HOLY ANGELS SCHOOL (KATWA)

ICSE CLASS X - SEMESTER I EXAMINATION, 2021 - 2022

MOCK TEST

MATHEMATICS

Maximum Marks 40

Time allowed : One and a half hour (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 = 16]**

1. Arun deposited ₹ 400 per month in a recurring deposit account for 3 years and received ₹ 16398 as maturity value. The interest recieved by him is

(a) ₹ 1898 (b) ₹ 1899 (c) ₹ 1989 (d) ₹ 1998

2. Find the remainder (without actual division) when $2x^2 - x + 7$ is divided by $x - 4$

(a) 55 (b) 53 (c) 35 (d) 33

3. Find the third proportional to 8 and 12

(a) 81 (b) 18 (c) 11 (d) 88

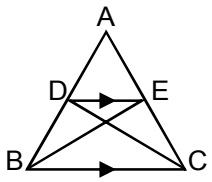
4. Write the 5th term of an A.P. whose 1st term is 4 and the common difference is – 3.

(a) – 8 (b) 8 (c) 11 (d) – 11

5. The roots of the quadratic equation $x^2 + 7x + 12 = 0$ are

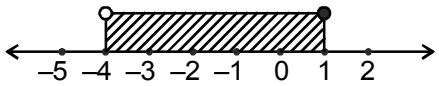
(a) Real and equal (b) Not real (c) Real and distinct (d) Distinct

6. In the given figure ΔDEF is similar to triangle



(a) ΔCBF (b) ΔBCF (c) ΔBFC (d) ΔFBC

7. The solution set representing the number line is



(a) $\{x : x \in R, -4 \le x \le 1\}$ (b) $\{x : x \in R, -4 < x \le 1\}$

(c) $\{x : x \in I, -4 < x \le 1\}$ (d) $\{x : x \in R, -4 < x < 1\}$

8. If a matrix A is of order 1 × 2 and matrix B is of order 2 × 1 then matrix AB is of order

(a) 2 × 2 (b) 1 × 1 (c) 1 × 2 (d) not posible

9. Ratio in which the total GST for an intra-state sale of an article divided among SGST and CGST is

(a) 2 : 1 (b) 1 : 2 (c) 1 : 1 (d) Not fixed ratio

10. If 2, 7, x and 14 are in poportion then value of x is

(a) 4 (b) 8 (c) 1 (d) 49

11. Mr. Gupta opened a recuring deposit account. He deposited ₹ 2500 per month for two years. Total amount deposited by him is

(a) ₹ 5,000 (b) ₹ 60,000 (c) ₹ 30,000 (d) ₹ 50,000

12. Solution set $\{x : x \in I, -3 \le x < 4\}$ represented in roaster form as

(a) {–3, –2, –1, 0, 1, 2, 3, 4} (b) {–2, –1, 0, 1, 2, 3, 4}

(c) {0, 1, 2, 3, 4} (d) {–3, –2, –1, 0, 1, 2, 3}

13. Value of the discriminant for the quadratric equation $x^2 - 4x + 1 = 0$ is

(a) – 8 (b) 20 (c) 10 (d) 12

14. If a polynomial $p(x) = x^4 - 3x^2 - 5$ is given then the value of p(3) is

(a) 103 (b) 49 (c) 67 (d) 113

15. If $\begin{bmatrix} x & 3y \\ x+z & y-t \end{bmatrix} = \begin{bmatrix} 6 & 12 \\ 4 & 1 \end{bmatrix}$ then values of x, y, z and t respectively are

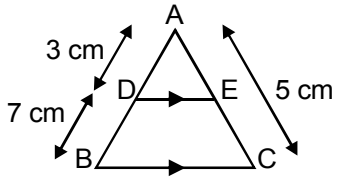
(a) 6, 4, 2, 3 (b) 6, – 2, 4, 3 (c) 6, 4, – 2, 3 (d) 6, 3, 4, –2

