PART-A: CREATIVE QUESTIONS

Observe the stems and write down the answer of the following creative questions.

1. **If $P^a = Q^b = R^c$ where P ≠ Q ≠ R then -**
   a) Show that, $\log a \log a \log_a(a^{a^{a^b}}) = b$. **
   b) If P, Q, R are orderly proportional prove that, $\frac{1}{a} + \frac{1}{c} = \frac{2}{b}$. ****
   c) If PQR = 1 then show that, $\frac{1}{a^3} + \frac{1}{b^3} + \frac{1}{c^3} = \frac{3}{abc}$. ****

2. **The co-ordinates of the three points A, B and C are (a, 0), (0, b) and (1, 1) respectively.**
   a) Plot the points on graph paper. **
   b) Find the slopes of AB, BC and CA. ****
   c) Show that, the points will be collinear if $\frac{1}{a} + \frac{1}{b} = 1$. ****

3. **A dice and two coins are thrown simultaneously. Write down the sample space and find the probability of getting.**
   a) 2 heads and even numbers. **
   b) 2 tails and odd numbers. ****
   c) 2 on the dice. ****

PART-B: SHORT QUESTIONS

Write down the answer of the following questions in one word.

1) **If n(A) = 7, n(B) = 4 and n(A ∪ B) = 3 then n(A ∩ B) = What?** *
   Ans:

2) **What is the domain of f(x) = $\sqrt{\frac{x^2}{x-4}}$?** *
   Ans:

3) **If f(x) = $\frac{x+3}{3x-1}$ and x ≠ 0.5 then what is the value of $f^{-1}(-2)$?** *
   Ans:

4) **Which is the leading co-efficient of polynomial $23x^2 + x^3 - x^5 + 2x - 6$?** *
   Ans:

5) **If $\frac{x-5}{(x+1)(x-2)} \equiv \frac{A}{x+1} + \frac{B}{x-2}$ then which is the value of B?** *
   Ans:

6) **In ΔMNO, MN = MO = NO, MD ⊥ NO and MD = 6 cm then which is the radius of the circumcircle of ΔMNO?** *
   Ans:

7) **In the cyclic parallelogram BCDE and $BE^2 + DE^2 = 50cm^2$ then what is the value of CE?** *
   Ans:

8)   *
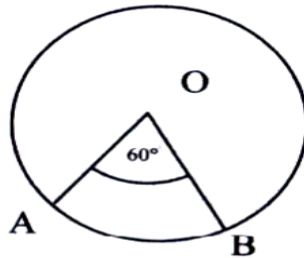

In the figure circumcenter S and SF = 3 cm then what is the value of $\frac{1}{3}OP^2$?

Ans:

9)   *

In the figure centre of the circle is O and arc AB = 60 cm then what is the radius of the circle?

Ans:

10) $\sin(\frac{25\pi}{2} - \theta)$ is in which quadrant?   *

Ans:

11) $\sin^2\theta = \frac{1}{4}$ when $\pi \leq \theta \leq \frac{3\pi}{2}$ then which is the value of θ?   *

Ans:

12) If $\sqrt[3]{x^5} = 2\sqrt[6]{x^7}$ then find the value of x.   *

Ans:

13) What is the domain of f(x) = $\ln\left(\frac{9 + x}{9 - x}\right)$?   *

Ans:

14) If $n_{C_7} = n_{C_{n-1}}$ then what is the value of n?   *

Ans:

15) The co-efficient of x^3 in the expansion of $(1 + \frac{x}{2})^8$ = What?   *

Ans:

16) In x, y plane then what is the graph of the equation 4 + 3x = 0?   *

Ans:

17) The position vectors of $\vec{M}$ and $\vec{N}$ are $7\vec{a} + 5\vec{b}$ and $3\vec{a} - 2\vec{b}$ respectively then $\overrightarrow{MN}$ = What?   *

Ans:

18) The position vector of A, B and C are $\vec{a}$, $\vec{b}$ and $\vec{c}$ respectively. If C divides AB externally in the ratio n : m then $\vec{c}$ = What?   *

Ans:

19) If a number from 1 to 20 is selected at random then find the probability of its being a multiple of 3 or 5.   *

Ans:

20) A card is drawn at random from a pack of 52 cards then find the probability that the card may be not an ace.   *

Ans: