FIRST MID TERM EXAMINATION - 2022

9 - STD **MATHS** Time : 1.30 Hrs

Marks : 50

I Answer all the questions. 6 X 1 = 6

1. The set P= {x / x ∈ z, -1 < x < 1} is a ..... .
   a) singleton set b) power set c) null set d) subset
2. If A = {x, y, z} then the number of non - empty subsets of A is ..... .
   a) 8 b) 5 c) 6 d) 7
3. Let A = {ϕ} and B = P(A) then A$\cap$B is
   a) {ϕ, {ϕ}} b) {ϕ} c) ϕ d) {0}
4. If $\frac{1}{7} = 0.\overline{142857}$ then the value of $\frac{5}{7}$ is ..... .
   a) $0.\overline{142857}$ b) $0.\overline{714285}$ c) $0.\overline{571428}$ d) 0.714285
5. $4\sqrt{7} \times 2\sqrt{3}$ = ...
   a) $6\sqrt{10}$ b) $8\sqrt{21}$ c) $8\sqrt{10}$ d) $6\sqrt{21}$
6. The exterior angle of a triangle is equal to the sum of two ..... .
   a) exterior angles b) interior opposite angles
   c) alternate angles d) interior angles

II Answer any eight questions.
(Question No. 17 is compulsory) 8 X 2 = 16

7. Write the set of letters of the word ASSESSMENT in Roster form.
8. Write down the power set of A = {a, b}.
9. If A = {6, 7, 8, 9} and B = {8, 10, 12} find AΔB.
10. If P = {m, n} and Q = {m, i, j} then, represent P and Q in Venn diagram and hence find P$\cup$Q.
11. If n(A) = 36, n(B) = 10 and n(A$\cup$B) = 40 find n(A$\cap$B).
12. Find any two rational numbers between $\frac{-7}{11}$ and $\frac{2}{11}$.
13. Convert the decimal number 2.176 in the form of $\frac{p}{q}$.

14. Express 32 in the form of 2^n.

15. Rationalise the denominator of $\frac{5}{3\sqrt{5}}$.

16. Write 6.34×10^4 in decimal form.

17. Show that $\sqrt[3]{7} > \sqrt[4]{5}$.

III Answer any four questions. 4 X 5 = 20

(Question No. 23 is compulsory)

18. Verify $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$ using Venn diagrams.

19. In a college, 240 students play cricket, 180 students play football, 164 students play hockey, 42 play both cricket and football, 38 play both football and hockey, 40 play both cricket and hockey and 16 play all the three games. If each student participate in atleast one game, then find

    i) the number of students in the college.

    ii) the number of students who play only one game.

20. If A = {-2, 0, 1, 3, 5}, B = {-1, 0, 2, 5, 6} and C = {-1, 2, 5, 6, 7} then show that $A - (B \cup C) = (A - B) \cap (A - C)$.

21. Represent 4.863 on the number line.

22. The angles of a triangle are in the ratio 1 : 2 : 3, find the measure of each angle of the triangle.

23. Find the value of a and b if $\frac{\sqrt{7}-2}{\sqrt{7}+2} = a\sqrt{7} + b$.

IV Answer the following. 1 X 8 = 8

24. Draw the graph of y = 3x - 1. ***(OR)***

    Draw the graph of 3x + 2y = 14.