

S.D.E.

B.B.A. (2006 COURSE) SEM- I : SUMMER - 2018

SUBJECT: INTRODUCTION TO BUSINESS MATHEMATICS

Day: **Monday**

Date: **28/05/2018**

S-2018-4282

Time: **02.00 PM TO 05.00 PM**

Max. Marks: **80**

N.B.:

- 1) Attempt **ANY FIVE** questions from Section-I. Each question carries **10** marks.
- 2) Attempt **ANY TWO** questions from Section - **II**. Each question carries **15** marks.
- 3) Answers to both the sections should be written in the **SEPARATE** answer books

SECTION - I

Q.1 a) Find: $\frac{dy}{dx}$ if $y = x^3 \cos x$ **(05)**

b) Find the 8th and 13th terms of an A. P. : 12, 20, 28, **(05)**

Q.2 a) Complete the table of inverse proportion. **(05)**

X	12	4	-	8	-
Y	8	-	6	-	16

b) The sum of three numbers in AP is 24 and their product is 480. Find the numbers. **(05)**

Q.3 a) Solve the equations: **(05)**

$$4x + 10y + 12z = 82$$

$$10x + 6y + 4z = 44$$

$$6x + 12y + 8z = 74$$

b) How much amount will Ajay get after investing Rs. 30,000 for 5½ years @ 10% compounded yearly? **(05)**

Q.4 a) The cost of production of a T.V. set is Rs. 1,80,000 and transportation cost is Rs. 3000. What should be the market selling price of the T. V. set so that the net profit of 25% is obtained after allowing 20% trade discount? **(05)**

b) Twenty women can do a work in sixteen days. Sixteen men can complete the same work in fifteen days. What is the ratio between the capacity of a man and a woman? **(05)**

Q.5 a) If $\frac{x}{y} = \frac{7}{4}$, find: i) $\frac{4x^2 - 3y^2}{4x^2 + 3y^2}$ ii) $\frac{4x + 3y}{x - 4y}$ **(05)**

b) An amount of Rs. 735/- was divided among A, B and C. If each of them had received Rs. 25 less, their shares would have been in the ratio of 1: 3: 2. Find the money received by C. **(05)**

P.T.O.

- Q.6** Write short notes on ANY TWO : (10)
- Application of derivatives in business
 - Simple annuity
 - Trade discounts and cash discounts

SECTION - II

- Q.7** a) A company sold 30 metal chairs, 40 wooden chairs and 25 plastic chairs in February 2010 and 60, 50 and 70 in March 2010 respectively. The selling price of a metal chair is Rs. 150, that of wooden chair is Rs. 500 and plastic chair is Rs. 300. Find the total revenue in February and March 2010. (08)
- b) If 4 kg of tea is worth 3 kg of sugar, 5 kg of sugar is worth 16 kg of flour and 7 kg of flour is worth 2 kg of coffee, how many kg of tea is worth 24 kg of coffee? (07)
- Q.8** a) A certain principal at a certain rate per annum simple interest becomes Rs. 1150 in 3 years and Rs. 1250 in 5 years. Find the interest rate in percent per annum. (08)
- b) A, B and C enter into a partnership by investing in the ratio of 3:2:4. After one year, B invests another Rs. 2,70,000 and C, at the end of 2 years, invests Rs. 2,70,000. At the end of three years, profits are shared in the ratio of 3: 4: 5. Find the initial investment of each partner. (07)
- Q 9** a) Net Salary of an employee is calculated as under : (08)
- Net Salary = (Basic Pay + D.A. + H.R.A. + L.C.A.) - Deductions
- D.A. is paid at 67% on basic pay, H.R.A. at 20% on basic pay and L.C.A. is paid @ Rs. 500 per month.
- Mr.Rajesh has basic pay of Rs. 15,600 and he has to pay Rs. 2,000 towards income tax and Rs. 200 towards professional tax, what is his net salary per month?
- b) Find $\frac{dy}{dx}$ if $y = \frac{(2x+3)(x+2)}{(x-2)}$. (07)

* * * * *