(CBCS) (F + R)  
(2014-15 and Onwards)  
BUSINESS ADMINISTRATION  
1.5 : Quantitative Methods for Business – I

Time : 3 Hours  
Max. Marks : 70

**Instruction**: Answer should be written in English only.

**SECTION – A**

Answer any five sub-questions from the following. Each carries two marks. \((5 \times 2 = 10)\)

1. a) Find the sum of all natural number from 1 to 25.
   b) Find HCF and LCM of 28, 42 and 98.
   c) Solve : \(3x^2 - 27 = 0\).
   d) If 17% of population of a city is 400, then find the total population of the city.
   e) Find the 20th term of the A.P 15, 12, 9, 6 ...
   f) Find \(A - B\) if \(A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}\) and \(B = \begin{bmatrix} -1 & -2 \\ -3 & 4 \end{bmatrix}\).
   g) If \(A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}\) and \(B = \begin{bmatrix} -3 \\ 2 \end{bmatrix}\) find \(AB\).

**SECTION – B**

Answer any three of the following, each carries six marks. \((3 \times 6 = 18)\)

2. Solve the equation \(x^2 - 8x + 25 = x(x - 4) - 25(x - 5) - 16\).

3. The sum of 3 number in AP is -15 and their product is -80. Find the numbers.

4. 3 kgs of sugar and 7 kgs of rice cost Rs. 550 and 7 kgs of sugar and 3 kgs of rice cost Rs. 630. Find the cost of sugar and rice per kg, using Cramer’s Rule.

5. Of a man’s salary 15% is paid as rent, 60% as his living expenses. 20% is deposited in a bank and Rs. 325 is spent for the education of his children. What is his salary ?

6. Solve the equation by elimination method.

\[
\begin{align*}
8 & - 9 = 1 \\
x & y = 1 \\
10 & + 6 = 6 \\
v & y = 2 \\
2 & 2
\end{align*}
\]
SECTION – C

Answer any three of the following. Each carries fourteen marks.

7. a) Solve through formula method:

\[ \frac{6x}{x+1} + \frac{6(x+1)}{x} = 13 \]

b) How many terms of the series 5, 4, 3, ... must be taken so that sum may be -90?

8. a) Two numbers are in the ratio of 4 : 5 and if 24 is subtracted from each of them, the remainder are in the ratio of 2 : 3. Find the numbers.

b) The sum of three numbers in a G.P is 14 and their product is 64. Find the numbers.

9. a) Using properties of determinants evaluate

\[ |A| = \begin{vmatrix} 23 & 6 & 11 \\ 36 & 5 & 26 \\ 63 & 13 & 37 \end{vmatrix} \]

b) AB and C enter into partnership with Rs. 5,000, 3,000 and 2,000 respectively. A and B get 20% and 10% of the profit for special efforts and the balance is shared in capital ratio. In total if A receives Rs. 600 more than B. How much does each receive?

10. a) Find the inverse of \[ A = \begin{bmatrix} 2 & 4 \\ 6 & 13 \end{bmatrix} \].

b) A man borrowed Rs. 62,500 from a bank. After 2 years he paid Rs. 67,600 in full settlement of his debt. Find the rate of compound interest.

11. a) Find the present value, true discount, Banker's discount and Banker's gain on a bill of Rs. 10,450 due in 9 months at 6% per annum.

b) Find the compound interest on Rs. 4,000 for 1½ year at 10% per annum interest payable half yearly.
1 Semester B.B.A. Examination, November/December 2015
(F + R) (CBCS) (2014-15 and Onwards)
1.5 : QUANTITATIVE METHODS FOR BUSINESS – I

Time : 3 Hours
Max. Marks : 70

Instructions: 1) Answers should be written in English.
2) All the rough work must be shown on the right hand margin.

SECTION – A

1. Answer any five sub-questions from the following. Each carries two marks. (5x2=10)
   a) Give the meaning of Ratio.
   b) Find the 4th proportion to 2, 8, 3, ?
   c) Mention any four types of matrices.
   d) Find the HCF of 144, 348 and 444.
   e) What is meant by Quadratic equation?
   f) Calculate simple interest on Rs. 20,000 for 4½ year @ 9% p.a.
   g) Give the formula to calculate the sum of n terms of an Ap.

SECTION – B

Answer any three of the following. Each carries six marks. (3x6=18)

2. Solve for x : \[ \frac{x+4}{4} + \frac{x-5}{3} = 11. \]

3. IS 101 a term of the series 5, 7, 9, ...

4. A certain amount of money laid out at simple interest amounts to Rs. 1,380, in 3 years and it amounts to Rs. 1,500 in 5 years. Find the sum and rate of interest.

5. If \( A = \begin{bmatrix} 2 & 3 \\ 1 & -1 \end{bmatrix} \) and \( B = \begin{bmatrix} 0 & -3 \\ -1 & 3 \end{bmatrix} \) find a \( 2 \times 2 \) matrix \( x \) such that \( A - X = 3B. \)

6. Two numbers are in the ratio of 4 : 5 and if 24 is subtracted from each of them the remainders are in the ratio of 2 : 3 find those numbers.

P.T.O.
SECTION – C

Answer any three of the following. Each carries fourteen marks. \(3 \times 14 = 42\)

7. a) Solve through formula method: \(x^2 + 3x - 28 = 0\).
   b) How many integers are there between 25 and 129 which are divisible by 7.

8. a) A purchased 4 tons of Wheat and 3 tons of Sugar for Rs. 31,000, B purchased 3 tons of Wheat and 2 tons of Sugar for Rs. 22,000. Find the price per ton of Wheat and Sugar.
   b) Which term of Ap of 5, 13, 21 \ldots\ is 181.

9. a) Find the Banker discount, true discount, bankers gain and discounted value on a bill of Rs. 10,500 due for 9 months @ 9%, p.a.
   b) What amount of money that we have invest today to receive Rs. 1,925.40 payable after 5 years @ 14% compound interest?

10. a) If \(A = \begin{bmatrix} 0 & 2 & 3 \\ 2 & 1 & 4 \end{bmatrix}\) and \(B = \begin{bmatrix} 7 & 6 & 3 \\ 1 & 4 & 5 \end{bmatrix}\).

    Find i) \(5B - 3A\) ii) \(2A + 4B\)
   b) Find the difference between compound interest and simple interest on Rs. 80,000 for 3 years @ 10% p.a.

11. a) By selling an article for Rs. 121, the dealer gains 10%. What is the percentage of Profit or Loss if the article is sold for Rs. 104.50.
   b) Solve by Cramer rule
   \[5x - 7y = 2\]
   \[7x - 5y = 3\].
I Semester B.B.M. Examination, Nov./Dec. 2014
(Fresh) (CBCS) (2014-15 and Onwards)
BUSINESS MANAGEMENT
1.5 : Quantitative Methods for Business – I

Time : 3 Hours
Max. Marks : 70

Instructions: Answers should be written in English. All the rough work must be shown on the right hand margin.

SECTION – A

Answer any five sub-questions from the following. Each carries 2 marks. (2x5=10)

1. a) Give the meaning of Real Numbers.
   b) Define Integers.
   c) Define Linear Equation.
   d) If \( A = \begin{bmatrix} 2 & 4 \\ 3 & 5 \end{bmatrix} \) find \( A^2 \).
   e) What is a scalar matrix? Give an example.
   f) Solve for \( x \), \( 4x^2 + 4 = 20 \).
   g) Find the simple interest on Rs. 12,000 for 2 years at 8% p.a.

SECTION – B

Answer any three of the following. Each question carries six marks. (6x3=18)

2. Find the LCM of 36, 72, 144 and 2100 by division method.

3. Solve for \( x \), \( (2x - 7) (3x + 1) = (2x - 5) (3x + 2) \)

4. Find \( AB \) and \( BA \), if \( A = \begin{bmatrix} 1 & 2 & -3 \\ 5 & 0 & 2 \\ 1 & -1 & 1 \end{bmatrix} \) and \( B = \begin{bmatrix} 3 & -1 & 2 \\ 4 & 2 & 5 \\ 2 & 0 & 3 \end{bmatrix} \)

5. What term of AP 7, 10, 13,... is 60?

6. Calculate compound interest on 5,000 at 5% rate of interest p.a. for 3 years.

P.T.O.
SECTION – C

Answer any three of the following. Each question carries fourteen marks. \((14 \times 3 = 42)\)

7. a) The weekly wages of 30 persons consisting of men and women amounts to Rs. 3,600. Each man receives Rs. 160 and each woman Rs. 120 as wages per week. Find the number of men and women.

b) Solve by elimination method.

\[
\begin{align*}
x + y &= 15 \\
3x - y &= 21
\end{align*}
\]

8. a) Find the difference between compound and simple interest on Rs. 10,000 invested for 5 years at 8% p.a.

b) 8 men or 16 boys can do a work in 39 days. In how many days will 4 men and 18 boys do it?

9. a) Find the inverse of a matrix

\[
\begin{bmatrix}
1 & -1 & 1 \\
2 & -1 & 3 \\
-3 & -2 & 4
\end{bmatrix}
\]

b) Find the sum of all numbers between 100 to 1000, which are multiples of 5.

10. a) If \(A = \begin{bmatrix} 3 & 1 \\ 4 & 2 \end{bmatrix}\), \(B = \begin{bmatrix} 2 & -1 \\ 3 & 1 \end{bmatrix}\) and \(C = \begin{bmatrix} 2 & 3 \\ 4 & 1 \end{bmatrix}\) verify \(A(B + C) = AB + AC\).

b) Solve by Cramer’s rule.

\[
\begin{align*}
2x + 3y &= 42 \\
5x - y &= 20
\end{align*}
\]

11. a) Two washing machines are sold for 15,000 each, getting 10% profit on one and 10% loss on the other. Find the gain (or) loss percent on the sale of both the machines.

b) Calculate amount of an annuity of 10,000 for 10 years, if the rate of interest is 10% p.a.