16. Determine the common difference for the A.P., whose 3rd term is 5 and first term is 3

(a) – 1 (b) 2 (c) – 2 (d) 1

SECTION - B (12 Marks) **[6 × 2 = 12]**

17. If $\Delta ADE \sim \Delta ABC$, where AD = 3 cm, BD = 7 cm and AC = 5 cm, then the lengths of AE and EC respectively



(a) 1.5 cm and 3.5 cm (b) 3.5 cm and 1.5 cm (c) 2 cm and 3.5 cm (d) 1.5 cm and 4 cm

18. If matrix $A = \begin{bmatrix} 2 & 12 \\ 0 & 1 \end{bmatrix}$ and matrix $B = \begin{bmatrix} 4 & x \\ 0 & 1 \end{bmatrix}$ where $A^2 = B$, then value of x is

(a) 63 (b) 15 (c) 20 (d) 36

19. If (x + 2) and (x + 3) are factors of $2x^3 + ax^2 + 7x - b$, the values of 'a' and 'b' respectively are

(a) 6, 9 (b) 9, 6 (c) –9, 6 (d) 9, –6

20. If $\frac{a^3 + 3ab^2}{b^3 + 3a^2b} = \frac{63}{62}$, then a : b is

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

21. How much should Anita deposit per month in recurring deposit account at 10% p.a., so that after 8 years she receive ₹ 1940 as interest

(a) ₹ 100 (b) ₹ 50 (c) ₹ 80 (d) ₹ 60

22. The solution set for the linear inequation $2x - 5 \le 5x + 4 < 11, x \in I$ is

(a) $\{x : x \in I, -3 \le x < 1\}$ (b) {–3, –2, –1, 0, 1}

(c) $\{x : x \in I, -3 < x \le 1\}$ (d) {–2, –1, 0, 1, 2}

SECTION - C (12 Marks) **[3 × 4 = 12]**

23. The sum of the first n terms of an AP is $4n - n^2$

(i) First term of the A.P. is

(a) 5 (b) 2 (c) 3 (d) 1

(ii) Second term of the A.P. is

(a) 4 (b) 1 (c) 8 (d) – 1

(iii) Common difference is

(a) – 2 (b) 1 (c) – 3 (d) 4

(iv) 3rd term of the A.P. is

(a) –3 (b) 4 (c) 21 (d) –1

24. The length (in metres) of the sides a right triangle are (2x – 1), 4x and (4x + 1), where x belongs to natural number

(i) Length of hypotenuse in terms of x is

(a) 2x – 1 (b) 4x (c) 4x + 1 (d) Any one side

(ii) the quadratic equation formed is

(a) $4x^2 - 12x + 1 = 0$ (b) $4x^2 - 12x = 0$ (c) $16x^2 - 12x + 4 = 0$ (d) $16x^2 + 4x - 8 = 0$

(iii) Value of x is

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

(iv) Area of the triangle

(a) 25 m^2 (b) 28 m^2 (c) 20 m^2 (d) 30 m^2

25. Mr. Amit goes to a department store and purchased the following articles :

Article	MRP	Rate of GST
Stationary	₹ 50	10%
Dress	₹ 1500	18%
Medicine	₹ 900	5%
Cosmetics	₹ 500	28%

(i) Cost of medicine including GST is

(a) ₹ 905 (b) ₹ 945 (c) ₹ 950 (d) ₹ 922.50

(ii) Cost of stationaries and cosmetics (with GST) is

(a) ₹ 622.50 (b) ₹ 550 (c) ₹ 700 (d) ₹ 695

(iii) Total GST paid by Amit is

(a) ₹ 460 (b) ₹ 230 (c) ₹ 440 (d) ₹ 400

(iv) Total amount paid by Amit (including GST) is

(a) ₹ 3350 (b) ₹ 3390 (c) ₹ 3410 (d) ₹ 3180