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

BBABMC 207/BBMBMC 207

III Semester B.B.A./B.B.M. Degree Examination, October/November 2019

(Credit Based Semester Scheme)

(2012 Scheme)

Business Mathematics

Time : 3 Hours] [Max. Marks : 80

Instructions :

1. *Use of scientific calculator is not permitted.*
2. *Logarithm tables will be provided on request.*

SECTION – A

(1 mark each)

1. Answer **any ten** of the following : **(10 × 1 = 10)**

(a) If $A=\begin{bmatrix}3 & x+5\\ 1 & 0\end{bmatrix}$ is a singular matrix. Find x.

(b) If A is a matrix of order 3×2 and B is a another matrix of order 2×4. Then what is the order of AB.

(c) Find $|A|$ if $A=\begin{bmatrix}10 & 1\\ 1 & -1\end{bmatrix}$.

(d) Simplify the equation $x^2-27x+50=0$.

(e) Find 12^{th} term of the sequence 3, 8, 13 .....

(f) If first term of GP is 3 and common ratio is 2. Write the fourth term.

(g) The ratio of two numbers is 2 : 3 and their sum is 85. Find the numbers.

(h) Find the simple interest of Rs. 4000 for 3 years at 9% per annum.

(i) Calculate the selling price of an article worth Rs. 8,150 after 15% trade discount.

(j) Find x if $\log_x 216 = 3$.

(k) Calculate compound interest on Rs. 8,540 at 12% p.a. for 2 years.

(l) Divide Rs. 1,500 among A and B in the ratio of 2 : 3.

SECTION B

(5 marks each)

Answer **any five** of the following : **(5 × 5 = 25)**

2. If $A = \begin{bmatrix} 1 & 3 & 6 \\ 5 & 4 & 0 \\ 1 & 1 & 1 \end{bmatrix}$ $B = \begin{bmatrix} 3 & 1 & 0 \\ 10 & 4 & 1 \\ 4 & 7 & 1 \end{bmatrix}$. Find $4A + 3B$.

3. The sum of two numbers is 15 and their difference is 5. Find the numbers.

4. If the 4th term and 6th term of A.P are 13 and 19 respectively. Find the first term and common difference.

5. Find the selling price if the listed price is Rs. 2,500, when a trade discount of 10% and a cash discount of 2% for immediate payment.

6. The bankers gain on certain bill due after 6 month is Rs. 40. The rate of interest being 16% p.a. Find the face value of the bill. Also find true discount and banker's discount.

7. There are four bills on each for Rs. 2,000, Rs. 800, Rs. 600 and Rs. 1,200. Their respective due dates are 12th March, 27th March, 18th April and 26th April. Find the equated due date.

8. Compute the compound interest on Rs. 5,000 for two years at 6% p.a. the interest being calculated quarterly.

SECTION C

(15 marks each)

Answer **any three** questions : **(3 × 15 = 45)**

9. (a) Solve the following equations by Cramer's rule. **(10)**

$$7x+6y-5z=30$$
$$3x-4y+z=0$$
$$x+2y-3z=10$$

(b) A man saved Rs. 16,500 in ten years in each year after the first he saved Rs. 100 more than he did in the preceding year. How much he did saw in the first year? **(5)**

10. (a) Solve the following equations by matrix method. **(10)**

$$2x+4y+z=5$$
$$x+y+z=6$$
$$2x+3y+z=6$$

(b) The sum and product of three numbers in GP are 19 and 216 respectively. Find the numbers. **(5)**

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

(b) Find the rate of simple interest at which a sum of Rs. 1,500 will be come Rs. 1,815 in 3 years time. **(5)**

(c) If 5 men earn Rs. 4,200 in 15 days working 8 hours a day. How much will 6 men earn in 8 days working in 6 hours a day? **(5)**

12. (a) Evaluate $\log\frac{81}{16} - \log\frac{8}{6} + \log\frac{128}{243}$. **(5)**

(b) If interest is to be compounded half yearly at 10% p.a. in how many years would money triple? **(5)**

(c) Find the present value of perpetuity immediate of Rs. 4,000 at 12% p.a. compound interest and perpetuity due of Rs. 6,000 at 15% p.a. **(5)**