

10th CBSE Mathematics Mock Test-1 (Term - I)

Time 1.5 Hrs.

M.M.: 40

Section A (1 Mark Question)

(Attempt any 16 questions from section A)

- The ratio of LCM & HCF of least two digit prime number and highest two digit composite number is:
(a) 1 : 9 (b) 9 : 1 (c) 11 : 9 (d) None of these
- The value of 'm' for which the lines $5x + 8y = 7$ and $20x + 32y = 2m$ coincide is:
(a) 28 (b) 56 (c) 14 (d) 7
- A girl walks 8m towards west and then 10m towards north. The distance of the girl from the starting point is
(a) $2\sqrt{41}$ m (b) 6m (c) $4\sqrt{41}$ m (d) 12 m
- The lengths of the diagonals of a rhombus are 24cm & 32 cm, then the length of the altitude of the rhombus is:
(a) 12 cm (b) 12.8 cm (c) 19 cm (d) 19.2 cm
- Three fair coins are tossed. What is the probability of getting atleast one head?
(a) $\frac{1}{2}$ (b) $\frac{5}{8}$ (c) $\frac{14}{16}$ (d) $\frac{1}{4}$
- In $\triangle ABC$ ($\angle B = 90^\circ$) & $BD \perp AC$. Also D is mid point of AC, then $\cot(\angle DBC) : \tan(\angle BAC)$ is :
(a) 2 : 1 (b) 1 : 2 (c) 2 : 3 (d) 1 : 1
- If $a^2 = \frac{-5}{\sqrt{10}}$, then a is :
(a) rational (b) real (c) non real (d) integer
- Lines $2x + 1 = 0$ and $y + 1 = 2$, intersect at:
(a) $\left(\frac{-1}{2}, 1\right)$ (b) $\left(\frac{-1}{2}, -1\right)$ (c) $\left(\frac{1}{2}, -1\right)$ (d) do not intersect

9. If $2 \tan^2 \alpha - \sec^2 \alpha = -1$, then α is:
 (a) 45° (b) 0° (c) 30° (d) no standard value
10. In ΔPQR , right angled at Q , if $\cot R = \frac{1}{\sqrt{3}}$ then $\sin R \cos P - \cos R \sin P$ is :
 (a) $\frac{1}{\sqrt{2}}$ (b) 1 (c) $\frac{1}{2}$ (d) $\frac{\sqrt{3}}{2}$
11. The number of revolutions made by a circular wheel of radius 1.4 m in rolling distance of 198 m is
 (a) 22 (b) a whole number
 (c) a fraction less than 22 (d) a fraction greater than 22
12. $\Delta PQR \sim \Delta LMN$.
 $PQ = 2.9$ cm, $QR = 5.6$ & $PR = 1.5$ cm Also $MN = 2.8$ cm then $LM + MN + LN$ is :
 (a) 15 cm (b) 20 cm (c) 8 cm (d) 5 cm
13. A letter of English alphabets is chosen at random. What is the probability that it is a letter of the word 'GENESIS EDUCATES'?
 (a) $\frac{11}{26}$ (b) $\frac{4}{13}$ (c) $\frac{5}{13}$ (d) $\frac{9}{26}$
14. If angles of triangle PQR are in ratio $1 : 2 : 3$ respectively (P is smallest angle) then the value of $\frac{\sec P}{\cot Q} - \frac{\tan Q}{\cot P}$ is :
 (a) $\frac{5}{3}$ (b) $\frac{1}{3}$ (c) 2 (d) None of these
15. One equation of a pair of dependent linear equations is $-3x + 10y = -5$. The other equation can be:
 (a) $-6x + 20y = 10$ (b) $3x - 10y = 5$ (c) $-3x - 10y = 5$ (d) None of these
16. If ΔABC , $DE \parallel BC$ (D lies on AB & E on AC)
 If $AD = 3$ cm, $BD = 6$ cm, $BC = 18$ cm, then $DE =$
 (a) 3 cm (b) 4 cm (c) 5 cm (d) 6 cm
17. Polynomial having zeroes -3 & 5 may be
 (a) $x^2 + 2x - 15$ (b) $3x^2 - 6x - 15$ (c) $2x^2 - 4x + 30$ (d) None of these
18. If HCF of two numbers is 12 and their product is 360, then their LCM is
 (a) 60 (b) 40 (c) 30 (d) None of these

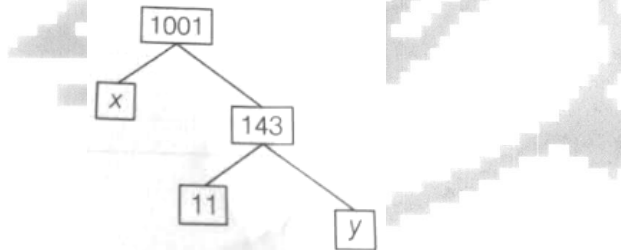
19. The rational form of $0.\overline{324}$ is in the form of $\frac{m}{n}$, then $(m + n)$ maybe:
- (a) $\frac{101}{312}$ (b) $\frac{107}{330}$ (c) $\frac{107}{320}$ (d) None of these

20. The product of a non-zero rational and an irrational number is
- (a) always irrational (b) always rational
(c) rational or irrational (d) one

Section - B

(Attempt any 16 questions from section A)

