

[61]

**SARDAR PATEL UNIVERSITY****M.com ( 3<sup>rd</sup> sem.) Examination****Wednesday, 22 November 2017****Time: 02:00 P.M to 5:00 P.M.****PB03ECOM08: Operations Research****MARKS: 70****SECTION: 1****Que.1**

- (a) Give definition of Operation Research and mention its uses. (9)
- (b) Minimize  $Z = x + y$  under the following constraints: (9)

$$5x + 10y \leq 50 ; x + y \geq 1 ; y \leq 4 ; x, y \geq 0.$$

**O.R**

- (a) Discuss in brief various Models which are used in O.R. (9)
- (b) What are the phases of O.R. ? Explain it in detail. (9)

**Que.2**

Solve the following L.P. Problem by Big M Method. (17)

Minimize  $Z = 12x_1 + 20x_2$  under the following constraints:

$$6x_1 + 8x_2 \geq 100 ; 7x_1 + 12x_2 \geq 120$$

**O.R**

- (a) Define Linear Programming and give Mathematical Formulation of L.P. Problem. (9)
- (b) In a Minibus at the most 15 passengers and Maximum 48 Kg. luggage can be taken. There are two types of passengers. (8)
- (1) Those who have 4 Kg. luggage and
- (2) Those who have 3 kg. luggage.

The ticket for passengers with 4 Kg. luggage is Rs.35 and that for passengers with 3 Kg. luggage is Rs.30. In what number of two types passengers should be taken by bus owner to get maximum profit?

(P.T.O.)