

Office of District Education Officer, Ahmedabad City
and

Exam. co-ordinating Committee, Ahmedabad City
Pre-Board Exam. - 2024

Std. 10

MATHS. (Basic) (18E)

Total Mark : 80

Time : 3 Hrs.

- Instructions : (1) In all 54 question in this paper are divided into four section A, B, C and D question.
(2) General options are given in the questions.
(3) The numbers on the right side represent the marks of that section.
(4) Draw figure, wherever necessary.
(5) Start writing a new section from a new page.
(6) Use of calculator or any other gadget is strictly prohibited.
(7) Write clearly and legibly.

SECTION - A

❖ Answer the following as per instructions given : (1 mark each) [24]

❖ Fill in the blanks by selecting the proper alternatives from those given below each question : (Q. nos. 1 to 6)

- (1) The pair of linear equations $2x + y - 3 = 0$ and $6x + 3y = 9$ has...
(a) a unique solution (b) two solutions
(c) No solution (d) Infinitely many solutions.
- (2) A quadratic equation has two equal roots, if.....
(a) $D < 0$ (b) $D > 0$
(c) $D = 0$ (d) D is non-zero perfect square
- (3) 30th term of A.P. : 10, 7, 4, ..., is
(a) 97 (b) 77 (c) -77 (d) 87
- (4) If A (4, 6) and B (6, 2) are given points, then _____ is the mid-point of \overline{AB} .
(a) (5, 4) (b) 4, 5) (c) (-5, -4) (d) (-4, -5)
- (5) $\sin^2 40^\circ + \cos^2 \theta = 1$ then $\theta =$ _____ .
(a) 30° (b) 40° (c) 50° (d) 60°
- (6) If $\bar{x} - z = 3$, $\bar{x} + z = 25$ the $M =$ _____ .
(a) 13 (b) 14 (c) 15 (d) 16

❖ Fill in the blanks by selecting the proper answer from those given in the brackets to make the statements true : (Q. nos. 7 to 12) :

- (7) $\sqrt{9} + 2$ is _____ . (irrational, rational, Negative Integer)
- (8) The discriminant of $x^2 - 3x - k = 0$ is 1. A value of x is _____ . (2, -2, 4)
(0, 1, 0.5)
- (9) The probability of the certain event is _____ . (1, 9, 8)
- (10) $9\sec^2 A - 9\tan^2 A =$ _____ .

(11) A circle can have _____ parallel tangent at the most.

(12) Class mark (mid value) of class 5 - 9 is _____.

(1, 2, 3)

(7, 5, 9)

❖ **State whether the following statements are true or false :**

(Q. Nos. 13 to 16)

(13) HCF of (26 and 91) is 17.

(14) The product of the zeros of $x^2 - 4x + 3$ is "3".

(15) If $3x + 2y = 3$ and $2x + 3y = 7$ then $x - y = -4$

(16) The probability of an event is less than or equal to 1

❖ **Answer the following question in one sentences, word or figure :**

(Q. Nos. 17 to 20)

(17) Write the formula of find n^{th} term of an A.P.

(18) What is the longest chord of circle called ?

(19) If $P(A) = 0.45$ then find value of $P(\bar{A})$.

(20) If $\bar{x} = 2$, $M = 3$ then find the value of mode (z)

❖ **Match the following pairs correctly : (Q. Nos. 21 to 24)**

(A)

(21) Total surface area of cone

(22) Volume of cylinder

(B)

(a) $\pi r (L + r)$

(b) $\pi r^2 h$

(c) $\frac{1}{3} \pi r^2 h$

(A)

(23) Area of minor sector

(24) Circumference of semi circle

(B)

(d) $\frac{\pi r^2 \theta}{180}$

(b) πr

(c) $\frac{\pi r^2 \theta}{360}$

SECTION - B

❖ **Answer any 9 (nine) questions out of the following 13 (thirteen) questions with necessary calculations : (Q. nos. 25 to 37)** [18]

(25) Find the zeros of quadratic polynomial $3x^2 - x - 4$.

(26) Find a quadratic polynomial for which the sum and the product of the zeros are 0 and $\sqrt{5}$ respectively.

(27) Find the roots of quadratic equation $\sqrt{2}x^2 + 7x + 5\sqrt{2} = 0$ by factorisation method.