21. The value of x and y is the given figure (respectively) are :



- (a) 7, 13 (b) 13, 7 (c) 9, 12 (d) 12, 9
22. If one of the zeroes of the quadratic polynomial $(2k - 1)x^2 + 3kx + 1$ is -5 , then the value of k is
- (a) $\frac{15}{34}$ (b) $\frac{18}{36}$ (c) $-\frac{2}{3}$ (d) $\frac{24}{35}$
23. A quadratic polynomial, whose zeroes are 2 and -3 , is
- (a) $x^2 + x - 6$ (b) $x^2 - x + 6$ (c) $x^2 + x + 6$ (d) $x^2 - x - 6$
24. If the difference of the zeroes of the quadratic polynomial $x^2 + kx + 45$ is equal to 12, then the value of k is
- (a) ± 9 (b) ± 12 (c) ± 15 (d) ± 18
25. If a and b are zeroes and the quadratic polynomial $f(x) = x^2 - 4x - 12$, then the value of $\frac{1}{a} + \frac{1}{b} - a \cdot b$ is
- (a) $\frac{35}{3}$ (b) $-\frac{35}{3}$ (c) $\frac{32}{6}$ (d) $-\frac{32}{6}$

26. If in two $\triangle XYZ$ and $\triangle MNO$ $\frac{XY}{NO} = \frac{YZ}{MO} = \frac{ZX}{MN}$, then
 (a) $\triangle MNO \sim \triangle ZXY$ (b) $\triangle MNO \sim \triangle XYZ$ (c) $\triangle ZYX \sim \triangle MNO$ (d) $\triangle YZX \sim \triangle MNO$
27. If $\triangle ABC \sim \triangle PQR$ with $\frac{BC}{QR} = \frac{2}{5}$, then $\frac{\text{Perimeter of } \triangle(ABC)}{\text{Perimeter of } \triangle(PQR)} =$
 (a) $\frac{2}{25}$ (b) $\frac{4}{5}$ (c) $\frac{2}{5}$ (d) None of these
28. The area of right angled triangle is 24 sq ft and its perimeter is 24 ft.
 Then, length of its hypotenuse is
 (a) 6 units (b) 8 units (c) 12 units (d) 10 units
29. In $\triangle ABC$ and $\triangle DEF$, $\angle B = \angle E$, $\angle F = \angle C$ and $AB = 3DE$. Then, the two triangles are
 (a) Congruent but not similar (b) Similar but not congruent
 (c) Neither congruent nor similar (d) Congruent as well as similar
30. If $\tan A = \frac{3}{4}$, then the value of $\tan^2 A + \cot^2 A$ is
 (a) $\frac{331}{124}$ (b) $\frac{325}{129}$ (c) $\frac{324}{124}$ (d) $\frac{337}{144}$
31. If $\cot A = \sqrt{3}$, then $\sec^2 A - \cos^2 A$ is equal to
 (a) $\frac{4}{3}$ (b) $\frac{7}{12}$ (c) $\frac{3}{4}$ (d) $\frac{25}{12}$
32. The value of $\frac{1 - \tan^2 30^\circ}{1 + \tan^2 30^\circ}$ is equal to
 (a) 2 (b) $-\frac{1}{2}$ (c) 4 (d) $\frac{1}{2}$
33. If $\cos \theta = 1$, then the value of $\sin 2\theta$ maybe :
 (a) -1 (b) 0 (c) 1 (d) 2
34. If a number X is chosen at random from the numbers - 2, -1, 0, 1, 2.
 Then, the probability that $X^2 < 2$ is
 (a) $\frac{2}{5}$ (b) $\frac{4}{5}$ (c) $\frac{1}{5}$ (d) $\frac{3}{5}$
35. A bag contain 6 yellow and 4 green marbles. If a marble is drawn at random,
 then the probability of drawing a green marble is

- (a) $\frac{1}{5}$ (b) $\frac{2}{5}$ (c) $\frac{3}{5}$ (d) $\frac{4}{5}$
36. Two coins are tossed simultaneously, then the probability of getting exactly one head is
 (a) $\frac{1}{3}$ (b) $\frac{2}{6}$ (c) $\frac{1}{2}$ (d) $\frac{1}{8}$
37. A die is thrown once, then the probability of getting a number less than 3 is
 (a) $\frac{1}{3}$ (b) $\frac{1}{2}$ (c) $\frac{4}{6}$ (d) $\frac{1}{4}$
38. If $x^2 + 2bx + 6a$ and $x^2 + 2ax + 6b$ have a common zero ($a \neq b$) say ' α '. Find ' $2p - q$ ' if $\alpha^{p+q} = 729$ & $\alpha^{p-q} = 81$
 (a) 10 (b) 11 (c) 4 (d) 9
39. If $\tan 30^\circ$ and $\cot 30^\circ$ are zeroes of polynomial $x^2 - px + q$ then number of possible pairs of natural numbers whose HCF is ' $5q + \sqrt{3}p$ ' and LCM is ' $26(5q + \sqrt{3}p)$ ' are:
 (a) 0 (b) 1 (c) 2 (d) 3
40. Let OD be the line (where O is origin & D(α , 5) intersecting perpendicular bisector of line segment joining (0, 2) & (0, -4) at A. DC is perpendicular to perpendicular bisector (C lies on it). If $OA = \sqrt{2}$ and $\operatorname{cosec}(\angle CDO - \beta) = \frac{|\alpha|}{2 \cdot 5}$ then β is :
 (a) 45° (b) 60° (c) 30° (d) 15°

Section - C

(Attempt any 4 questions from each of the case study)

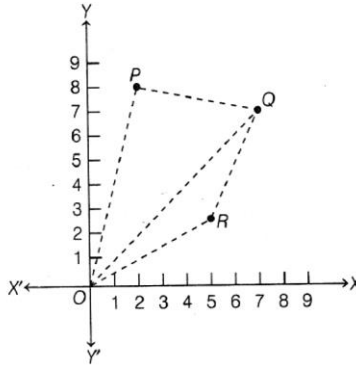
Case Study - I

Direction Answer the questions from 26-30 based on the following case.

