Class: 10th **Sub: Math's** **MM: 50**

Q 1. Fill in the blanks.

i. Tabular form of $A=\{x \mid x \in Z \wedge x^2=5\}$ is. ……

ii. $\{x \mid x \in N \wedge x<1\}$ is equal to ……. set.

iii. $((A')')' =$ ……

iv. In Venn diagram, …… is used to represent universal set.

v. If (x, 6) = (2, y-6) then x + y= …….

vi. If O(A x B) = 100 and O(B) = 5, then O(A) = …….

vii. {(0,5),(6,0),(5,6)}. Is this a function or not a function …….

viii. If A={1,2,3,4} and B={2,4,6} then AΔB = ……

ix. If 5:8::5:x, then the value of x is ……

x. According to dividend property $\frac{a}{b}=\frac{c}{d}$ =>……

xi. The simplest form of 4:9::1:3 is …….

xii. If a:b::c:d then a:c::b:d this property of proportion is called …….

xiii. If 9:x::x:4, then the value of x is ……

xiv. ……. Triangle is always similar.

xv. If a line intersects two sides of a triangle in a same ratio then it is …… to the other side.

xvi. If the ratio of corresponding sides of similar triangle is 2:x and that of areas is 4:9, then x = ……

xvii. A triangle having no side equal to other sides is called ……

xviii. In right angle triangle the greatest side is of measure …….

xix. If 5cm and 12cm are two sides of a right angle triangle. Then the hypotenuse is ……

xx. If a, b, c are sides of right angle triangle, with c is the larger side, then equation for Pythagoras theorem is ……

xxi. The ungrouped data must be ordered first to find ……

xxii. What is A.M of the data set: 4, 5, 0, 10, 8 and 3. ……

xxiii. What is G.M of the data set: 1, 2, 8 and 16. ……

xxiv. What is the variance of the data set: 2, 10, 1, 9 and 3. …….

xxv. In the set 2, 4, 5, 4, 6, 5, 3, 4, 2, the mode is ……

Q 2. Resolve the following into partial fractions. **/10**

$I.\frac{x^2+7x+3}{x^2(x+3)}$

OR

$II.\frac{x^2-x+3}{(x-1)^3}$

OR

$III.\frac{x^2+x+2}{x^2(x^2+3)^2}$

OR

$IV.\frac{7}{(x+1)(2+x^2)^2}$

OR

$V.\frac{x^2-x+2}{(x+1)(x^2+3)}$

OR

$VI.\frac{x^2+9x+8}{x^2+x-6}$

Q 3. Obtain the following for the given data. **/20**

Find: A.M, G.M, H.M, Median, Quartiles, Mode, Range Variance, Standard deviation, Mean deviation and obtain Relative frequency Polygon.

Data:

Goals Scored	0	1	2	3	4
Number of games team A played.	27	9	8	5	4

Reference: Ex: 22.5 Question no 4.

OR

Class Limit	10.5-10.9	11.0-11.4	11.5-11.9	12.0-12.4	12.5-12.9
Frequencies.	2	7	10	12	8

Reference: Ex: 22.5 Question no 9.

OR

Amount of money earned weekly	20-40	50-70	80-90	100-110	120-140
Number of people	2	6	12	14	4

Reference: Ex: 22.2 Question no 3.

Q 4. Solve the following equation by using componendo-dividendo theorem. /5

$I.\ \dfrac{\sqrt{x+1}+\sqrt{x-1}}{\sqrt{x+1}-\sqrt{x-1}}=\dfrac{1}{2}$

OR

$II.\ \dfrac{\sqrt{x+5}-\sqrt{x-5}}{\sqrt{x+5}+\sqrt{x-5}}=\dfrac{1}{10}$

OR

$III.\ \dfrac{(x+3)^2-(x-5)^2}{(x+3)^2+(x-5)^2}=\dfrac{4}{5}$

Q 5. Verify De Morgan's Law. Also draw Venn Diagram. /5

$A=\{1,3,5,7,9\}$

$B=\{5,6,7,8\}$

$\bigcup=\{1,2,3,4,5,6,7,8,9,10\}$

OR

$A=\{1,2,3,4,5,6\}$

$B=\{2,4,6,8,10\}$

$\bigcup=\{1,2,3,4,5,6,7,8,9,10\}$

Q 6. /5

Part A=> If x:y=z:w then prove that:

$$\frac{x^3+y^3}{x^3-y^3}=\frac{z^3+w^3}{z^3-w^3}$$

OR

Part B=> Prove that a:b=c:d:

$a^2-b^2 : a^2+b^2 = ac-bd : ac+bd$

Q 7. Solve the following /5

i. The sides of a triangle have lengths x, x+4 and 20. If the length of the longest side is 20. What values of the x make the right triangle.

OR

ii. In the ΔABC as $\angle ADB$ is right angle as shown in the adjacent figure. Find the lengths a, h and b if $m\overline{CD}=5$ units and $m\overline{AD}=7$ units.