

I Semester B.Com. Examination, Nov./Dec. 2015
(CBCS) (2014-15 and Onwards) (F + R)

COMMERCE

1.6. b : Methods and Techniques for Business Decisions

Time : 3 Hours

Max. Marks : 70

Instruction : Answer should **completely** be either in **English** or **Kannada**.

SECTION – A

Answer **any five** sub-questions, **each** sub-question carries **2** marks. (5×2=10)

1. a) What do you mean by prime number ?
- b) Give the meaning of linear equation.
- c) What is a Diagonal Matrix ?
- d) Write the meaning of immediate annuity.
- e) What do you mean by True Discount ?
- f) If $\frac{7}{2}$, 4, $\frac{9}{2}$ are in AP, find the 8th term.
- g) Write the duplicate ratio of 3 : 4.

SECTION – B

Answer **any three** questions, **each** question carries **six** marks. (3×6=18)

2. Solve for x,

$$\frac{7x+5}{5} - \frac{x-11}{14} = \frac{3(x-25)}{7} + 35$$

3. Find the inverse of the matrix $A = \begin{bmatrix} 2 & -1 \\ 3 & -2 \end{bmatrix}$.

4. If 3rd and 7th terms of an AP are 15 and 39 respectively, find AP.

5. A car covers a distance of 102 kms in 2 hours and another car covers a distance of 85 kms in $2\frac{1}{2}$ hours. Compare the speed of two cars.

6. Calculate the amount of an annuity of ₹ 5,000 for 15 years, @ 12% p.a. interest.

P.T.O.



SECTION - C

Answer **any three** questions, **each** question carries **fourteen** marks.

(3×14=42)

7. a) If 15 men working 12 hours per day perform a job in 16 days, how long will it take 21 men working 10 hours daily to do the same task ?
b) A company needs ₹ 10,00,000 at the end of 5 years. It would like to set aside an equal amount each year out of its profits. If the present rate of interest is 16%, how much should annual amount be invested ?
8. a) Solve $9x^2 - 3x - 2 = 0$ by using the formula method.
b) Monthly income of two persons is in the ratio 4 : 5 and their monthly expenses are in 7:9, if each saves ₹ 500 a month, find the monthly income of two persons.

9. a) If $A = \begin{bmatrix} 1 & 2 \\ 2 & 4 \\ 5 & 6 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & -2 & 5 \\ 2 & 4 & -6 \end{bmatrix}$ show that $(AB)' = B'A'$.

- b) If $2x + 3y - 1 = 0$, $3x - y + 2 = 0$ solve by Crammer's rule.
10. a) A person buys every year Bank's cash certificates of value exceeding the last year's purchase by ₹ 250. After 20 years, he finds that the total value of the certificates purchased by him is ₹ 72,500. Find the value of the certificates purchased by him a) in the first year b) in the 13th year.
b) The sum of the first eight elements of GP is five times the sum of the first four terms. Find the common ratio.
11. a) Ashok lent two equal sum of money to Rahul and Laxman. While Rahul agreed to pay interest @ 5% p.a., Laxman agreed to pay interest @ 6% p.a. At the end of 10 years Ashok received ₹ 1,000 more from Laxman towards interest. How much did Ashok lend to Rahul and Laxman each ? Interest charged being simple interest.
b) A bill was drawn on April 1, 2014 for ₹ 15,000 due in 6 months and discounted on July 23, 2015 @ 6% p.a. Find :
- 1) Banker's Discount
 - 2) True Discount
 - 3) Discounted value of the bill
 - 4) Banker's Gain.