Three friends Ashok, Nikhil and Dolly lives in societies represented by the points P, Q and, R respectively. They all work in the same office located at O.

If they decided to share a cab to go to the office, then answer the following questions.

(P,Q,R have integral coordinates and ordinate of R is 3)



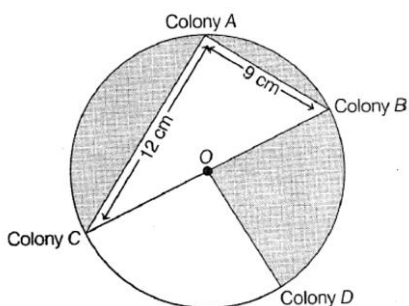
41. Which society is nearest to the office?
 (a) P (b) Q (c) R (d) Both P and Q
42. What is the distance between P and R?
 (a) $\sqrt{33}$ units (b) $\sqrt{34}$ units (c) $\sqrt{48}$ units (d) None of the above
43. Which of the following distances is least?
 (a) PQ (b) OP (c) QR (d) None of the above
44. Which of the following is the best route to go to the office?
 (a) RPQO (b) RQPO (c) PQRO (d) All of these
45. If Nikhil and Dolly planned to meet at a mall situated at a point S represented by the mid-point of the line joining the points Q and R, then find the coordinates of S.
 (a) (2, 6) (b) (6, 5) (c) (5, 3) (d) (6, 4)

Case Study - II

Direction Answer the questions from 36-40 based on the following case.

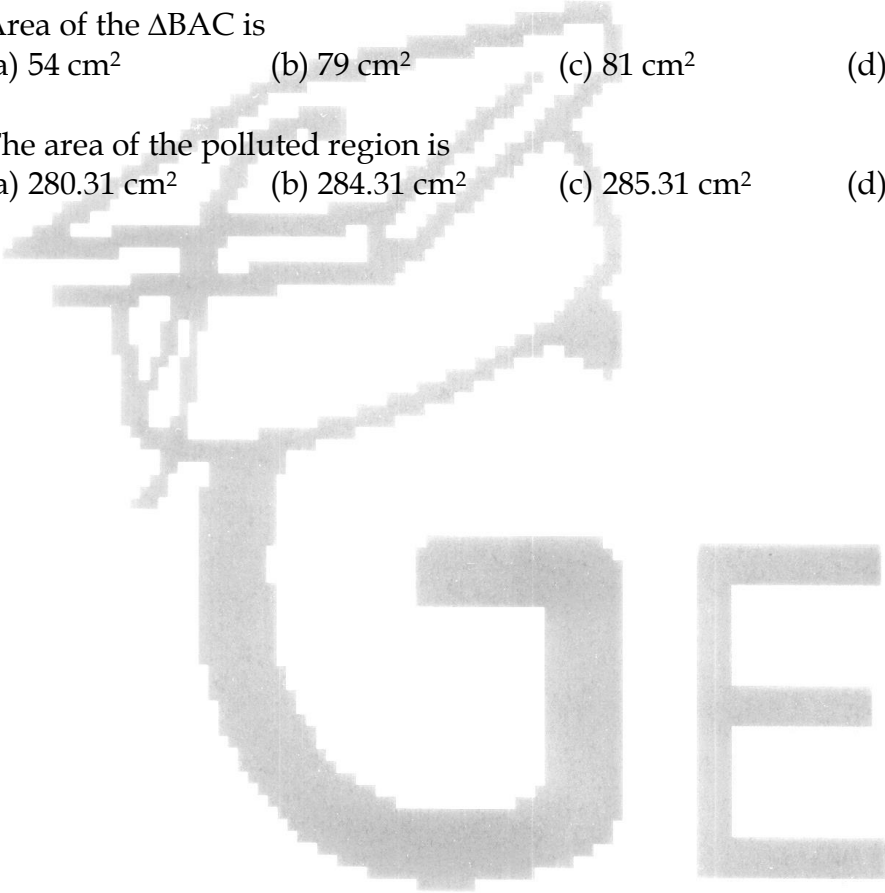
To find the polluted region in different area of Dwarka (a part of Delhi represented by the circle given below)

a survey was conducted by the students of class X It is found that the shaded region is the polluted region, where O is the centre of the circle.



Based on the above information, answer the following questions.

46. The radius of the circle is
(a) 12.5 cm (b) 13.5 cm (c) 15 cm (d) 7.5 cm
47. The area of the circle is
(a) 481.7 cm (b) 176.62 cm² (c) 491.07 cm (d) 495.6 cm²
48. If D lies at the middle of arc BC, then area of region COD is
(a) 121 cm² (b) 122.76 cm² (c) 44.15 cm² (d) 129.8 cm²
49. Area of the ΔBAC is
(a) 54 cm² (b) 79 cm² (c) 81 cm² (d) 84 cm²
50. The area of the polluted region is
(a) 280.31 cm² (b) 284.31 cm² (c) 285.31 cm² (d) 102.47 cm²



10th CBSE Mathematics Mock Test-2 (Term-I)

Max. Marks : 40

Time Allowed : 90 Minutes

Each question carries 1 mark

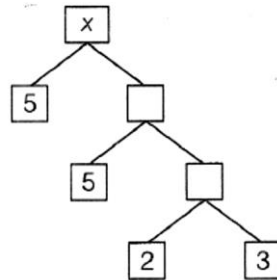
Section - A

(Attempt any 16 questions from section A)

