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

BBABMC 207/BBMBMC 207

Credit Based III Semester B.B.A./B.B.M. Degree Examination, Oct./Nov. 2017
(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 : **(1×10=10)**

a) Solve $2x^2 - 7x + 3 = 0$ using factorization.

b) If $A = \begin{bmatrix} 2 & -1 \\ 3 & 0 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 5 \\ 2 & 3 \end{bmatrix}$ and $C = \begin{bmatrix} 6 & 8 \\ 9 & 11 \end{bmatrix}$ find $2A + 3B + C$.

c) Find the determinant $\begin{vmatrix} 1 & 2 & 3 \\ 2 & 3 & 1 \\ 1 & 2 & 2 \end{vmatrix}$.

d) Which term of AP 7, 10, 13..... is 97 ?

e) Find the 10^{th} term of G.P. 3, 12, 48...

f) Divide 1880 in the ratio 3 : 5.

g) If 5 worker can bind 800 books in one hour, how many books can 12 workers bind in one hour ?

h) Calculate bankers discount on a bill of face value ₹ 10,000 which is due 3 months at 8% per annum.

i) Find simple interest on ₹ 8,000 for 3 years at 4.5% per annum.

j) Calculate the compound interest on ₹ 8,540 at 12% per annum for 2 years.

k) Find x if $\log_a x = 0$.

l) Find the present value of perpetuity immediate of ₹ 4,000 at 12% per annum compound interest.

P.T.O.

SECTION – B
(5 marks each)

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

2. If $A = \begin{bmatrix} 3 & -1 & 1 \\ 2 & 3 & 4 \end{bmatrix}$, find AA′ and A′A. Are they equal ?

3. The sum and product of three numbers which are in G.P. are 42 and 1728 respectively. Find the numbers.

4. Two numbers which are in the ratio 5 : 12 have their sum 119. Find the numbers.

5. The cash price of an article sold is ₹ 11,400. The trade discount and cash discounts are 20% and 5% respectively. Find the marked price.

6. Find the equated due date of payment of the following bills

   ₹ 5,000 due on 10th August

   ₹ 10,000 due on 15th September

   ₹ 2,500 due on 10th October

   ₹ 4,000 due on 25th October

7. Find the period in which ₹ 6,000 at 15% simple interest per annum would become ₹ 8,700.

8. A deposit of ₹ 8,000 is made at a compound interest of 7% p.a. Determine the number of years it would take the deposit to become ₹ 11,220.

SECTION – C
(15 marks each)

Answer **any three** of the following :

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

$$2x + 5y + z = -1$$
$$x + 7y = -6$$
$$3y + 6z = 9$$

10

b) Solve the equation $\frac{x}{5} + \frac{10}{x} = 3$. **5**

10. a) Solve the equations by matrix method

$3x + 2y + 2z = 10$

$x + y + z = 9$

$x + 2y + 3z = 14.$ **10**

b) Sum the series $-7, -4, -1, \ldots, 56.$ **5**

11. a) If 5 min earn ₹ 4,200 in 15 days working 8 hours a day, how much will 16 men earn in 8 days working 6 hours a day. **5**

b) A bill for ₹ 10,000 was drawn on February 16, 2005 for 4 months and discounted on March 13, 2005 at the rate of 15% p.a. For what sum was the bill discounted ? And how much did the banker gain on this ? **5**

c) At what rate of simple interest does a principal double itself in 5 years ? **5**

12. a) Show that $\log \frac{81}{16} - \log \frac{8}{9} + \log \frac{128}{243} = \log 3.$ **5**

b) Money doubles in 6 years when interest is compounding quarterly. What is the rate of interest ? **5**

c) Find the amount and the present value of an annuity certain of ₹ 3,000 for 12 years at 3.5% per annum. **5**