Unit 11 - Week 10

Course outline

Assignment 10

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-10-09, 23:59 IST.

1) *Using big M − method, the problem* — *1 point*

$Max.\ Z = 4x_1 + 3x_2$
$subject\ to\ x_1 + x_2 \le 50$
$x_1 + 2x_2 \ge 80$
$3x_1 + 2x_2 \ge 140,$
$x_1,\ x_2 \ge 0$
has

- *an unique solution*
- *no feasible solution*
- *unbounded solution*
- *none of these*

No, the answer is incorrect.
Score: 0
Accepted Answers:
no feasible solution

2) *Using big − M method, the solution of the problem* — *1 point*

$Min.\ Z = x_1 + x_2$
$subject\ to\ 2x_1 + x_2 \ge 4$
$x_1 + 7x_2 \ge 7$
$x_1,\ x_2 \ge 0$
is

- $x_1 = \frac{21}{13},\ x_2 = \frac{10}{13},\ Z = \frac{31}{13}$
- $x_1 = \frac{21}{13},\ x_2 = \frac{10}{13},\ Z = \frac{-31}{13}$
- $x_1 = \frac{10}{13},\ x_2 = \frac{21}{13},\ Z = \frac{31}{13}$
- $x_1 = \frac{10}{13},\ x_2 = \frac{21}{13},\ Z = \frac{-31}{13}$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$x_1 = \frac{21}{13},\ x_2 = \frac{10}{13},\ Z = \frac{31}{13}$

3) *Using big − M method, the solution of the problem* — *1 point*

$Max.\ Z = x_1 + 2x_2 + 3x_3 - x_4$
$subject\ to\ x_1 + 2x_2 + 3x_3 = 15$
$2x_1 + x_2 + 5x_3 = 20$
$x_1 + 2x_2 + x_3 + x_4 = 10$
$x_1,\ x_2,\ x_3,\ x_4 \ge 0$
is

- $x_1 = \frac{5}{2},\ x_2 = \frac{3}{4},\ x_3 = \frac{11}{3},\ x_4 = 0,\ Z = 15$
- $x_1 = \frac{5}{2},\ x_2 = \frac{5}{2},\ x_3 = \frac{5}{2},\ x_4 = 0,\ Z = 15$
- $x_1 = 5,\ x_2 = \frac{5}{2},\ x_3 = 0,\ x_4 = 0,\ Z = 10$
- $x_1 = 0,\ x_2 = 0,\ x_3 = 5,\ x_4 = 10,\ Z = 5$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$x_1 = \frac{5}{2},\ x_2 = \frac{5}{2},\ x_3 = \frac{5}{2},\ x_4 = 0,\ Z = 15$

4) *Using big − M method, theproblem* — *1 point*

$Max.\ Z = 3x_1 + 5x_2$
$subject\ to\ x_1 - 2x_2 \le 6$
$x_1 \le 10$
$x_2 \ge 1$
$x_1,\ x_2 \ge 0$
has

- *infeasible solution*
- *an optimal solution*
- *unbounded solution*
- *none of these*

No, the answer is incorrect.
Score: 0
Accepted Answers:
unbounded solution

5) *By using two phase method, the solution of the following L. P. P.* — *1 point*

$Min.\ Z = 40x_1 + 24x_2$
$subject\ to\ 20x_1 + 50x_2 \ge 4800$
$80x_1 + 50x_2 \ge 7200$
$x_1,\ x_2 \ge 0$
is given by

- $x_1 = 0,\ x_2 = 144,\ Min.\ Z = 3456$
- $x_1 = 38,\ x_2 = 84,\ Min.\ Z = 3536$
- $x_1 = 40,\ x_2 = 84,\ Min.\ Z = 3616$
- $x_1 = 42,\ x_2 = 80,\ Min.\ Z = 3600$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$x_1 = 0,\ x_2 = 144,\ Min.\ Z = 3456$

6) *By using two phase method, the following L. P. P.* — *1 point*

$Min.\ Z = x_1 - 2x_2 - 3x_3$
$subject\ to\ -2x_1 + x_2 + 3x_3 = 2$
$2x_1 + 3x_2 + 4x_3 = 1$
$x_1,\ x_2 \ge 0.$

- *has optimal solution given by* $x_1 = 0,\ x_2 = 1,\ x_3 = 1,\ Min.\ Z = -5$
- *has optimal solution given by* $x_1 = 1,\ x_2 = 3,\ x_3 = 0,\ Min.\ Z = -5$
- *has an unbounded solution*
- *does not have any feasible solution.*

No, the answer is incorrect.
Score: 0
Accepted Answers:
does not have any feasible solution.

