United International University (UIU)

Term Final Examination

IPE 401: Industrial Management

Fall Trimester: 2020

Total time: 1:15 hours Date: 24/1/2021 Total marks: 25

Section: A/B

There are 5 questions. You must answer question **1,2 &3**and any one of **4 &5**

1 Solve by using Simplex method, **[10]** **[CO4]**

Maximize, Z = x + y

subject to

2x + y <= 4

x + 2y <= 3

and x, y >= 0

2 Suppose you are a quality manager of "BELL'' laptop manufacturer. You Found out that the laptops overheats and battery life is not as good as the competitors. . You also found out that the ram are not fitting well into the ram slot. All of these creating quality losses. So explain how you can reduce the losses according to different types of Taguchi loss function, with necessary sketches. **[4]** **[CO3]**

3 Between 6σ and 4σ which reduce variability more and which costs more? Explain with necessary sketches. **[4]** **[**CO3**]**

4 Sequence the following jobs using Critical ratio method and determine average completion time, Utilization, average number of jobs in the system and average job lateness. **[7]** **[CO2]**

Job	Processing time	Due date
C	63	99
A	21	114
B	89	153
E	120	168
D	109	192
F	75	210

5 A Subassembly of a computer system consists of A, B and C Components. Because of low reliability of component C and A, they are replicated. The system Contains 2 of C and 3 of A component. Reliabilities per 150 hours of A=0.85, B=0.98, C=0.78. Find the MTBF of system and system failure rate per 100 hours. **[7]** **[CO2]**

CO1	Apply Engineering economics and simple mathematics for Solving project selection problems for choosing the best possible project
CO2	Analyze various industrial problems by using operation management, technique, operation research technique and solve it.
CO3	Understand the importance of quality control, and various industrial engineering techniques to improve the process in any engineering sector and how this affect the organization and customers
CO4	Analyze the optimization