

**PART-A: CREATIVE QUESTIONS**

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

1. A function is defined by  $f(x) = \frac{2x + 2}{x - 1}$ .

- a) Find the range of the function. \*\*
- b) Find the value of  $f^{-1}(3)$ . \*\*\*\*
- c) If  $f^{-1}(p) = kp$  then express k in terms of p. \*\*\*\*

2. The diameter of the earth is 12880 km. The arc on the surface of the earth joining Natore with Rajshahi subtends  $32'$  at the center. The earth completes a full revolution in 24 hours.

- a) Express  $45^{\circ}36'$  in radians. \*\*
- b) Find the distance between Natore and Rajshahi. \*\*\*\*
- c) Find the circular speed of the earth. \*\*\*\*

3. The four vertices of the quadrilateral ABCD are A(0, - 1), B(- 2, 3), C(6, 7) and D(8, a).

- a) If  $a = - 2$  then find the area of  $\Delta BCD$ . \*\*
- b) If area of ABCD is 40 square unit then what is the value of a (a is integer)? \*\*\*\*
- c) If  $a = 3$  then what is the type of the quadrilateral ABCD? Justify the answer. \*\*\*\*

**PART-B: SHORT QUESTIONS**

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

1) If  $n(A) = 3$ ,  $n(B) = 4$  and  $n(A \cup B) = 6$  then  $n(A \cap B) =$  What? \*

Ans:

2) If A is any subset of the universal set  $\cup$  then what is the value of  $A \setminus (A \setminus A)$ ? \*

Ans:

3) If  $A = \{x \in \mathbb{N} : 6 < 2x < 17\}$  then what is the number of elements of  $P(A)$ ? \*

Ans:

4) Out of 50 students 30 students like Mathematics, 25 students like Higher Mathematics and 10 students like both subjects. How many students do not like any of the subjects? \*

Ans:

5) If  $f(x) = (\sqrt{1 - x})^{-1}$  then what is the domain of  $f(x)$ ? \*

Ans:

6) If  $G(x) = \frac{2}{2x - 3}$  then find the value of  $G^{-1}\left(\frac{1}{3}\right)$ . \*

Ans:

7) What is the circular measure of the angle subtended by an arc of length 15 cm at the centre of a circle with radius 9 cm? \*

Ans:

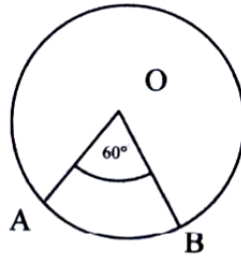
8) A wheel rotates 35 times to cover 250 metres then what is the radius? \*

Ans:

9) If we express an angle by  $P^0$  and  $Q^c$  in radian and circular system then the relations of  $P^0$  and  $Q^c$  = What? \*

Ans:

10)



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

Ans:

11) Radius of a circle is 5 cm then what is measure of central angle based on 13 cm arc? \*

Ans:

12) What is the degree the angle between the minute hand and hour of a clock when it is 7 : 15 pm? \*

Ans:

13) Which is the correct value of  $65'25''$  in degree? \*

Ans:

14) The distance of  $A(3, - 6)$  from x-axis is equal to the distance of  $B(a, - 4)$  from the origin then which is the value of a? \*

Ans:

15) What is the distance of the point P (x, y) from the x- axis? \*

Ans:

16) What is the distance between (7, 3) and (2, - 2)? \*

Ans:

17) What is the area of the triangle ABC with the vertices A (3, 2), B (6, 5) and C (- 1, 4)? \*

Ans:

18)  $A(2, 3)$ ,  $B(5, 5)$  and  $C(-1, 4)$  are three points vertices of any triangle then what is the area of the triangle in sq. cm? \*

Ans:

19) What will be the area of the triangle PQR with the vertices  $P(2, 3)$ ,  $Q(5, 6)$  and  $R(-1, 4)$ ? \*

Ans:

20) If the distance from the origin to the point  $A(4, k)$  is 5 unit then what is the positive value of k? \*

Ans: