

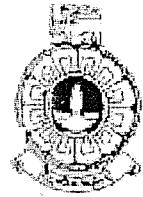
THE OPEN UNIVERSITY OF SRI LANKA

B.Sc. /B.Ed. Degree Programme

APPLIED MATHEMATICS-LEVEL 05

APU3141/APE5141- Linear Programming

NO BOOK TEST 2016/2017



Duration: One Hour

Date: 27.05.2017

Time: 02.30 p.m.- 03.30 p.m.

Answer all questions.

(1) Use Big-M method to solve the following linear programming problem:

$$\text{Maximize } z = x_1 + 5x_2,$$

$$\text{Subject to } 3x_1 + 4x_2 \leq 6,$$

$$x_1 + 3x_2 \geq 2,$$

$$x_1, x_2 \geq 0.$$

(2) Consider the following Primal problem:

$$\text{Minimize } z = 3y_1 + 5y_2,$$

$$\text{Subject to } 2y_1 \leq -4,$$

$$3y_2 \leq -6,$$

$$3y_1 + 2y_2 \leq -18,$$

$$y_1, y_2 \geq 0.$$

- (i) Write down the dual problem for the above primal problem.
- (ii) Solve the dual problem given in (i) by using the dual simplex method. Hence, write the solution of the primal problem.
