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

Q 1. Fill in the blanks.

- i. Tabular form of $A = \{x \mid x \in Z \land x^2 = 5\}$ is.
- ii. $\{x \mid x \in N \land x < 1\}$ is equal to set.
- iii. $((A')')' = \dots$
- iv. In Venn diagram, is used to represent universal set.
- v. If (x, 6) = (2, y-6) then $x + y = \dots$
- vi. If $O(A \times B) = 100$ 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 $A\Delta B = \dots$
- ix. If 5:8::5:x, then the value of x is
- x. According to dividend property $\frac{a}{b} = \frac{c}{d} = > \dots$
- 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 $x = \dots$
- 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

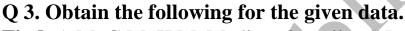
$$IV. \frac{7}{(x+1)(2+x^2)^2}$$

OR

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

OR

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



/20

<u>Find</u>: 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	20-40	50-70	80-90	100-110	120-140
earned weekly					
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

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

OR

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

OR

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

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

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

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

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

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

*/*5

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

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

<u>OR</u>

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

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 $\triangle ABC$ as $\angle ADB$ is right angle as shown in the adjacent figure. Find the lengths a, h and b if $\overrightarrow{mCD} = 5$ units and $\overrightarrow{mAD} = 7$ units.

