The Millennium Stars School and College

Rangpur Cantonment
Assignment 1–2020
Class: Nine
Subject: Mathematics

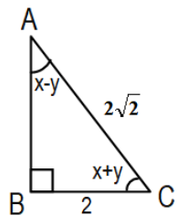
Group-A

Read the following stems and answer the following questions:

1. $x^2 - 3 = 2\sqrt{2}$
   a) Find the value of x. 2
   b) Find the value of $x^4 + \frac{1}{x^4}$. 4
   c) P.T, $x^5 + \frac{1}{x^5} = 58\sqrt{2}$. 4

2. A={3, 4, 5, 6}, B={0, 1, 2} and R={(x, y):x∈A, $y \in A$ and $x - y = -1$}
   a) S.T, A and B are disjoint sets with figure. 2
   b) Determine P(A) and show that the number of elements of P(A) supports 2^n, where n is the number of element of A. 4
   c) Express R in tabular method and determine Dom R and Range R. 4

3.



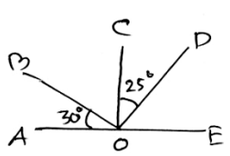
   a) What is the length of AB? 2
   b) Show that, $\cos^2 A + \cos^2 C = \sin^2 A + \sin^2 C$. 4
   c) Find the value of x and y. 4

4. In ΔABC, AC>AB. M and N are the mid-points of AC and AB respectively. AD is the bisector of $\angle A$ which intersect BC at D.
   a) Draw its figure by the stem. 2
   b) Prove that, $MN = \frac{1}{2}BC$ and MN ll BC. 4
   c) Prove that, $\angle ADC$ is an obtuse angle. 4

Group-B

Choose the best answer and write in answer script. **1×20=20**

1. $x - y = 2$ and $xy = 24$, what is the value of $x + y$?
   a) –92 b) 10 c) 52 d) 100
2. A={a, b, c} and B={C}, how many number of elements of P(A)?
   a) 2 b) 4 c) 8 d) 16
3. Which one indicates $A \cap B$ of the following?
   a) $\{x : x \in A \text{ and } x \notin B\}$ b) $\{x : x \in B \text{ and } x \notin A\}$
   c) $\{x : x \in A \text{ and } x \in B\}$ d) $\{x : x \in A \text{ and } x \in A\}$
4.



   i. $\angle AOB + \angle DOE = 95°$
   ii. $\angle BOC + \angle COD = 90°$
   iii. $\angle BOC + \angle DOE = 125°$
   Which one is correct?
   a) i and ii b) i and iii c) ii and iii d) i, ii and iii

5. Difference of two smallest angle of a right angled triangle is $16°,$ what is smallest angle?

a) b) c) d)

6. Which one is a factor of $a^3 + 5\sqrt{5}$?

a) $a^2 + \sqrt{5}a + 25$ b) $a^2 - \sqrt{5}a + 5$ c) $a^2 - 5\sqrt{5}a + 5$ d) $a^2 + 5\sqrt{5}a + 5$

7. $sec\,\theta = \sqrt{x^2+1}, tan\,\theta = what?$

a) $\frac{1}{x}$ b) x c) $x^2 - 1$ d) 1

8. One side of a square is $4\sqrt{2},$ what is its diagonal?

a) 4 b) 6 c) 8 d) 10

9. What is the profit of percentage if C.P: S.P=5:7?

a) 16% b) 20% c) 25% d) 40%

10. If $sin\theta + cos\theta = 1,$ then $sin\theta.cos\theta = what?$

a) 1 b) $\frac{1}{2}$ c) 0 d) –1

11. If $f(a) = a^3 - 2a^2 + a - k$ and $f\left(\frac{1}{2}\right) = 0,$ then k=?

a) $\frac{1}{8}$ b) $\frac{1}{7}$ c) $\frac{1}{6}$ d) $\frac{1}{5}$

12. How many trigonometric ratio's are there in a Trigonometry?

a) 2 b) 4 c) 6 d) 8

13. What is the number of elements of P(A), if number of elements of A is 0 (zero)?

a) 2 b) 1 c) φ d) 0

14. If $\sqrt{P} + \frac{1}{\sqrt{P}} = 2,$ what is the value of $P + \frac{1}{P}?$

a) 0 b) 1 c) 2 d) 3

15. If $(2x + y, 3) = (6, x - y),$ which one is the value of $(x, y)?$

a) (3, 1) b) (3, 0) c) (2, 3) d) (–3, 0)

16. Where was born the mathematician George cantor?

a) Greece b) Egypt c) German d) France

17. In which case, possible to draw a triangle?

a) 2, 4, 8 b) 5, 7, 14 c) 3, 4, 7 d) 5, 6, 7

18. What is the value of $sec90°?$

a) undefined b) $\frac{2}{\sqrt{3}}$ c) $\frac{1}{2}$ d) 1

19. For $0° \le \theta \le 90°,$ what is the maximum value of $sin\theta?$

a) –1 b) 0 c) $\frac{1}{2}$ d) 1

20.

a) b) c) d)

i. ii. iii.

Which one is correct?

a) i and ii b) i and iii c) ii and iii d) i, ii and iii