SECTION - III

EVERGREEN SAMPLE QUESTION PAPERS FOR PRACTICE

SAMPLE QUESTION PAPER-1

CLASS-10

MATHEMATICS

Semester-I

Maximum Marks: 40

Time allowed: One and a half hours (inclusive of reading time)

ALL QUESTIONS ARE COMPULSORY

The marks intended for questions are given in brackets [ ].

Select the correct option for each of the following questions.

Section-A [16 Marks] [16 × 1]

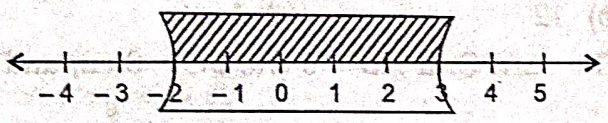
1. The percentage share of IGST of total GST for an Inter-state sale of an article is :

   (a) 25% (b) 50% (c) 75% (d) 100%

2. Navin invests ₹ 90 per month in a Recurring Deposit Scheme of a bank for 30 months. If he gets ₹ 3048.75 at the time of maturity, then the rate of interest is :

   (a) 6% (b) 8% (c) 10% (d) 12%

3. The solution set representing the following number line, is :



   (a) $\{x : x \in R, -2 \le x \le 3\}$ (b) $\{x : x \in R, -2 < x < 3\}$

   (c) $\{x : x \in R, -2 \le x < 3\}$ (d) $\{x : x \in R, -2 < x \le 3\}$

4. The discriminant of quadratic equation $3\sqrt{2}x^2 - \sqrt{3}x - \sqrt{18} = 0$ is :

   (a) 50 (b) 75 (c) 60 (d) 25

5. The mean proportion between $360a^4$ and $250a^2b^2$ is :

   (a) 300 (b) a^3b (c) a^6b^2 (d) $300a^3b$

6. If the polynomial $p(x) = x^3 - 3x^2 + 2x + 1$ is divided by $g(x) = x - 1$, then the remainder is :

   (a) −1 (b) −3 (c) 1 (d) 2

7. If A is a 2 × 4 matrix and B is a 3 × 2 matrix, then the order of matrix BA is :

   (a) 4 × 3 (b) 2 × 3 (c) 2 × 2 (d) 3 × 4

8. Which term of the A.P. 24, 21, 18, ... is the first negative term ?

   (a) 8th (b) 9th (c) 10th (d) 12th

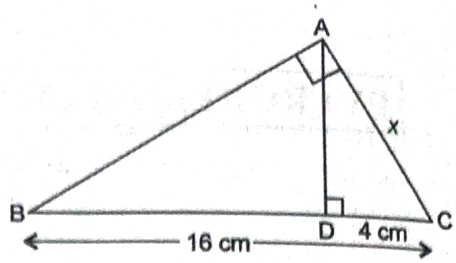
9. The roots of the quadratic equation $4x^2 - 5x - 3 = 0$ are 1.693 or −0.433. The roots correct to 2 significant figures are :

   (a) 1.69, −0.433 (b) 1.693, −0.433 (c) 1.7, −0.43 (d) 1.69, −0.43

10. In the given figure, the value of x is :

(a) 4 cm (b) 5 cm

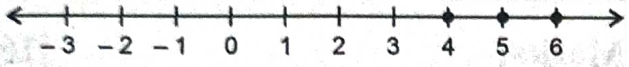
(c) 8 cm (d) 3 cm



11. A 2 × 2 matrix whose elements are $a_{ij} = \frac{(i+j)^2}{2}$, is :

(a) $\begin{bmatrix} 2 & 8 \\ 9 & 9 \end{bmatrix}$ (b) $\begin{bmatrix} 2 & \frac{9}{2} \\ \frac{9}{2} & 8 \end{bmatrix}$ (c) $\begin{bmatrix} 2 & \frac{9}{2} \\ 8 & \frac{9}{2} \end{bmatrix}$ (d) $\begin{bmatrix} \frac{9}{2} & 8 \\ 2 & \frac{9}{2} \end{bmatrix}$

12. The open mathematical sentence, using x as variable, of the graph



, is :

(a) $\{4 < x < 6, x \in N\}$ (b) $\{3 \le x < 6, x \in N\}$

(c) $\{4 \le x \le 6, x \in N\}$ (d) $\{0 < x < 6, x \in N\}$

13. The common difference of the A.P. $\frac{1}{2q}, \frac{1-2q}{2q}, \frac{1-4q}{2q}$, ... is :

(a) −1 (b) 1 (c) q (d) $2q$

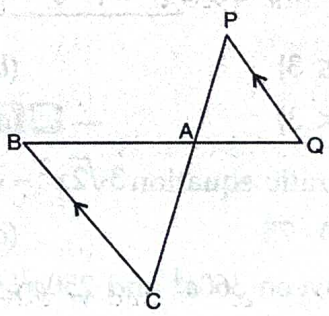
14. If $g(x) = x - 2$ is a factor of $h(x) = x^3 + 3x^2 - px + 4$, then the value of p is :