1. The rational number of the form $\frac{p}{q}$, $q \neq 0$. p and q are positive integer, which represents $0.\overline{134}$ i.e., $(0.1343434 \dots)$
(a) $\frac{134}{999}$ (b) $\frac{134}{990}$ (c) $\frac{133}{999}$ (d) $\frac{133}{990}$
2. Product of two co-prime numbers is 117. Their LCM should be
(a) 1 (b) 118
(c) equal to their HCF (d) lies between 115 to 120
3. The diameter of a wheel is 40 cm. The number of revolutions it will make in covering 176 m is
(a) 140 (b) 150 (c) 160 (d) 168
4. A steel wire, when bent in the form of a square, enclosed an area of 121 cm^2 . Same wire is bent in the form of a circle. The area of the circle is
(a) 154 cm^2 (b) 145 cm^2 (c) 451 cm^2 (d) 541 cm^2
5. For what value of k , do the equations $3x - y + 8 = 0$ and $6x - ky = -16$ represents coincident lines?
(a) $\frac{1}{2}$ (b) $-\frac{1}{2}$ (c) 2 (d) -2
6. The sum of the digits of a two-digit number is 9. If 27 is added to it. The digit of the number get reversed. The number is
(a) 25 (b) 72 (c) 63 (d) 36
7. If $\tan \theta = \frac{x \sin \phi}{1 - x \cos \phi}$ and, $\tan \phi = \frac{y \sin \theta}{1 - y \cos \theta}$, then $\frac{x}{y}$ is equal to
(a) $\frac{\sin \phi}{\sin \theta}$ (b) $\frac{\sin \theta}{\sin \phi}$ (c) $\frac{\sin \theta}{1 - \cos \theta}$ (d) $\frac{\sin \theta}{1 - \cos \phi}$
8. If $\operatorname{cosec} \theta - \sin \theta = l$ and $\sec \theta - \cos \theta = m$, then $l^2 m^2 (l^2 + m^2 + 3) =$

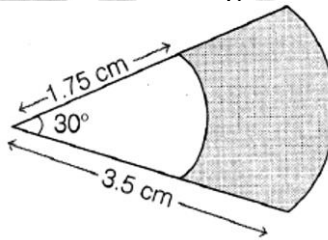
- (a) 0 (b) 1 (c) 2 (d) 3

9. In the factor tree, the composite number x is



- (a) 140 (b) 30 (c) 150 (d) None of these

10. In the given figure, sectors of two concentric circles of radii 3.5 cm and 1.75 cm are shown, then the area of the shaded region is



- (a) $\frac{77}{16} \text{ cm}^2$ (b) $\frac{77}{32} \text{ cm}^2$ (c) $\frac{77}{48} \text{ cm}^2$ (d) $\frac{77}{96} \text{ cm}^2$

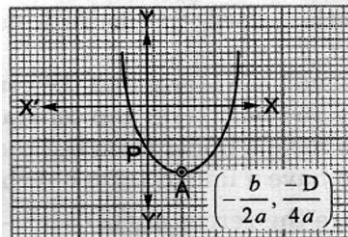
11. $\frac{\tan \theta}{1 - \cot \theta} + \frac{\cot \theta}{1 - \tan \theta}$ is equal to

- (a) $1 + \sec \theta \operatorname{cosec} \theta$ (b) $\sec \theta \operatorname{cosec} \theta$
 (c) $1 - \sec \theta \operatorname{cosec} \theta$ (d) $1 - \sec^2 \theta \operatorname{cosec}^2 \theta$

12. If the centroid of the triangle formed by the points (a, b) , (b, c) and (c, a) is at the origin, then $a^3 + b^3 + c^3$ is equal to

- (a) abc (b) 0 (c) $a + b + c$ (d) $3abc$

13. If the diagram shows the graph of the polynomial $f(x) = ax^2 + bx + c$, then



- (a) $a > 0, b < 0$ and $c < 0$ (b) $a > 0, b > 0$ and $c < 0$

(c) $a < 0, b < 0$ and $c < 0$

(d) $a < 0, b > 0$ and $c > 0$

14. Which of the following rational numbers will have a terminating decimal expansion?

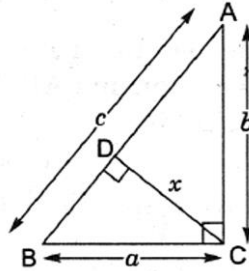
(a) $\frac{23}{8}$

(b) $\frac{125}{441}$

(c) $\frac{77}{210}$

(d) $\frac{129}{2^2 \times 5^7 \times 17^{17}}$

15. In right-angled ΔABC , $AC = b$, $BC = a$, $AB = c$ and $\angle C = 90^\circ$. If $CD \perp AB$ and $CD = x$, then ab is equal to



(a) cx

(b) $\frac{c}{x}$

(c) $2cx$

(d) $\frac{2c}{x}$

16. What must be multiplied with $2^{1/3}$ to make it rational?

(a) $2^{2/3}$

(b) $2^{3/2}$

(c) 2^3

(d) 2

17. If $\sin \theta + \cos \theta = a$ and $\sin^3 \theta + \cos^3 \theta = b$, then the value of $3a - 2b$ is equal to

(a) a^3

(b) b^3

(c) 0

(d) 1

18. If 1 is zero of the polynomial $f(x) = a^2x^2 - 3ax + 3x - 1$, then the value of 'a' maybe

(a) -1

(b) 2

(c) -2

(d) 0

19. ΔABC is right-angled at B. BD is perpendicular upon AC. IF $AD = a$ and $CD = b$, then AB^2 is equal to

