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I Semester B.Com. (A & F) Degree Examination, August - 2021

BUSINESS MATHEMATICS AND LOGICAL REASONING

Commerce

(CBCS New Scheme Freshers 2019-20 Onwards)

Paper : 1.5

Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates :

Answer should be completely in English.

SECTION - A

Answer any FIVE sub-questions. Each sub-questions carries 2 marks:

(5×2=10)

1. a) Find the ratio of 35 minutes and 50 seconds.
- b) Find the value of x when $5x+3=3x+13$.
- c) Define Row matrix with example.
- d) Gopal deposited Rs. 20,000 in a bank for 3 years with the interest rate 8% p.a how much interest would he earn?
- e) Evaluate $10P_2 - 5P_2$.
- f) Find 20th term when $T_n = 6n + 3$.
- g) Differentiate $3x^2 + 5x - 2$.



SECTION - B

Answer any THREE questions of the following. Each question carries 5 marks:

(3×5=15)

2. The ratio of number of boys to number of girls in a School of 640 students is 5:3. If 18 new girls are admitted in the school, find how many new boys may be admitted, so that the ratio of number of boys to number of girls may change to 5:2.
3. If $A = \begin{bmatrix} 2 & 3 \\ 4 & 1 \end{bmatrix}$ find A^2 .
4. Prasad invested Rs. 60,000 in a bank at the rate of 6.5% p.a simple interest rate. He received Rs. 81,450 after the end of term. Find out the period for which sum was invested by Prasad.
5. Find n if $np_3 = 60$.

[P.T.O.]



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SECTION - C

Answer any **THREE** of the following. Each question carries **15** marks: (3×15=45)

6. a) If 5th and 12th term of an AP is 28 and 63 respectively, Find AP.
b) Solve using Elimination method
 $3x + 2y + 17 = 0$ and $5x - 6y - 9 = 0$.
7. a) If $U = \{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}$ is the universe set $A = \{1, 2, 3, 8\}$ and $B = \{2, 4, 5, 6, 8\}$ find $A', B', A \cup B, A \cap B$ and $A - B$.
b) Find the value of K from $(\sqrt{9})^{-7} \times (\sqrt{3})^{-5} = 3^k$
8. a) Solve the following equation by Cramer's Rule
 $2x - 3y = 3; 4x - 11y = 11$
b) If $x + y = \begin{bmatrix} 5 & 2 \\ 0 & 9 \end{bmatrix}$ $x - y = \begin{bmatrix} 3 & 6 \\ 0 & -1 \end{bmatrix}$ find x and y .
9. a) A Computer software company wishes to start the production of Floppies. It was observed that the company had to spend Rs 2 lakhs for technical information. The cost of setting up the machines is Rs. 88,000 and cost of producing each unit is Rs 30. While each floppy could be sold at Rs. 45.
Find
i) The total cost of production of x floppies.
ii) The break-even point.
b) Four Ladies A,B,C,D and four gentleman, W,X,Y,Z are sitting in a circle around a table facing each other.
No two ladies (or) gentleman are sitting side by side.
C who is sitting between Y and W is facing D.
X is between D and A facing Y.
i) Who is sitting to left of A?
ii) 'W' is facing whom?
iii) Who is immediate neighbour of B.

