Assignment 3

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

Due on 2018-09-19, 23:59 IST.

1) The optimal solution of the problem

\[ \text{Min } f = 2x_1^2x_2^3 + 2x_1^{-3}x_2^{-2}, \]
\[ s/t \quad x_1x_2^{-1} \leq \frac{1}{4}, \]
\[ x_1, x_2 > 0 \]

is

- \[ x_1 = 1, \ x_2 = 1 \]
- \[ x_1 = \frac{1}{2}, \ x_2 = 2 \]
- \[ x_1 = \frac{1}{2}, \ x_2 = \frac{1}{2} \]
- \[ x_1 = 2, \ x_2 = 2 \]

No, the answer is incorrect.

Score: 0

Accepted Answers:

- \[ x_1 = \frac{1}{2}, \ x_2 = 2 \]

Questions (2) to (5) are based on the paragraph – I

Paragraph-I

Consider the problem:

\[ \text{min } f(x) = x_1^{-1}x_2^{-1} + 10x_1x_2x_3^{-1} + 20x_2x_3 + x_1x_3, \]
1) If $f(x) \geq \left(\frac{1}{\delta_1}\right)^{\delta_1} \left(\frac{10}{\delta_2}\right)^{\delta_2} \left(\frac{20}{\delta_3}\right)^{\delta_3} \left(\frac{1}{\delta_4}\right)^{\delta_4}, \delta_i > 0, \forall i$,

Then $\delta_1 + \delta_2 + \delta_3$ equals

-2
-1
0
1

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

2) The value of $\delta_3$ equals

$\frac{1}{7}$
$\frac{2}{7}$
$\frac{3}{7}$
$\frac{1}{5}$

No, the answer is incorrect.
Score: 0
Accepted Answers: $\frac{1}{7}$

3) The optimum value of $f$ is

$\approx 1$
$\approx 5.5$
$\approx 7.5$
$\approx 10.6$

No, the answer is incorrect.
Score: 0
Accepted Answers: $\approx 10.6$
The shortest distance from node (1) to (5) is

- 3
- 4
- 5
- 6

No, the answer is incorrect.
Score: 0
Accepted Answers: 5

Questions (7) to (10) are based on the paragraph — II

**Paragraph-II**

\[ j=0 \quad X_0=1 \quad j=1 \quad X_1=1,2 \quad j=2 \quad X_2=1,2,3 \quad j=3 \quad X_3=1 \]

7) The value of \( f_2(x_2 = 3) \) is

- 0
- 7
- 8
- 9

No, the answer is incorrect.
Score: 0
Accepted Answers: 9
8) $f_1(x_1 = 1)$ equals
   - 9
   - 10
   - 11
   - 12

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   10

9) The value of $f_0(x_0 = 1)$ equals
   - 11
   - 12
   - 13
   - 14

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   13

10) The optimal path is

   $x_0 = 1 \rightarrow x_1 = 1 \rightarrow x_2 = 1 \rightarrow x_3 = 1.

   $x_0 = 1 \rightarrow x_1 = 1 \rightarrow x_2 = 2 \rightarrow x_3 = 1.

   $x_0 = 1 \rightarrow x_1 = 2 \rightarrow x_2 = 1 \rightarrow x_3 = 1.

   $x_0 = 1 \rightarrow x_1 = 2 \rightarrow x_2 = 3 \rightarrow x_3 = 1.

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   $x_0 = 1 \rightarrow x_1 = 1 \rightarrow x_2 = 1 \rightarrow x_3 = 1.$