(a) $a(a + b)$

(b) $b(a + b)$

(c) $b(b - a)$

(d) ab

20. The value of $\sin^6 \theta + \cos^6 \theta$ is equal to

(a) $1 - 2 \sin^2 \theta \cos^2 \theta$

(b) $1 - 3 \sin^2 \theta \cos^2 \theta$

(c) $1 - \sin^2 \theta \cos^2 \theta$

(d) None of these

Section - B

(Attempt any 16 questions from Section B)

21. If α, β are the zeroes of polynomial $f(x) = x^2 - P(x + 1) - c$, then $(\alpha + 1)(\beta + 1)$ is equal to

(a) $c - 1$

(b) $1 - c$

(c) c

(d) $1 + c$

22. The areas of two similar triangles are 32 sq. cm and 4 sq. cm. If the square of a side of the first triangle is 24 cm^2 , the square of the corresponding side of the second triangle will be

- (a) 16 cm^2 (b) 30 cm^2 (c) 3 cm^2 (d) None of these

23. If α, β are the zeroes of the quadratic polynomial $f(x) = x^2 - 5x + 4$, then

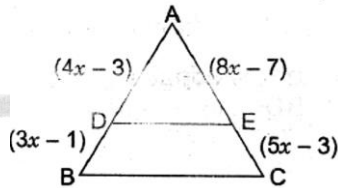
$\frac{1}{\alpha} + \frac{1}{\beta} - 2\alpha\beta$ is equal to

- (a) $\frac{27}{4}$ (b) $-\frac{27}{4}$ (c) $\frac{4}{27}$ (d) $-\frac{4}{27}$

24. The value of $\frac{\sin^3 \theta + \cos^3 \theta}{\sin \theta + \cos \theta}$ is equal to

- (a) $1 + \sin \theta \cos \theta$ (b) $1 - \sin \theta \cos \theta$ (c) $\sin \theta \cos \theta - 1$ (d) 1

25. In the adjoining Fig., if $DE \parallel BC$, $AD = 4x - 3$, $DB = 3x - 1$, $AE = 8x - 7$ and $BC = 5x - 3$, then the values of x are

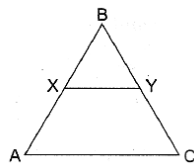


- (a) $1, \frac{1}{2}$ (b) $-1, \frac{1}{2}$ (c) $1, -\frac{1}{2}$ (d) $-1, -\frac{1}{2}$

26. If $f(x) = ax^2 + bx + c$ has no real zeroes then which is always true:

- (a) $c = 0$ (b) $c > 0$ (c) $c < 0$ (d) None of these

27. In Fig., $XY \parallel AC$ and XY divides triangular region ABC into two parts equal in area. Then $\frac{AX}{AB}$ is equal to



- (a) $\frac{\sqrt{2}-1}{\sqrt{2}}$ (b) $\frac{1+\sqrt{2}}{\sqrt{2}}$ (c) $\left(\frac{\sqrt{2}+1}{2\sqrt{2}}\right)$ (d) $\frac{(1-\sqrt{2})}{2\sqrt{2}}$

28. If $\sin \theta = \operatorname{cosec} \theta$ and $0 \leq \theta \leq 90^\circ$, then the value of θ is

- (a) 60° (b) 90° (c) 45° (d) 0°

29. If $\sin \theta = \frac{a}{b}$, then $\cos \theta$ is equal to
- (a) $\frac{b}{\sqrt{b^2 - a^2}}$ (b) $\frac{b}{a}$ (c) $\frac{\sqrt{b^2 - a^2}}{b}$ (d) $\frac{a}{\sqrt{b^2 - a^2}}$
30. If $\tan \theta + \sin \theta = m$ and $\tan \theta - \sin \theta = n$, then $m^2 - n^2$ is equal to
- (a) \sqrt{mn} (b) $\sqrt{\frac{m}{n}}$ (c) $4\sqrt{mn}$ (d) None of these
31. If $\sin A = \frac{1}{2}$, then the value of $\cot A$ is
- (a) $\sqrt{3}$ (b) $\frac{1}{\sqrt{3}}$ (c) $\frac{\sqrt{3}}{2}$ (d) 1
32. The probability that a non-leap year selected at random will contains 53, Sunday is
- (a) $\frac{1}{7}$ (b) $\frac{2}{7}$ (c) $\frac{3}{7}$ (d) $\frac{5}{7}$
33. Which of the following cannot be the probability of an even?
- (a) $\frac{2}{3}$ (b) - 1.5 (c) 15% (d) 0.7
34. The probability of getting a bad egg in a lot of 400 is 0.035. The number of bad eggs in the lot is
- (a) 7 (b) 14 (c) 21 (d) 28
35. If $P(E) = 0.05$ then, the probability of 'not E' is
- (a) 0.05 (b) 1.05 (c) 0.85 (d) 0.95
36. If $\frac{7}{625}$ is a rational number, then the decimal expansion of it, which terminates is
- (a) 0.0112 (b) 0.112 (c) 0.0121 (d) None of these
37. If $5 \cot \theta = 3$, then $\frac{5 \sin \theta - 3 \cos \theta}{4 \sin \theta + 3 \cos \theta}$ is
- (a) $\frac{11}{18}$ (b) $\frac{16}{29}$ (c) $\frac{14}{27}$ (d) None of these

38. Y-axis divides the line joining the points P(-4, 2) and Q(8, 3) in the ratio
 (a) 3 : 1 (b) 1 : 3 (c) 2 : 1 (d) 1 : 2
39. If the pair of linear equations $x - y - k = 0$ and $6x - 2y - 3 = 0$ represents an infinite solution, then the value of k is
 (a) $k = 1$ (b) $k = 2$ (c) $k = 0$ (d) No value of k
40. The values of x and y in the pair of equation $2x - 5y = 12$ and $7x + 5y = 15$ is
 (a) $x = 3, y = -\frac{5}{3}$ (b) $x = 3, y = -\frac{6}{5}$ (c) $x = 4, y = -\frac{6}{5}$ (d) None of these

Section - C

Attempt any 8 questions (4 from each of the two case study)

Direction Answer the questions from 41-50 based on the following case. Quadratic polynomial can be used to model the shape of many architectural structures in the world. One of the example in Berlin is shown here.



