OMBCE/M-20   **12435**

BUSINESS MATHEMATICS-II

BC-202

Time : Three Hours]   [Maximum Marks : 80

Note: Attempt   questions in all. Q. No is compulsory.
Attempt any *four* questions from remaining
questions.

1. (a)   A men deposited Rs. 5,000 in a bank for 3 years.
           If he got compound interest at 4% for first year, 3%
           for second year and 2% for third year, find
           amount he got at the end of 3 years.

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   (b)   At what rate per cent will Rs. 1,000 amount to Rs.
         1,500 in 12 years at compound interest ?

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2. (a) The difference between the simple and compound interest on a certain sum of money for 2 years at 4% p.a. is Re 1. Find the sum. **7½**

(b) How long will it take for a principal to double if money is worth 9% p.a. compounded continuously ?
7½

3. (a) Find the amount of an ordinary annuity of Rs. 1,000 payable at the end of each year for 3 years at 10% p.a. compounded annually. **7½**

(b) Find the present value of an ordinary annuity of Rs.
7½

4. (a) A man decides to save Rs. 15,000 by making payment at the end of each month for two years in a security, paying interest at the rate of 4% p.a. converted monthly. What is the amount of each payment ? **7½**

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(b) An overdraft of Rs. 30,000 is to be paid back in
      equal annual instalments over a period of 30 years.
      Find the value of each instalment, reckoning
      compound interest at 4% p.a.   **7½**

5. Maximize Z = 4x + 9y graphically :   **15**
      Subject to the constraints :
$$x + 5y \leq 200$$
$$2x + 3y \leq 134$$
$$x \geq 0, y \geq 0$$

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6. A producer has 30 and 17 units of labour and capital respectively which can use to produce two types of goods X and Y. To produce one unit of X, 2 units of labour and 3 units of capital are required. Similarly, 3 units of labour and 1 unit of capital are required to produce one unit of Y. If X and Y are priced at Rs. 100 and Rs. 120 per unit respectively, how should the producer use his resources to maximize the total revenue? Solve the problem graphically. **15**

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7. Solve the linear programming problems by using simplex method : **15**

Maximize $Z = 4$,

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Subject to the constraints :
$$x + y + z \leq 3$$
$$2x + 2y + z \leq 4$$
$$x - y \leq 0$$
$$x \geq 0, y \geq 0, z \geq 0$$
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$$x \geq 0, y \geq 0, z \geq 0$$

8. Find the dual and solve the dual by simplex method :

Minimize $Z = 2x + 5y + z$,
Subject to the constraints :
$$9x + 2y + 4z \geq 6$$
$$6x + 3y - 2z \geq 8$$
$$x \geq 0, y \geq 0, z \geq 0$$
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$$9x + 2y + 4z \geq 6$$
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(2)L-12435(TR)   **5**

Compulsory Question

9. (a) Define Basic feasible solution to a L.P.P.

(b) Draw the graph of the inequation : **3**

(c) What is Transportation Problem ? **3**

(d) Find the compound interest on Rs. 5,000 for 4

3

(e) Which is better investment, 8% p.a. compounded half yearly or 7.5% p.a. compounded continuously ?

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(f) Define Annuity Immediate. **3**

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