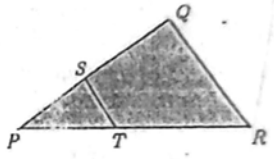
STD : X | REVISION TEST-2- 18/12/2021 | TIME : 2.30 HRS
SUB : MATHS | MARKS : 100

PART – I

I. Choose the correct answer: 14 x1 =14

1. If $n(A \times B) = 6$ and $A = \{1, 3\}$ then n(B) is ....
   a. 1 b. 2. c. 3 d. 6
2. If 6 times of 6^{th} term of an A.P. is equal to 7 times the 7^{th} term, then the 13^{th} term of the A.P is
   a. 0 b. 6 c. 7 d. 13
3. An A.P consists of 31 terms. If its 16^{th} term is 'm', then sum of all the terms of this A.P is
   a. 16m b. 62m c. 31m d. 31/2m
4. The number of points of intersection of the quadratic polynomial $x^2 + 4x + 4$ with the x-axis is...
   a. 0 b. 1 c. 0 or 1 d. 2
5. If $(x-6)$ is the HCF of $x^2 - 2x - 24$ and $x^2 - kx - 6$ then the value of k is
   a. 3 b. 5 c. 6 d. 8
6. In ΔLMN, $\angle L = 60°$, $\angle M = 50°$. If $\Delta LMN \sim \Delta PQR$ then the value of $\angle R$ is
   a. 40° b. 70° c. 30° d. 110°
7. In a given figure ST || QR, PS = 2 cm and SQ = 3cm. Then the ratio of the area of ΔPQR to the area of ΔPST is
   a. 25:4 b. 25:7
   c. 25:11 d. 25:13

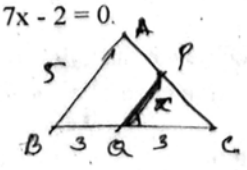


8. The area of triangle formed by the points (-5,0), (0,-5) and (5,0) is
   a. 0 sq. units b. 25 sq. units c. 5 sq. units d. none of these
9. The slope of the line is $\frac{1}{\sqrt{3}}$ then slope of the perpendicular bisector of $\overline{PQ}$ is
   a. $\sqrt{3}$ b. $-\sqrt{3}$ c. $\frac{1}{\sqrt{3}}$ d. 0
10. If the ratio of the height of a tower and the length of its shadow is $\sqrt{3} : 1$, then the angle of elevation of the sun has measure.
    a. 45° b. 30° c. 90° d. 60°
11. The height of a right circular cone whose radius is 5 cm and slant height is 13 cm will be
    a. 12cm b. 10cm c. 13cm d. 5cm
12. The total surface area of a cylinder whose radius is 1/3 of its height is
    a. $\frac{9\pi h^2}{8}$ sq.uts b. $24\pi h^2$ sq.uts c. $\frac{8\pi h^2}{9}$ sq.uts d. $\frac{56\pi h^2}{9}$ sq.uts
13. Which of the following is incorrect?
    a. P(A)>1 b. $0 \le P(A) \le 1$ c. $P(\phi) = 0$ d. $P(A) + P(\overline{A}) = 1$
14. The probability of getting a job for a person is $\frac{x}{3}$. If the probability of not getting the job $\frac{2}{3}$. Then the value of x is
    a. 2 b. 1 c. 3 d. 1.5

PART – B

II. Answer the following questions. Questions No. 28 is compulsory: 10 x 2 = 20

15. If A = {2, -2, 3}, B = {1, -4} then find (i) A x B, (ii) B x A
16. Find all positive integers whixh when divided by 3 and leaves remainder 2.
17. Find the first terms and common difference of the AP, whose n^{th} term is, tn = -3 + 2n.
18. Find the LCM of the expression , $p^2 - 3p + 2$, $p^2 - 4$.
19. Solve the quadratic equation by factorization method $4x^2 - 7x - 2 = 0$.
20. Is $\Delta ABC \sim \Delta PQC$? If so find x.



21. Determine the quadratic equation, whose sum and product of roots are -9, 20.
22. Find the area of the triangle formed by the points (-10, -4), (-8, -1) and (-3, -5).
23. Find the slope of a line joining the points $(5, \sqrt{5})$ and (0, 0).
24. From the top of a rock $50\sqrt{3}$m high, the angle of depression of a car on the ground is observed to be 30°. Find the distance of the car from the rock.
25. The external radius and the length of a hollow wooden log are 16cm and 13cm respectively. If the thickness is 4cm then find its T.S.A.
26. Two dice are rolled once. Find the probability of getting (i) a doublet (ii) the sum as 1
27. A and B are two events such that P(A) = 0.42 P(B) = 0.48 then find
    i) P(not A) ii) P (not B).
28. Find the 19th term of an Ap, -11, -15, -19, ...

(OR)

Find the square root of $4x^2 + 20x + 25$.

PART – III

III. Answer the following questions. Question No. 42 is compulsory. $10 \times 5 = 50$

29. If A = {0, 1, 2}, B = {2, 3, 4}, C = {3,5} verify A x (B ∩ C) = (A x B) ∩ (A x C).
30. If $a_1 = 1$, $a_2 = 1$ and $a_n = 2a_{n-1} + a_{n-2}$, $n \geq 3$, $n \in N$, then find first six terms of the sequence.
31. If ratio of 6th and 8th term of an A.P is 7 : 9. Find the ratio of 9th term to 13th term.
32. Solve the linear equations.
    $x + y + z = 5$
    $2x - y + z = 9$
    $x - 2y + 3z = 16$
33. Find the square root of $4x^4 - 28x^3 + 37x^2 + 42x + 9$.
34. State and prove Basic Proportionality Theorem.
35. Find the area of the quadrilateral whose vertices are (-9, 0), (-8, 6) (-1, -2) and (-6, -3).
36. If the points A (2,2), B(-2, -3), C(1, -3), D(x, y) form a parallelogram then find the values of x and y.
37. The top of a 15m high tower makes an angle of elevation of 60° with the bottom of an electronic pole and angle of elevation of 30° with the top of the pole. What is the height of the electric pole?
38. An aeroplane at an attitude of 1800m finds that two boats are sailing towards it in the same directions. The angle of depression of the boats as observed from the aeroplane is 60° and 30° respectively. Find the distance between the two boats. ($\sqrt{3} = 1.732$)
39. A solid iron cylinder has T.S.A of 1848 m^2. Its C.S.A. is five – sixth of its total surface Area. Find the radius and height of the cylinder.
40. Three fair coins are tossed together. Find the probability of getting.
    (i) all heads (ii) atleast one tail (iii) atmost one head (iv) atmost two tails
41. Represent the given relation by
    a. An arrow diagram
    b. A graph
    c. A set in roster form
    R={ (x, y) / y = x + 3, x, y are natural numbers < 10}
42. a. Find the G.C.D of the polynomials.
    $x^4 + 3x^3 - x - 3$, $x^3 + x^2 - 5x + 3$

(OR)

b. Show that the given points form a right angled triangle and check whether they satisfies Pythagoras Theorem. A (1, -4), B(2, -3), C(4, -7)

PART – IV

IV. Answer the following questions: $2 \times 8 = 16$

43. Draw the two tangents from a point which is 5cm away from the centre of a circle of radius 3cm. Also measure the Length of the tangents.

(OR)

Construct ΔPQR, such that QR = 6.5 cm, $\angle P = 60°$ and the attitude from P to QR is of length 4.5 cm.

44. Graph the following quadratic equation and state the nature of solution $x^2 - 9 = 0$

(OR)

Draw the graph of $y = x^2 - 4$ and hence solve $x^2 - x - 12 = 0$.

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