a product of its primes.

 - (A) $2^2 \times 7$
 - (B) $2^2 \times 7^2$
 - (C) 2×7^2
 - (D) $2^3 \times 7$
- 50. A quadratic polynomial, whose zeroes are -3 and 4, is
 - (A) $x^2 x + 12$ (B) $x^2 + x + 12$ (C) $\frac{x^2}{2} - \frac{x}{2} - 6$

 - (D) $2x^2 + 2x 24$
- 51. If a pair of linear equations is consistent, then the lines will be
 - (A) always coincident
 - (B) parallel
 - (C) always intersecting
 - (D) intersecting or coincident

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52. A bi-quadratic equation has degree(A) 1	57. The total number of observations, which are below a certain value, is known as
(B) 2	(A) class boundaries
	(B) class marks
(C) 3	(C) cumulative frequencies
(D) 4	(D) variances
53. The number of multiples lying between n and n^2 which are divisible by n , is	58. The number 1.101001000100001 is
(A) $n-2$	(A) a natural number
(B) $n-1$	(B) an integer
(C) n	(C) a rational number
Express 98 as a product of its prince. (D) $n + 1$ (C)	(D) an irrational number
54. The points (1, 1), (-2, 7) and (3, -3) are	59. 2 square roots of the unity are
(A) vertices of an equilateral triangle	(A) 1, -1 Stadmin statupe
(B) collinear	. (B) -1, ω
$(2) = x^{1/2} (1)$	(C) 1, -ω <u><u><u></u></u><u>ω</u><u></u><u>ω</u><u></u>(E)</u>
(C) vertices of an isosceles triangle	(D) $l_{1}l^{2}$ (O)
(D) None of the above	(D) 10000
55. $5\tan^2 A - 5\sec^2 A + 1$ is equal to	60. If two sets A and B are given, then the set consisting of the elements which are both in A and in B is called
(B) x ⁴ + x + 12	(A) intersection of A and B
(B) 1	(B) union of A and B
(C) -5 $3 - \frac{1}{2} - \frac{1}{2}$	(C) complement of A
(D) 2 $+ 2x - x + 2x = (C)$	(D) complement of B
56. Cumulative frequency polygon is also called	61. The range of $R = \{(0, a), (2, b), (3, c), (4, d)\}$ is
(A) ogivenit en ogivenit (A)	(A) {0, 2, 3, 4}
(B) histogram	(B) {0, 1, 2, 3, 4}
(C) abscissa	(C) $\{a, b, c, d\}$
(D) sigma	(D) (b c d)
(D) manageing at comolocat	$[(D) \{b, c, u\} \qquad o \in \mathcal{U}_{\mathcal{A}} \times (1) $

