B.B.A. (2010 COURSE) SEM- I : WINTER - 2017
SUBJECT : BUSINESS MATHEMATICS

Day : **Tuesday** Time : **02.00 PM TO 05.00 PM**
Date : **14/11/2017** Max. Marks : 70

W-2017-1552

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)** Solve : $A^2 - AI + B$. **[05]**

$$A = \begin{bmatrix} 3 & 2 & 0 \\ 9 & 5 & 1 \\ 1 & 1 & 0 \end{bmatrix}, B = \begin{bmatrix} 1 & 2 & 6 \\ 9 & 3 & 2 \\ 1 & 2 & 0 \end{bmatrix}$$

b) Find determinant of $A = \begin{bmatrix} 1 & -2 & 1 \\ 3 & 2 & 0 \\ 1 & 2 & 0 \end{bmatrix}$. **[05]**

Q.2 **a)** When a commodity is sold for ₹ 34.80, there is loss of 25%. What is the cost price of the commodity? **[05]**

b) 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]**

Q.3 **a)** If a:b = 5:9 and b:c = 4:7. Find a:b:c and a:c. **[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)** 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]**

b) Find the amount of annuity of ₹ 7800 per annum for 12 years. If the rate of interest is 8.60% p.a. **[05]**

Q.5 **a)** Sanjeev started a business by investing ₹ 36,000/-. After 3 months Rajeev joined him by investing ₹ 36,000/-. Out of an annual profit of ₹ 37,100/-. Find the share of each. **[05]**

b) Discuss 'Types of Discounts'. **[05]**

P.T.O.

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

a) Commission

b) Time Value of Money

c) Applications of matrices in Business

SECTION – II

Q.7 **a)** 1, 3, 5, 7, 9,..... Find 20^{th} term of the given progression. **[07]**

b) Explain in brief the properties of determinants. **[08]**

Q.8 **a)** Define Matrix. Write note on 'matrix operations'. **[07]**

b) If $\frac{1}{b+c}, \frac{1}{c+a}, \frac{1}{a+b}$ are in A.P. prove that a^2, b^2, c^2 are also in A.P. **[08]**

Q.9 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]**

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