Comprehensive Test Series-04

TIME: 45 m. **MM: 25**

General Instructions:

- All Questions are compulsory.
- Marks are given alongwith the questions individually.
- Use of calculator is not permitted.

Q1. Decide, among the following sets, which are subsets of which?
A = {x : x is a solution of $x^2 - 8x + 12 = 0$}, B = {2,4,6}, C = {x : x is an even natural number}, D = {6}

Q.2 Let A be the set of letters in word "POOR". Write the power set of A.

Q 3. Two sets A and B are such that n (A $\cup$ B) = 18, n (A' $\cap$ B) = 3 and n (A $\cap$ B') = 5, find the n (A $\cap$ B).

Q4. In a survey of 400 students in a school, 100, were listed as drinking coffee, 150, as drinking tea and 75 were listed both coffee as well as tea. Find how many students were drinking neither coffer nor tea.

Q5. In a beauty contest, half the number of judges voted for Miss A, $\frac{2}{3}$ of them voted for Miss B; 10 voted for both and 6 did not vote for either Miss A or Miss B. Find how many judges, in all, were present there.

Q6. If f (x) = 2x + 5 and g (x) = $x^2 - 1$ are two real valued functions find the number following functions:

(i) f + g (ii) f – g (iii) f g (iv) $\frac{f}{g}$ (v) $\frac{g}{f}$ (vi) $3g + 2f^2$

Q7. $1^2 + 2^2 + 3^2 + \ldots$to n terms = $\frac{n(n+1)(2n+1)}{6}$

Q8. $1.2 + 2.2^2 + 3.2^3 + \ldots + n.2^n = (n-1).2^{n+1} + 2$.

Q9. $10^{2n-1} + 1$ is divisible by 11.

Q 10. $3^{2n+2} - 8n - 9$ is a multiple of 64.