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62.	Mode and mean of a data are 12 k and 15 k respectively. The median of the	66. Points (1, -2), (1, -3), (-4, 5), (0, 0), (3, -3)
	data is	(A) lie in third quadrant
· · ·	(A) $12k$ therefore $y + z$ (A)	(B) lie in second quadrant
:	(B) $14k$ (E) $(14k)$	(C) lie in fourth quadrant
	(C) $15k$ distance in (C)	(D) do not lie in the same quadrant
	(D) 16k	67 A diagonal of a rectangle is inclined to
		one side of the rectangle at 25°. The
63.	If $a < 0$, the function $f(x) = ax^2 + bx + c$	acute angle between the diagonals is
\$10	75. Which of the following needs a pre-	(A) 55°
	(A) maximum value	(B) 50° (B) 50° (B) (B) (B) (B)
	(B) minimum value	(B) Three thes are completely early (B) only (C) (B) (C) (C) (C) (C) (C) (C) (C) (C) (C) (C
	(C) constant value	(D) 25° (D) 25
	(D) positive value	
	(D) Postillaria	68. If the angles A, B, C and D of a
64.	The capacity of a water tank of dimensions $(9 \text{ m} \times 5 \text{ m} \times 3 \text{ m})$ is	quadrilateral <i>ABCD</i> , taken in order, are in the ratio 3:7:6:4, then <i>ABCD</i> is a
	(A) 135 litres	(A) rhombus
	(P) 1350 litres	(B) parallelogram
	(B) 1550 IIIES	(C) trapezium
	(C) 13500 litres	(D) kite
	(D) 135000 litres	IC) coincident
65.	The set $A = \{i, j, k\}$, then $ P(A) $ is equal to	69. In how many different ways can the letters of the word 'RETAIL' be arranged in a way that the yowels occupy only
	The parameterization is no restored with	the odd positions?
	(A) 3 and scond quadratic (A)	73. In 10°, the exponent is 28 (A)
	(B) 8 strategy strad bas send (S)	(B) 36
	(C) Pirst quadrant only	(C) 48
	(D) <i>ijk</i>	(D) 72
	the finantian breast (d)	(A) (C)
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70. If 18 women can reap a field in 7 days, in what time can 6 women reap the same field?	74. If x and y are inversely proportional then
(A) 15 days	(A) $x + y = \text{constant}$
(B) 21 days	(B) $x - y = \text{constant}$
(C) 30 days	(C) $xy = \text{constant}$
(D) 36 days	(D) $\frac{x}{y} = \text{constant}$ (D)
71. Which of the following statements is	53. If $a \in 0$, the function $f(x) = ax^2 + bx + c$
incorrect?	75. Which of the following needs a proof?
(A) A line segment has definite length	(A) Theorem
(B) Three lines are concurrent if and only if they have a common point	(B) Axiom
(C) Two lines drawn in a plane always intersect at a point	(C) Definition
(D) One and only one line can be drawn passing through a given point and parallel to a given line	(D) Postulate
(A) shows a submore (A)	76. Simplified value of $64^{-\frac{1}{4}} \times \sqrt[4]{64}$ is
72. The pair of equations $x = c$ and $y = d$ graphically represents lines which are	(A) 16
(A) parallel	(B) 4
(B) intersecting at (d, c)	(C) 1 (D) (C) 1
(C) coincident	(D) 135000 lines (D) 0 (D)
(D) intersecting at (c, d)	55. The set $A = \{t, j, k\}$, then $\{i(A)\}^{-1}$ is
in a way that the wivels occupy only as	77. Abscissa of a point is positive in
73. In 10^5 , the exponent is	(A) First and second quadrants
(A) 1	(B) First and fourth quadrants
(B) 2	
(C) 5	(C) First quadrant only
(D) 10	(D) Second quadrant only
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78.	A train travels 60 km in 1 hour. How long will it take to go 150 km?	82.	The unit digit in the product (636 × 924 × 368) is
	(A) 2 hours	•	(A) 1
	aixe u et lellater (8)		(B) 2
	Ci derpendicular is y-axis		(C) 3
	(C) 2.5 hours		(D) 5
	(D) 4 hours		and a second and a s
		11-11-	87. At some time of the day, the tenes
79.	Which of the following is a trinomial?	83.	On the off chance that $4a = 5b$ and $8b = 9c$, find $a:b:c$.
	(A) $-7x$		(A) 45:36:32 ·
	(B) $y^2 - 4z^2$		(B) 45:32:36
	(O) 2		(C) 32:45:36
·	(C) $x^2y - xy^2 + y^2$	1	(D) 32:36:45
	(D) $12c - 9cd + 5d - 3$		-6, βγ − βγ
			What are the three numbers in AD if
80.	$(2^0 + 4^{-1}) \times 2^2$ is equal to	- 00g	their sum is 15 and product is 80?
	(A) All the rectangles of (A)		(A) 5, 7, 3 (Japana Dabra ognos
	digg da sour disserbilitating Side (A). (8)		(B) 2, 5, 8
	(B) 4		(C) 6, 7, 2
	(C) 3		(D) 5 5 5
	(D) 2	1	(2) 5, 5, 5, 5
			(D) ₹ 612
Hgg I	93, Relia toll regether at 1 11	85.	Fill up the missing place from the following :
81.	determined graphically?		ing the second
	terenninen Bruphlenny:	18 3,	379 390 412 445 <u>2</u> 544
	(A) Mean	e l'ar i'r	(A) 489
	(B) Median		(B) 492
	· [2]		(C) F04
	(C) Mode		
	(D) None of the above		(D) 524
		1	a and the second s
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86. The number π is a/an

