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DCBC215

Reg. No. | | | | | | | | |

II Semester B.Com. (Regular) Degree Examination, June/July - 2025

COMMERCE

Quantitative Aptitude

(CBCS SEP Scheme Freshers 2024 - 2025 Onwards)

Paper : 2.4 (b)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates:

1. Answer All the Sections.
2. Answers should be written completely in English only.

SECTION - A

Answer any FIVE sub-questions. Each sub-question carries 2 marks. **(5×2=10)**

1. a) What are Rational Numbers?

   b) What is sub-duplicate ratio of 9:16?

   c) A furniture is reduced 15% in price in a sale. The old price was Rs. 750. Find the new price.

   d) In what time will a sum Rs. 2,000 amounts to Rs. 2,240 at the rate of 4% p.a.simple interest?

   e) If X:3 = 50:2 find 'X'.

   f) What is Scalar Matrix?

   g) In a code, NEWYORK is written as 111, how is NEWJERSEY written in that code?

   h) Find the missing sequence

   2, 3, 4, 9, 8, 27, ____, 81.

SECTION - B

Answer any FOUR questions. Each question carries 5 marks. **(4×5=20)**

2. Find the HCF of 806, 663 and 377.

3. The catalogue price of an article sold is Rs. 89,000. The trade discount and cash discount are 10% and 5% respectively. Find out the net cash price of the article sold.

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4. Solve for x: $\frac{3x-1}{2}+\frac{x+2}{3}=\frac{9x+12}{5}-2$.

5. If $A=\begin{bmatrix}5 & 6 & 7\\ 8 & 9 & 0\\ 1 & 2 & 3\end{bmatrix}$ and $B=\begin{bmatrix}3 & 2 & 1\\ 9 & 0 & 8\\ 7 & 6 & 5\end{bmatrix}$ find 5A+3B.

6. Eight friends (4 males: M1, M2, M3, M4) and 4 females: (F1, F2, F3, F4) are sitting in a circle, all facing the centre. Arrange the friends in the circle.

   a. F1 is sitting opposite M1.

   b. M3 is to the immediate left of F2.

   c. F4 is second to the right of F2.

   d. M2 is not adjacent to F4.

   e. M4 is to the immediate right of M1.

7. Find the amount of annuity of Rs. 15,000 payable at the end of each year for three years. If the rate of Interest is 4% P.A. compounded semi-annually.

SECTION - C

Answer any THREE questions. Each question carries 15 marks. **(3×15=45)**

8. a) Calculate the present value of annuity at Rs. 5,000 P.A. for 12 years interest being 4% P.A. compound annually.

   b) Two numbers are in the ratio 5:8. If 9 is added to each they are in the ratio 8:11. Find the numbers.

9. a) Find the compound interest on Rs. 2,500 for two years at 12% P.A.

   b) Solve by elimination method

   $4x-3y=8$ and

   $3x-4y=-1$.

10. a) Solve for a, b, c given that $\begin{bmatrix} a \\ b \\ c \end{bmatrix} = \begin{bmatrix} 2 & 3 & 4 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix} \begin{bmatrix} 4 \\ 5 \\ 6 \end{bmatrix}$.

b) Show that $\begin{vmatrix} 3 & 4 & 7 \\ 2 & 1 & 3 \\ -5 & -1 & 2 \end{vmatrix} = -40$.

11. a) If a man earns Rs. 65 per week, how long must he work to earn Rs. 780.

b) If $\frac{x}{ax+by+cz} = \frac{y}{bx+cy+az} = \frac{z}{cx+ay+bz}$ show that each ratio is equal to $\frac{1}{a+b+c}$.

12. a) A man borrows Rs. 60,000 @ 10% compound interest and promises to repay in five equal annual instalment. What is the annual payment?

b) Solve by Cramer's Rule Method: $5x+3y=1$ and $3x+5y=0$.

SECTION - D

Answer the following question. The question carries 5 marks. (1×5=5)

13. Demonstrate the application of matrices in solving business problems.