Mohammad Ali Jinnah University

**Department of Computer Science CS2420: Operations Research Semester Spring 2022**

**Dated: 29th March 2022 Due Date: 7th April 2022 Home Work # 4**

**SIMPLEX ALGORITHM (10 points each)**

**Home Work # 4**

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**Section:** BM

1. Consider the following set of constraints:

𝑥1 + 𝑥2 + 𝑥3 = 7 2𝑥1 − 2𝑥2 + 𝑥3 ≥ 10

𝑥1, 𝑥2, 𝑥3 ≥ 0

**Constraints:**

1. Maximize 𝑧 = 2𝑥1 + 3𝑥2 − 5𝑥3 (Use Big M-Method)



1. Minimize 𝑧 = 2𝑥1 + 3𝑥2 − 5𝑥3 (Use Two-Phase Method)





1. (Optional) Maximize 𝑧 = 𝑥1 + 2𝑥2 + 𝑥3 (Use Big M-Method)





1. (Optional) Minimize 𝑧 = 4𝑥1 − 8𝑥2 + 3𝑥3 (Use Two-Phase Method)





1. Consider the following LP:

Subject to

Maximize 𝑧 = 2𝑥1 + 2𝑥2 + 4𝑥3

2𝑥1 + 𝑥2 + 𝑥3 ≤ 2

3𝑥1 + 4𝑥2 + 2𝑥3 ≥ 10

𝑥1, 𝑥2, 𝑥3 ≥ 0

Solve using any (of the two discussed) method.

**Use Two-Phase Method:**





**Big M-Method:**