- (A) natural number
- (B) rational number
- (C) irrational number
- (D) None of the above

87. At some time of the day, the length of the shadow of a tower is equal to its height. Find the sun's altitude at that time.

- (A) $\theta = 30^{\circ}$
- (B) $\theta = 45^{\circ}$
- (C) $\theta = 60^{\circ}$
- (D) $\theta = 135^{\circ}$

88. Find the compound interest on ₹ 7,500 at 4% per annum for 2 years, compounded annually.

- (A) ₹ 312
 (B) ₹ 412
 (C) (A) ₹ 312
 (A)
- (C) ₹ 512
- (D) ₹612

L Fill up the missing

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89. If the common difference of an AP is 3, then a₂₀ - a₁₅ is
(A) 5
(B) 3

- (C) 15
- (D) 20

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The graph of $y = 5x$ is a line	U
(A) parallel to x-axis	
(B) parallel to y-axis	
(C) perpendicular to y-axis	
(D) passing through the origin	

91. How many diagonals does a triangle the have? A signification of the double of th

(B) $u^2 - 4z^2$

(C) $x^2 \mu - x \mu^2$

- (A) 0
 (B) 1
 (C) 2
- (D) 3

90.

92. Which of the following statements is true?

(A) All the rectangles are squares

- (B) All the parallelograms are rhombuses
- (C) All the squares are rhombuses

(D) Each parallelogram is a trapezium

93. Bells toll together at 9.00 am. They toll after 7, 8, 11 and 12 seconds respectively. How many times will they toll together again in the next 3 hours?

- (A) 3
- (B) 4
- (D) 6 considered to small (C)

- 12

94.	Harish paid ₹ 9600 as interest on a loan he took 5 years ago at 16% rate of simple interest. What was the amount	97.	If $P(E)$ denotes the probability of an event E , then (A) $P(E) < 0$
• *	he took as loan?		$(\mathbf{A}) \mathbf{F}(\mathbf{E}) < 0$
	(4) = 20,000		(B) $P(E) > 1$
	(A) ₹ 30,000		(C) $-1 \le P(E) \le 1$
	(B) ₹ 25,000		(D) $0 \le P(E) \le 1$
	(C) ₹ 15,000		
		98.	Expansion of
	(D) ₹ 12,000		2x(x+2y)+3x(2x-3y)
			yields
	D	×	(A) $8x^2 - 5xy$
95.	by what fraction should we multiply 5		(B) $8x - 5y$
	to get $\frac{16}{35}$?		(C) $3y - 2y$
			(D) $3x - 5y$
	(A) $\frac{4}{7}$		
-	(B) 7 4	99.	The number of tangents to a circle which are parallel to a secant is
			(A) 2
	(C) $\frac{4}{5}$		(B) 3
	1		(C) 4
	(D) <u>1</u> <u>35</u>		(D) infinite
			3
96.	The zeroes of the quadratic polynomial $x^2 - 15x + 50$ are	, 100.	Euclid's division lemma states that for two positive integers a and b , there exist unique integers q and r such that a = bq + r, where r must satisfy
	(A) both negative		(A) $a < r < b$
	(B) one positive and one negative		(B). $0 < r \le b$
	(C) both positive		(C) $1 < r < b$
	(D) both equal		(D) $0 \le r < b$
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