

S.D.E.
B.B.A. (2006 Course) Sem- I : WINTER - 2018
SUBJECT : INTRODUCTION TO BUSINESS MATHEMATICS

Day : Wednesday
Date : 28/11/2018

Time : 02.00 PM TO 05.00 PM
Max. Marks : 80

W-2018-4439

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) Use of scientific calculator and graph paper is allowed.
- 4) Answers to both the sections should be written in **SEPARATE** answer book.

SECTION- I

- Q.1** a) The sum of 3 numbers in arithmetic progression is 15 and their product is 80. (05)
Find the numbers.
- b) If an item is sold for Rs. 900 at 10% loss on cost price, what is the cost price? (05)
- Q.2** a) Find $\left(\frac{dy}{dx}\right)$ if $y = 3x^3 - 4x^2 + 3x + 2$ (05)
- b) Explain simple annuity. (05)
- Q.3** a) A pair of articles was bought for Rs. 37.40 at a discount of 15%. Find the market price of each of the article. (05)
- b) Find the 18th term of the series (05)
8, 16, 24, 32,.....
- Q.4** a) From the salary of Anuj 10% is deducted as house rent, 20% of the rest he spends on his children's education. 10% of the balance he spends on cloths etc. If after all expenses he has Rs. 11620/- with him, find his salary. (05)
- b) A commission agent takes commission at the following rate: (05)
5% for first Rs. 2000, 7.5% for next Rs. 1000 and 10% for the rest. If total sale was of Rs. 10000, find the commission of an agent.
- Q.5** Solve the following linear equations; (10)
 $x + y + z = 11$
 $2x - 6y - z = 0$
 $3x + 4y + 2z = 0$
- Q.6** a) The present ages of two sisters are in the ration of 3:4. Four years ago their ages were in the ratio of 2:3. Find their present ages. (05)
- b) A banker pays Rs. 2440 on a bill of Rs. 2500, 73 days before the legally due date. Find the rate of discount charged by the banker. (05)
- Q.7** Write short notes on **ANY TWO** from the following; (10)
- a) Applications of linear programming in business
 - b) Time value of money
 - c) Arithmetic progression
 - d) Chain discounts and trade discounts

P.T.O.

SECTION- II

- Q.8** The net salary of an employee is calculated by using following formula; (15)
Net pay = (Basic pay + D.A. + HRA + Special allowance) – Deductions
If D.A. is paid at 51% of basic and HRA at 20% of basic. Find net salary of Rajesh who has basic pay of Rs. 5500/- with special allowance of Rs. 5000/- and income tax of Rs. 2200/-
- Q.9** a) If 36 men can do a certain piece of work in 25 days, in how many days will 15 men do it? (07)
- b) Find the approximate value of $\sqrt{50}$ by using applications of derivatives. (08)
- Q.10** A company manufactures ships. The company has estimated the selling price of the ship as $(4x^2 - 3x - 6)$ where x stands for the number of ships. The total cost of manufacturing one ship is $(2x^2 + 6)$, find the number of ships that the company should manufacture in order to earn maximum profit. (15)

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