Based on the above information, answer the following questions.

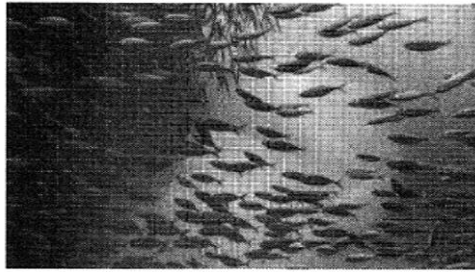
41. If the Arch is represented by $\frac{x^2}{2} - \frac{x}{2} - 6 = 0$, then its zeroes are
 (a) 1, -3 (b) -1, 2 (c) -3, 4 (d) 3, -4
42. The zeroes of the polynomial are the points where its graph
 (a) intersect the X-axis (b) intersect the Y-axis
 (c) intersect either of the axes (d) Cannot say
43. The quadratic polynomial whose sum of zeroes is 0 and product of zeroes is 2 is given by
 (a) $x^2 - x$ (b) $x^2 + x$ (c) $x^2 - 2$ (d) $x^2 + 2$
44. Which of the following has 5 and -2 as their zeroes?

- (a) $6x^2 - 4x + 6$ (b) $3x^2 - x + 2$ (c) $x^2 - 3x - 10$ (d) $2x^2 - 3x - 2$

45. The product of zeroes of the polynomial $x^2 + 4\sqrt{3}x - 15$ is
(a) 4 (b) -15 (c) 8 (d) 10

Direction Answer the questions from 36-40 based on the following case.

Rajesh decided to do fisheries near his house in a pond. He puts 15 guppy fish, 20 flowerhorn fish, 25 koi fish and 10 angel fish in the pond. Now, he selects a fish at random.



On the basis of above information, answer the following questions.

46. If total number of male fish in the aquarium is 40, then the probability of selecting a female fish is
(a) $\frac{1}{2}$ (b) $\frac{3}{7}$ (c) $\frac{1}{4}$ (d) $\frac{1}{5}$
47. The probability of selecting a flowerhorn fish is
(a) $\frac{2}{7}$ (b) $\frac{1}{3}$ (c) $\frac{1}{4}$ (d) $\frac{1}{5}$
48. The probability of not selecting a koi fish is
(a) $\frac{2}{9}$ (b) $\frac{1}{3}$ (c) $\frac{1}{4}$ (d) $\frac{9}{14}$
49. The probability of selecting neither angelfish nor flowerhorn fish is
(a) $\frac{16}{27}$ (b) $\frac{25}{54}$ (c) $\frac{4}{7}$ (d) $\frac{25}{27}$
50. The probability of selecting a guppy fish is
(a) 0 (b) 1 (c) $\frac{13}{54}$ (d) None of these

Max. Marks: 40

Time Allowed : 90 Minutes

General Instructions:

Read the following instructions carefully.

1. The Question Paper contains three parts A, B and C.
2. Section A consists of 20 questions of 1 mark each. Attempt any 16 questions.
3. Section B consists of 20 questions of 1 mark each. Attempt any 16 questions.
4. Section C consists of 10 questions bases on two Case Studies. Attempt any 8 questions.
5. There is no negative marking.

Section - A

Section A consists of 20 questions of 1 mark each. Any 16 questions are to be attempted.

1. The decimal expansion of $\frac{17}{250}$ is
(a) terminating (b) non-terminating
(c) recurring (d) non-terminating recurring
2. If α, β are the zeroes of the polynomial $p(x) = x^2 - a(x + 1) - c$ such that $(\alpha + 1)(\beta + 1) = 0$, then value of c is
(a) 2 (b) 1 (c) 0 (d) 3
3. The zeroes of the polynomial $p(x) = x^2 - x - 72$ are
(a) -4, 5 (b) -7, 10 (c) 5, 6 (d) -8, 9
4. If 4 is a zero of the polynomial $q(x) = x^2 - x - (3 + 2p)$, then the value of k is
(a) $5/2$ (b) $7/2$ (c) $11/2$ (d) $9/2$
5. The sum of the zeroes of the polynomial $5 - 6x - x^2$ is :
(a) -6 (b) 4 (c) 6 (d) 2
6. The distance of a point $(a \cos \theta, a \sin \theta)$ from origin is
(a) \sqrt{a} (b) a (c) a^2 (d) a^3
7. If P is a point on x-axis, which is equidistant from the points A(-1, 0) and B (5, 0) is
(a) (2, 0) (b) (0, 3) (c) (3, 0) (d) (0, 4)

8. If AB is the diameter of circle with A (5, 3) and B (8, 4), then coordinates of centre of circle is

- (a) $\left(\frac{13}{2}, \frac{7}{2}\right)$ (b) $\left(\frac{8}{3}, 10\right)$ (c) (-1, 0) (d) $\left(5, \frac{9}{2}\right)$

9. If (4, p) lies on the line represented by $x - 3 = 0$ & $y = 8$, then value of p is
 (a) $\frac{3}{4}$ (b) $-\frac{4}{3}$ (c) $-\frac{5}{2}$ (d) None of these

