B.B.A. (2010 COURSE) SEM- I : SUMMER - 2018
SUBJECT : BUSINESS MATHEMATICS

Day : **Wednesday** Time : **02.00 PM TO 05.00 PM**
Date : **02/05/2018** Max. Marks : 70

S-2018-1644

N.B.:

1) Attempt **ANY FOUR** questions from Section – I and **ANY TWO** questions from Section – II.
2) Answers to both the sections should be written in **SEPARATE** answer books.
3) Figures to the right indicate **FULL** marks.

SECTION – I

Q.1 a) If $|A| = 0$ then find 'x' for $A = \begin{bmatrix} 1 & -2 & -1 \\ 3 & 2 & x \\ 2 & 2 & 4 \end{bmatrix}$. **[05]**

b) Solve : $A^2 - AI + B$. If $A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 2 & 3 \\ -1 & 2 & 0 \end{bmatrix}$, $B = \begin{bmatrix} 2 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 2 \end{bmatrix}$. **[05]**

Q.2 a) A mixture contains milk and water in the ratio 4:3. If 5 liter of water added to the mixture the ratio becomes 4:5. Find the quantity of milk in mixture. **[05]**

b) There would be 10% loss if a toy is sold at ₹10.80 per piece. At what price should it be sold to earn profit of 20%. **[05]**

Q.3 a) A bag contains 50 paise, 25 paise and 10 paise in the ratio 5:9:4, amounting to ₹ 206. Find the number of coins of each type. **[05]**

b) A shopkeeper allows a discount of 10% on the marketed price. How much above cost price must he mark for his goods to gain 8% profit? **[05]**

Q.4 a) Find the amount of annuity of ₹ 5700 per annum for 10 years. If the rate of interest is 9.02% p.a. **[05]**

b) Mr. Antony borrowed ₹ 5,000 from Mr. Ahmed at simple interest. After 3 years Mr. Ahmed got ₹ 300 more than what he had given to Antony. What was the rate of interest per annum? **[05]**

Q.5 a) Manoj and Vinod started a business by investing ₹ 1,20,000 and ₹ 1,35,000 respectively. Find the share of each out of an annual profit of ₹ 35,700. **[05]**

b) Discuss concept "Hourly Rate" in brief. **[05]**

Q.6 Write note on **ANY TWO** of the following: **[10]**

a) Time value of money
b) Arithmetic progression
c) Applications of Determinant in Business

P.T.O.

SECTION – II

Q.7 The monthly salary of a person was ₹ 320 for each of first three years. He next got annual increments of salary ₹ 40 per month for each of the following successive 12 years. His salary remained stationary till retirement when he found that his average monthly salary during the service period was ₹ 698. Find the period of his service. **[15]**

Q.8 **a)** If the compound interest on a certain sum for 2 years at 12% per annum is ₹ 1590. What would be the simple interest? **[08]**

b) Discuss various applications of linear equations. **[07]**

Q.9 **a)** The gross salary of an employees is calculated as: **[08]**
Gross pay = Basic pay + 83% DA on basic pay + 33% H.R.A. on Basic Pay + Allowance. If gross salary of Ms. Madhura is ₹ 38,000 and allowance is ₹ 2,900/-. Find:

i) Basic pay of Ms. Madhura.

ii) If 10% of HRA is deducted towards income tax and loan repayment is ₹ 750, find the net salary of Ms. Madhura.

b) Write note on : Types of Discounts. **[07]**

* * * *