B.B.A. SEM – I (2015 CBCS COURSE) : SUMMER - 2018
SUBJECT : BUSINESS MATHEMATICS

Day : **Wednesday**
Date : **02/05/2018**

S-2018-1592

Time : **02.00 PM TO 05.00 PM**
Max. Marks : 100

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 the same answer book.
3) Use of non programmable **CALCULATOR** is allowed.
4) Figures to the right indicate **FULL** marks.

SECTION – I

Q.1 **a)** The price of petrol is increase by 30%. By what percent the consumption should be reduced so that the expenses per month remains same. **[07]**

b) Sheela spends (1/3) of her salary on rent and ($5/9^{th}$) of the balance on food. If her expenditure on food exceeds that on rent by Rs. 100. What is her monthly salary? **[08]**

Q.2 **a)** Mr. A works as a painter for Painting Company. His gross pay for last week was Rs. 205.50 and his hourly rate is Rs. 7.20. Calculate his total hours worked. **[07]**

b) Mrs. B receives a 60% commission on all her real estate sales. Half her commission goes to her broker. What is Mrs. B's portion of the commission on Rs. 1,50,000 in sales? **[08]**

Q.3 **a)** At what price should an article costing Rs. 400 be marked so that even after allowing 7% discount for cash payment the profit should be 16.25% on cost price. **[07]**

b) M sells an article to N at a profit of 5%. N sells it to P at a profit of 4% and P sells it to D at a loss of 10% for Rs. 2457. What did the article cost to M. **[08]**

Q.4 **a)** Amit invested Rs. 2000 for 3 years and Rs. 3550 for 5 years at the same rate of simple interest. If he received a total simple interest of Rs. 893.75. Find the rate of interest. **[07]**

b) How long would a sum of money take to double itself if allowed to accumulate 7 and (1/2)% per annum compound interest? **[08]**

Q.5 Write short notes on the following: **[15]**

a) Types of Proportion

b) Matrix Operations

c) Types of Discount **[10]**

P.T.O.

SECTION – II

Q.6 **a)** If A.P. is given as 2, 5, 8, 11,..... then find T_{10}, T_n, S_{20} and S_{30}. **[10]**

b) A grocer sells one kind of chemical powder at Rs. 15 per kg and losses 5%. One other kind sells at Rs. 20 per kg gains 14%. If he mixes the two in equal quantities and sells the mixture at Rs. 18 per kg. What would be his gains or loss? **[10]**

Q.7 **a)** Given A, B matrices verify AB = BA where **[10]**

$$A=\begin{bmatrix}-1 & 1 & 2\\ 1 & 0 & 3\\ 4 & 2 & 1\end{bmatrix} \text{ and } B=\begin{bmatrix}1 & 3 & -1\\ 1 & 2 & 0\\ -1 & 1 & 1\end{bmatrix}$$

b) If y is directly proportional to x,and y = 30 when x = 5. **[10]**

i) Find the constant of proportionality.

ii) Determine the value of y when x = 15.

Q.8 **a)** Using Cramer's Rule solve the given system of equations: **[10]**

$$x+y+z=3$$
$$2x-y+z=1$$
$$x+2y-z=2$$

b) Monthly incomes of A and B are in the ratio 9:11 and those of B and C are in the ratio 13:10. if monthly income of C is Rs. 1430. Find the incomes of A and B. **[10]**

Q.9 **a)** How much tax will be collected on a luxury item costing Rs. 12,750? If the rate is 7% on Rs. 10,000 and 10% tax on the amount over Rs. 10,000? **[10]**

b) Which is the best deal? Discuss. **[10]**

i) A 10% discount followed by a 60% discount.

ii) A 20% discount followed by a 50% discount.

iii) A 30% discount followed by 40% discount.

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