10. The coordinates of the point, dividing the join of the points (6, 3) and (4, -1) in the ratio 1 : 2 internally are

- (a) $\left(\frac{16}{3}, \frac{5}{3}\right)$ (b) $\left(\frac{17}{3}, \frac{13}{3}\right)$ (c) $\left(\frac{-11}{3}, \frac{7}{3}\right)$ (d) $\left(\frac{-4}{3}, \frac{1}{3}\right)$

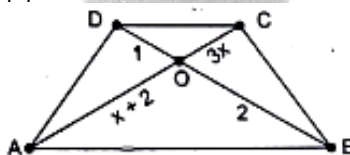
11. If in ΔABC , $AB = 8$ cm and $DE \parallel BC$ such that $AE = \frac{1}{4} AC$, then the length of AD is

- (a) 4 cm (b) 3 cm (c) 2 cm (d) 5 cm

12. If in two triangles, corresponding angles are same, then the two triangles are similar. This criterion is known as

- (a) AAS Similarity (b) SSS Similarity (c) SS similarity (d) AAA similarity

13. In the given figure, if $AB \parallel DC$, then value of x is



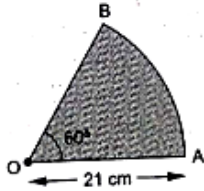
- (a) $\frac{1}{4}$ (b) $\frac{3}{4}$ (c) $\frac{4}{7}$ (d) $\frac{2}{5}$

14. Given, $\Delta ABC \sim \Delta PQR$, if $\frac{AB}{PQ} = \frac{2}{3}$, then $\frac{\text{ar}(\Delta ABC)}{\text{ar}(\Delta PQR)}$

- (a) $\frac{4}{9}$ (b) $\frac{3}{16}$ (c) $\frac{4}{25}$ (d) $\frac{25}{36}$

15. In ΔABC , $AB = 6\sqrt{3}$ cm, $BC = 6$ cm $\angle B = 90^\circ$, then AC is equal to

- (a) 13 cm (b) 12 cm (c) 11 cm (d) 10 cm

16. If π is taken as $\frac{22}{7}$, the distance covered by a wheel of diameter 14 cm, in two revolutions is
 (a) 108 cm (b) 88 cm (c) 100 cm (d) 105 cm
17. If the sum of the circumference of two circles with diameters d_1 and d_2 is equal to the circumference of a circle of diameter d , then
 (a) $d_1 + d_2 = d$ (b) $d_1 = d + d_2$ (c) $d_1^2 + d_2^2 = d^2$ (d) $d_1 + d_2 < d$
18. The perimeter of the sector OAB shown in figure, is
- 
- The diagram shows a sector OAB with vertex O. The central angle at O is labeled as 60°. The radius OA is labeled as 21 cm. The arc AB is shaded. The perimeter of the sector is the sum of the two radii and the arc length.
- (a) 43 cm (b) 63 cm (c) 64 cm (d) 22 cm
19. If an event cannot occur, then its probability is
 (a) 0 (b) 1 (c) -1 (d) 0.5
20. In a lottery, there are 6 prizes and 30 blanks. What is the probability of getting a prize is
 (a) $\frac{4}{5}$ (b) $\frac{5}{6}$ (c) $\frac{1}{6}$ (d) $\frac{6}{7}$

Section - B

Section B consists of 20 questions of 1 mark each. Any 16 questions are to be attempted.

21. If $\text{LCM}(x, 9) = 18$ and $\text{HCF}(x, 9) = 3$, then value of x is
 (a) 4 (b) 5 (c) 6 (d) 2
22. In a throw of two dice, the probability of getting a sum of 10 is
 (a) $\frac{1}{10}$ (b) $\frac{1}{12}$ (c) $\frac{1}{11}$ (d) $\frac{1}{13}$
23. Rational number $\frac{3}{600}$ has
 (a) terminating decimal expansion (b) non-terminating and repeating
 (c) non-terminating and non-repeating (d) None of these

24. Which of the following is non-terminating decimal?
 (a) $\sqrt{2}$ (b) $\frac{1}{\sqrt{2}}$ (c) $\sqrt{\frac{1}{9}}$ (d) All of these
25. Which of the following is not even ($q \in \mathbb{N}$)?
 (a) $2q + 1$ (b) $4q + 2$ (c) $6q + 4$ (d) All of these
26. If $n \in \mathbb{N}$, then $11^n - 6^n$ is always divisible by
 (a) 11 (b) 6 (c) 5 (d) 17
27. Which of the following cannot be the unit place digit in expansion of $(56783)^n$, $n \in \mathbb{N}$?
 (a) 3 (b) 9 (c) 7 (d) 4
28. If zeroes of polynomial $ax^2 + bx + c$ are equal then
 (a) c and a have same sign (d) c and a have opposite sign
 (c) one of c and a must be zero (d) None of these
29. Aruna has only Rs 1 and Rs 2 coins with her. If the number of coins that she has is 50 and the amount of money with her is Rs 75, then the number of Rs 1 and Rs 2 coins are respectively.
 (a) 35 and 15 (b) 35 and 20 (c) 15 and 35 (d) 25 and 25
30. Value of k so that $kx + y - 60 = 0$ pass through origin.
 (a) 1 (b) 2
 (c) 0 (d) No value of k is possible
31. The distance between the points A (0, 6) and B (0, -2) is
 (a) 6 (b) 8 (c) 4 (d) 2
32. If $P\left(\frac{a}{3}, 4\right)$ is the mid-point of the line segment joining the points Q (-6, 5) and R(-2, 3), then the values of a is
 (a) -6 (b) 12 (c) -12 (d) 4
33. If ratio of area of two similar Δ 's is 121 : 49 then ratio of lengths of their corresponding sides is
 (a) 121 : 49 (b) 7 : 11 (c) 11 : 7 (d) 49 : 121
34. If $\sin \theta = \cos \phi$, then value of $(\theta + \phi)$ is
 (a) 0° (b) 45° (c) 60° (d) 90°