(28) Find the missing term in the boxes of A.P. 2, \square , 26

(29) Given $a = 5$, $d = 3$, $a_n = 50$ find 'n' and 'S_n'.

(30) Find the distance between the points (a, b) , $(-a, -b)$

- (31) Find the co-ordinate of the point which divides the join of $(-1, 7)$ and $(4, -3)$ in the ratio $2 : 3$.
- (32) If $\sin A = \frac{3}{4}$ calculate $\cos A$ and $\tan A$
- (33) Evaluate : $\sin^2 30^\circ + \sin^2 60^\circ$
- (34) A tower stands vertically on the ground. From a point on the ground which is 100 m away from the foot of the tower, the angle of elevation of the top of the tower is found to have measure 60° . Find the height of the tower.
- (35) Find the curved surface area of right circular cone whose slant height is 15 cm and base radius is 7 cm.
- (36) If the volume of right circular cone of height 9 cm is $48\pi \text{ cm}^3$. Find the diameter of its base.
- (37) If $\bar{x} = 30$, $\Sigma f_i d_i = 200$, $\Sigma f_i = 50$ the find 'a'.

SECTION - C

❖ **Answer any 6 (six) questions out of the following 9 (nine) questions with necessary calculations : (Q. nos. 38 to 46 - 3 marks each)** [18]

- (38) Solve the following pair of linear equation by the elimination method.
 $3x - 5y - 4 = 0$, $9x = 2y + 7$
- (39) Solve the following pair of linear equation by substitution method
 $x - y = 3$, $\frac{x}{3} + \frac{y}{2} = 6$
- (40) How many two digit numbers are divisible by '3' ?
- (41) Find the value of 'x' for which the distance between the points P $(2, -3)$ and Q $(10, x)$ is 10 units.
- (42) Find the ratio in which the line segment joining the points $(-3, 10)$ and $(6, -8)$ is divided by $(-1, 6)$
- (43) Prove that the lengths of tangents drawn from an external point to a circle are equal.
- (44) Two concentric circles having radii 73 and 55 are given. The chord of the circle with larger radius touches the circle with smaller radius. Find the length of the chord.
- (45) Find the mode for the following frequency distribution :

Class	4-8	8-12	12-16	16-20	20-24	24-28
Frequency	9	6	12	7	15	1

- (46) One card is drawn from a well shifted deck of 52 cards. Find the probability of getting (a) a face card (b) a red face card (c) a spade

SECTION - D

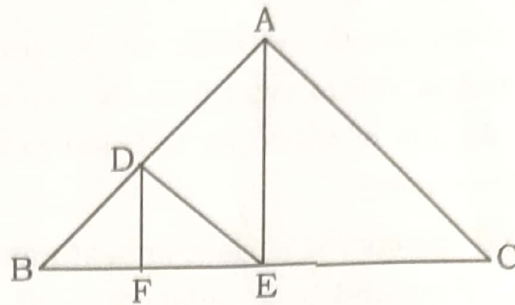
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❖ Answer any 5 (five) questions out of the following 8 (eight) question with necessary calculations : (Q. nos. 47 to 54 - 4 marks each) [20]

(47) State and prove the Basic Proportionality theorem.

(48) In the given figure $DE \parallel AC$ and $DF \parallel AE$.

Prove that $\frac{BF}{FE} = \frac{BE}{EC}$



(49) Ghazal's mother is 26 years older than her. The product of their ages (in years) 3 years from now will be 360. We would like to find Ghazal's present age.

(50) Vedansh started work in 1995 at an annual salary of ₹ 5000 and received an increment of ₹ 200 each year. In which year did his income reach ₹ 7000 ?

(51) Find the mean of the data given below :

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	4	8	3	20	3	4	8

(52) Find the median for the following frequency distribution.

Class	4-8	8-12	12-16	16-20	20-24	24-28
Frequency	9	16	12	7	15	1

(53) Two fair dices are rolled simultaneously. Find the probability of the following events.

- (1) Getting the same number on both dice.
- (2) The sum of numbers on two dice is greater than 12.
- (3) The sum of numbers on two dice is less than 12.
- (4) The sum of numbers on two dice is 8.

(54) A game of chance consists of spinning an arrow which comes to the rest painting at one of the numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 (See figure) and there are equally likely outcomes. What is the probability that it will paint at

- (1) 7 ?
- (2) a number greater than 10 ?
- (3) an odd number ?
- (4) a number less than 8 ?