7) *By using two phase method, the solution of the following L. P. P.* — *1 point*

$Max.\ Z = 3x_1 - x_2$
$subject\ to\ 2x_1 + x_2 \ge 2$
$x_1 + 3x_2 \le 2$
$x_1,\ x_2 \ge 0$
is given by

- $x_1 = 1,\ x_2 = 0,\ Max.\ Z = 3$
- $x_1 = 2,\ x_2 = 0,\ Max.\ Z = 6$
- $x_1 = 3/2,\ x_2 = 1/6,\ Max.\ Z = 13/3$
- $x_1 = 5/4,\ x_2 = 1/4,\ Max.\ Z = 7/2$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$x_1 = 2,\ x_2 = 0,\ Max.\ Z = 6$

8) *By using two phase method, the solution of the following L. P. P.* — *1 point*

$Min.\ Z = 3x_1 - x_2$
$subject\ to\ 2x_1 + x_2 \ge 2$
$x_1 + 3x_2 \le 5$
$x_2 \le 4$
$x_1,\ x_2 \ge 0.$
is given by

- $x_1 = 1,\ x_2 = 1,\ Min.\ Z = 2$
- $x_1 = 1,\ x_2 = 4/3,\ Min.\ Z = 5/3$
- $x_1 = 1/5,\ x_2 = 8/5,\ Min.\ Z = 1/5$
- $x_1 = 3/2,\ x_2 = 1/6,\ Min.\ Z = 13/3$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$x_1 = 1/5,\ x_2 = 8/5,\ Min.\ Z = 1/5$

9) *The dual of the following problem* — *1 point*

$Min.\ \ Z = x_1 + x_2 + x_3$
subject to
$x_1 - 3x_2 + 4x_3 = 5$
$x_1 - 2x_2 \le 3$
$2x_2 - x_3 \ge 4$
and $x_1, x_2 \ge 0,\ x_3$ *is unrestricted*
is

- $Max.\ \ Z_D = -5y_1 - 3y_2 + 4y_3$
  subject to
  $-y_1 - y_2 \le 1$
  $3y_1 + 2y_2 + 2y_3 \le 1$
  $-4y_1 - y_3 = 1$
  and $y_2, y_3 \ge 0,\ y_1$ *is unrestricted*
- $Max.\ \ Z_D = -5y_1 - 3y_2 + 4y_3$
  subject to
  $-y_1 - y_2 \le 1$
  $3y_1 + 2y_2 + 2y_3 \le 1$
  $-4y_1 - y_3 \le 1$
  and $y_2, y_3 \ge 0,\ y_1$ *is unrestricted*
- $Max.\ \ Z_D = 5y_1 + 3y_2 - 4y_3$
  subject to
  $-y_1 - y_2 \le 1$
  $3y_1 + 2y_2 + 2y_3 \le 1$
  $-4y_1 - y_3 = 1$
  and $y_2, y_3 \ge 0,\ y_1$ *is unrestricted*
- $Max.\ \ Z_D = -5y_1 - 3y_2 + 4y_3$
  subject to
  $-y_1 - y_2 \le 1$
  $3y_1 + 2y_2 + 2y_3 \le 1$
  $-4y_1 - y_3 \ge 1$
  and $y_2, y_3 \ge 0,\ y_1$ *is unrestricted*

No, the answer is incorrect.
Score: 0
Accepted Answers:
$Max.\ \ Z_D = -5y_1 - 3y_2 + 4y_3$
subject to
$-y_1 - y_2 \le 1$
$3y_1 + 2y_2 + 2y_3 \le 1$
$-4y_1 - y_3 = 1$
and $y_2, y_3 \ge 0,\ y_1$ *is unrestricted*

10) *The dual of the following L. P. P.* — *1 point*

$Max.\ Z = 3x_1 + 5x_2 + 7x_3$
subject to
$x_1 + x_2 + 3x_3 \le 10$
$4x_1 - x_2 + 2x_3 \ge 15$
and $x_1, x_2 \ge 0,\ x_3$ *is unrestricted*
is

- $Min.\ \ Z_D = 10y_1 - 15y_2$
  subject to
  $y_1 - 4y_2 \ge 3$
  $y_1 + y_2 \ge 5$
  $3y_1 - 2y_2 \ge 7$
  and $y_1, y_2 \ge 0$
- $Min.\ \ Z_D = 10y_1 - 15y_2$
  subject to
  $y_1 - 4y_2 \ge 3$
  $y_1 + y_2 \ge 5$
  $3y_1 - 2y_2 \le 7$
  and $y_1, y_2 \ge 0$
- $Min.\ \ Z_D = 10y_1 - 15y_2$
  subject to
  $y_1 - 4y_2 \ge 3$
  $y_1 + y_2 \le 5$
  $3y_1 - 2y_2 = 7$
  and $y_1, y_2 \ge 0$
- $Min.\ \ Z_D = 10y_1 - 15y_2$
  subject to
  $y_1 - 4y_2 \ge 3$
  $y_1 + y_2 \ge 5$
  $3y_1 - 2y_2 = 7$
  and $y_1, y_2 \ge 0$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$Min.\ \ Z_D = 10y_1 - 15y_2$
subject to
$y_1 - 4y_2 \ge 3$
$y_1 + y_2 \ge 5$
$3y_1 - 2y_2 = 7$
and $y_1, y_2 \ge 0$