35. The value of $5 \tan^2 \theta - 5 \sec^2 \theta$ is
(a) 5 (b) 1 (c) 4 (d) - 5
36. For a circle of length of radius $2r$ difference between circumference of full circle and perimeter of semicircle is
(a) $4\pi r$ (b) $2\pi r - r$ (c) $2\pi r - 2r$ (d) $2\pi r + 2r$
37. Perimeter of a quadrant of a circle of radius 14 cm is
(a) 50 cm (b) 55 cm (c) 60 cm (d) None of these
38. The diameter of circle whose area is equal to sum of area of two circles of diameters 16 cm and 12 cm is
(a) 15 cm (b) 20 cm (c) 30 cm (d) 40 cm
39. The probability of getting a prime number which is even also in single throw of a dice is
(a) $\frac{1}{6}$ (b) $\frac{1}{5}$ (c) 0 (d) None of these
40. Probability of getting a face card from a well-shuffled deck of 52 cards is
(a) $\frac{12}{52}$ (b) $\frac{6}{26}$ (c) $\frac{3}{13}$ (d) All of these

Section - C

CASED STUDY/SOURCE BASED QUESTIONS

Section C consists of 10 questions of 1 mark each. Any 8 questions are to be attempted.

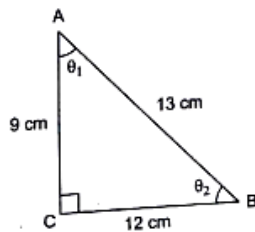
- I. There are some students in the two examination halls X and Y. To make the number of students equal in each hall, 20 students are sent from Y to X. But if 30 students are sent from X to Y, the number of students in Y becomes double the number of students in X. If the number of students in hall X and Y are x and y respectively



Based on the given information, answer the following questions.

41. The pair of linear equation in two variables from given situation are
 (a) $x - y = -40, 2x - y = 90$ (b) $x + y = 50, 2x - y = 60$
 (c) $x + y = 30, x + 2y = 40$ (d) $x - y = -60, 2x + y = 40$
42. The number of students in hall X is
 (a) 140 (b) 110 (c) 130 (d) 160
43. The number of students in hall Y is
 (a) 200 (b) 170 (c) 210 (d) 140
44. The total number of students in both hall X and Y is
 (a) 300 (b) 400 (c) 500 (d) 200
45. The difference of the number of students in hall Y and X is
 (a) 60 (b) 30 (c) 50 (d) 40

II. Anjana is a students of class- X^{th} , she has to make a project on "Introduction to Trigonometry". She decides to make a bird house which is triangular in shape. She uses cardboard to make the bird house as shown in below. Consider the front side of bird house as a right angled triangle ABC, such that $\angle C = 90^\circ$



Based on the given information, answer the following question.

46. If $\angle BAC = \theta_1$, then $\tan \theta_1$ is
(a) $\frac{4}{3}$ (b) $\frac{5}{4}$ (c) $\frac{4}{5}$ (d) $\frac{3}{4}$
47. The value of $\operatorname{cosec} \theta_1$ is
(a) $\frac{9}{13}$ (b) $\frac{13}{9}$ (c) $\frac{13}{12}$ (d) $\frac{11}{13}$
48. If $\angle ABC = \theta_2$ then value of $\tan \theta_2$ is
(a) $\frac{4}{3}$ (b) $\frac{3}{4}$ (c) $\frac{13}{12}$ (d) $\frac{9}{13}$
49. $\sin \theta_1 - \cos \theta_2$ is equal to
(a) 4 (b) 1 (c) 2 (d) 0
50. $\tan \theta_1 \tan \theta_2$ is equal to
(a) 1 (b) 4 (c) -2 (d) 3

MATHEMATICS MOCK TESTS ANSWER KEYS

MOCK 1

1. B	2. C	3. A	4. D	5. C	6. D	7. C	8. A	9. B	10. C
11. D	12. D	13. C	14. D	15. B	16. D	17. D	18. C	19. D	20. A
21. A	22. D	23. A	24. D	25. A	26. A	27. C	28. D	29. B	30. D
31. B	32. D	33. B	34. D	35. B	36. C	37. A	38. D	39. C	40. D
41. C	42. B	43. C	44. C	45. B	46. D	47. B	48. C	49. A	50. C

MOCK 2

1. A	2. D	3. A	4. A	5. C	6. D	7. B	8. B	9. C	10. B
11. A	12. D	13. A	14. A	15. A	16. A	17. A	18. B	19. A	20. B
21. B	22. C	23. B	24. B	25. C	26. D	27. A	28. B	29. C	30. C
31. A	32. A	33. B	34. B	35. D	36. A	37. B	38. D	39. D	40. B
41. C	42. A	43. D	44. C	45. B	46. B	47. A	48. D	49. C	50. D

MOCK 3

1. A	2. B	3. D	4. D	5. A	6. B	7. A	8. A	9. D	10. A
11. C	12. D	13. D	14. A	15. B	16. B	17. A	18. C	19. A	20. C
21. C	22. B	23. A	24. D	25. A	26. C	27. D	28. A	29. D	30. D
31. B	32. C	33. C	34. D	35. D	36. C	37. A	38. B	39. A	40. D
41. A	42. C	43. B	44. A	45. D	46. A	47. C	48. B	49. D	50. A