Section-B

Note: Attempt any 08 question of the following:

Q.2 Write any five example of empty sets.

Q.3 Which of the following sets are disjoint, overlapping, exhustive and cells.

(i){1,2,3,5,7} and {4,6,8,9,10} (ii) {1,2,3,6} and {1,2,4,8}

Q.4: If, A and B are subset of U then prove the following using properties.

(i) $A \cup (A \cap B) = A \cap (A \cup B)$ (ii) $A \cup B = A \cup (A' \cap B)$

(iii) $B = (A \cap B) \cup (A' \cap B)$ (iv) $B = A \cup (A' \cap B)$, if $A \subseteq B$

Q.5 If a : b = 5 : 8, find the vlaue of 3a + 4b: 5a + 7b

Q.6 Find the value of x in the following contained prppotions.

(i) 45,x , 5 (ii) 7, x - 3 ,112

Q.7 Solve the equations:

(i) $\frac{(x+3)^2-(x-5)^2}{(x+3)^2+(x-5)^2}=\frac{4}{5}$ (ii) $\frac{\sqrt{x+1}+\sqrt{x-1}}{\sqrt{x+1}-\sqrt{x-1}}=\frac{1}{2}$

Q.8 If y varies directly as x2 and z and y = 6 when x = 4, z = 9. Write y as a function of x and z determine the value of y when x = -8, and z = 12.

Q.9 If p:q = r :s then show that $(p^2+q^2):\frac{p^3}{p+q}=(r^2+s^2):\frac{r^3}{r+s}$

Q.10: For the matrices $A=\begin{bmatrix}-1 & 0 & 1\\ 2 & 1 & 0\\ 3 & 2 & -1\end{bmatrix}$ and $B=\begin{bmatrix}4 & 2 & 3\\ -2 & 4 & 1\\ 3 & 2 & 1\end{bmatrix}$. Find

(i) $A+B$ (ii) $A-B$ (iii) $3A+2B$

(iv) AB (v) BA (vi) A^2

Q.11 For what value of x, the matri› $\begin{bmatrix}5-x & x+1\\ 2 & 4\end{bmatrix}$ is siñgular?

Q.12 Construct histagram for the following date with unequll class intervals:

Class limits	0-39	40-49	50-79	80-99
Frequencies	6	8	12	4

Section-C

Note: Attempt any 04 Question of the following:

Q.13 Resolve the follwoing fractions into partial functions:

(I) $\frac{9x^2+5x+7}{x(x+2)(x-5)}$ (ii) $\frac{x+5}{(x^2+1)^2(x-3)}$

Q.14 In $\Delta ABC, \overline{PQ} \parallel \overline{BC}$. Find x if $m\overline{AP} = 5x - 3$ $m\overline{BP} = 2 m\overline{PB} = 2$, $mAQ = 2x + 1$ and $mQC = 3$.

Q.15 Ratio of corresponding sides of two similar triangle is 2: x : x - 5 and the ratio of their areas is 1:9 . Find the vlaue of x.

Q.16 Show that one and only once circle can pass through the vertices of a square.

Q.17 Show that the diameters of a circle bisect each other.