(a) 3 (b) 12 (c) 4 (d) 2

15. In the given figure, $\Delta ACB \sim \Delta APQ$. If AB = 6 cm, BC = 8 cm and PQ = 4 cm, then AQ is equal to :

(a) 2 cm (b) 2.5 cm

(c) 3 cm (d) 3.5 cm



16. If $p + r = 2q$ and $(q + s)r = 2qs$, then qr is equal to :

(a) $2q$ (b) ps (c) $2s$ (d) pr

Section-B [12 Marks] [6 × 2]

17. The smallest value of x for the inequation $x - 3(2 + x) < 2(3x - 1)$, $x \in W$, is :

(a) 0 (b) −1 (c) 4 (d) −3

18. If $\frac{x}{b-c} = \frac{y}{c-a} = \frac{z}{a-b}$, then the value of $x + y + z$ is :

(a) ax (b) by (c) cz (d) 0

19.

Item	Quantity	Marked Price Per Unit	Rate of GST
Mobile Battery	20	₹ 350	12%
Headphones	10	₹ 500	18%

The bill amount including GST is :

(a) ₹ 12000 (b) ₹ 13440 (c) ₹ 13740 (d) ₹ 14160

20. The polynomial $x^3 + 2x^2 - 5ax - 8$ and $x^3 + ax^2 - 12x - 6$ when divided by $(x - 2)$ and $(x - 3)$ leave remainder respectively p and q. If $q - p = 15$, then the value of a is :

(a) 1 (b) –2 (c) 2 (d) –3

21. If $P = \begin{bmatrix} 1 & 1 \\ 8 & 3 \end{bmatrix}$, then $P^2 - 4P$ is equal to :

(a) $\begin{bmatrix} 5 & 0 \\ 0 & 5 \end{bmatrix}$ (b) $\begin{bmatrix} -5 & 0 \\ 0 & -5 \end{bmatrix}$ (c) $\begin{bmatrix} 0 & 5 \\ 5 & 0 \end{bmatrix}$ (d) $\begin{bmatrix} 0 & -5 \\ -5 & 0 \end{bmatrix}$

22. Ganesh has a recurring deposit account in a bank for 3 years at 10% p.a. He gets ₹ 4440 as interest on maturity. Then the monthly instalment of Ganesh is :

(a) ₹ 750 (b) ₹ 850 (c) ₹ 800 (d) ₹ 900

Section-C [12 Marks]

[3 × 4]

23. In a flight of 2800 km, an aircraft was slowed down due to bad weather. Its average speed is reduced by 100 km/h and time is increased by 30 minutes.

Let the average speed of aircraft be x km/h, then :

(i) The original duration of the flight is :

(a) 3 hrs (b) $3\frac{1}{2}$ hrs

(c) 2 hrs (d) 1 hr

(ii) The quadratic equation formed is :

(a) $x^2 - 100x - 560000 = 0$ (b) $x^2 + 100x - 560000 = 0$

(c) $x^2 + 100x + 560000 = 0$ (d) $x^2 - 200x - 5600 = 0$

(iii) The average speed of the aircraft is :

(a) 1000 km/h (b) 560 km/h

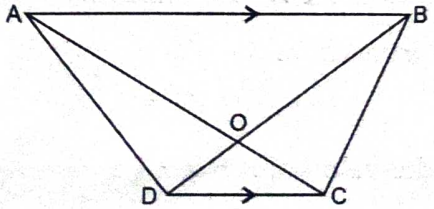
(c) 800 km/h (d) 700 km/h

(iv) The speed of the aircraft due to bad weather is :

(a) $x + 100$ (b) 100

(c) x (d) $x - 100$

24. In the given figure, AB || DC and AB : DC = 1 : 3, AC and BD intersect each other in O.



(i) Δ similar to ΔAOB is :

(a) ΔAOD (b) ΔABD (c) ΔABC (d) ΔCOD

(ii) Axiom used in part (i), is :

(a) AAS (b) SAS (c) AAA (d) SSS

(iii) If OA = x, OC = $x - 5$, OB = $x - 2$ and OD = $x + 3$, then value of x is :

(a) 5 (b) 1 (c) 2 (d) 4

(iv) The ratio of the perimeter of ΔAOB and perimeter of ΔCOD is :

(a) 1 : 3 (b) 3 : 1 (c) 3 : 2 (d) 2 : 3

25. The 4th term of an A.P. is equal to 3 times the first term and the 7th term exceeds twice the 3rd term by 1. Answer the following questions :

(i) The common difference (d) of the A.P. is :

(a) 2 (b) 3 (c) 5 (d) 7

(ii) The first term of the A.P. is :

(a) 5 (b) 7 (c) 2 (d) 3

(iii) The first three terms of this A.P. are :

(a) 3, 5, 7 (b) 2, 4, 6 (c) 5, 8, 11 (d) 11, 9, 7

(iv) Sum of first 10 terms of this A.P. is :

(a) 100 (b) 120 (c) 240 (d) 205

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Note : Solution of this paper will be available on 30th September 2021.