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STREAM: BBA SEM – 1

PRELIMS PAPER – 2022-23

SUB: ELEMENTS OF BUSINESS MATHEMATICS

MARKS 70

- Q.1 (A) How many different words can be formed with the letter of RITESH? In how many of these (i) R and H are together. (ii) Begin with R and end with H? (10)
- (B) $nC_{r-1} : nC_r : nC_{r+1} = 3:4:5$ (10)

OR

- Q.1 (A) The letters of the word HARSH are written as all possible orders. How many words are possible? If all these words are written out as in dictionary, what is the rank of the word HARSH? (10)
- (B) (i) $2nC_3 = nP_4$ (ii) $n + 2C_n = 45$ (10)

- Q.2 Find the required terms of the following Sequences: (20)
- (i) 16, 20, 24, (21st term)
- (ii) -12, -17, -22, (38th term)
- (iii) 1.1, 1.11, 1.12, (10th term)
- (iv) 121, 109, 97, 85, (40th term)

OR

- Q.2 A bank cashier has to count Rs. 4500 in currency note of Rs. 1 each. He counts 150 notes per minutes for the first 10 minutes, after he counts 2 notes less every minute. What time will be required to count to notes of Rs. 4500? (20)

- Q.3 (i) Find the value of $(\sqrt{5} + \sqrt{3})^6 + (\sqrt{5} - \sqrt{3})^6$ (15)
- (ii) Find the value of $(\sqrt{2} + 1)^6 + (\sqrt{2} - 1)^6$

OR

- Q.3 (A) T_1, T_2 and T_3 in the expansion of $(a+b)^n$ are 1, 14 and 84 respectively. Determine a, b and n. (8)

- (B) Find out coefficient of X^7 in the expansion of $\left\{\frac{X^2}{2} - \frac{2}{X}\right\}^8$. (7)

- Q.4 (A) Prove binomial theorem by P.M.I. (Principle of Mathematical Induction) (8)
- (B) State the formula: $\sum n, \sum n^2$ and $\sum n^3$ (7)

OR

- Q.4 By applying P.M.I. prove that: (15)
- (i) $1 + 3 + 5 + \dots + (2n - 1) = n^2$
- (ii) $2 + 4 + 6 + \dots + 2n = n(n + 1)$

ALL THE BEST