

Final Examination Spring Semester (2024-2025)



Department: DCHE

Stage: 3rd

Total Mark: 100

Course Title: Engineering Statistics and

Economics

Course Code: KOU20454 Time Allowed: 120 minutes

Attached Sheet: NA

Dear Students: Please answer all questions

Attention: The exam questions printed on both sides of the exam sheet (duplex).

1. An Engineering team has decided to establish tetrachloroethylene chemical solvents factory that may consider a very economical and beneficial project in the chemical industry. Consider the daily productivity is 1500 litters, number of operation days per year 300, the life of equipment 10 years and building 20 years

for estimation depreciation, suppose that the project Fixed Cost 1200 TUSS. TUSS Items 300 Land and land preparation cost 300 Equipment and machines 500 All Building Annual consumption of raw material 200 100 Labors annual salaries 5% of equipment and machines cost 2 Annual cost of Maintenance, Spare parts, Services 10 Annual cost of Management and marketing 0.001 Selling Price for one liter of the solvent

Estimate the followings:

Annual production capacity. b. Depreciation. c. Total annual Production Cost. d. Total Revenue e. Total Profit. f. Net Profit (Taxes: Assume 1.5% total profit). project feasible or not? And why? g. Payback Period years. h. Is the (32 Marks

2. In the following table shows the data record in a specific experiment. Construct a frequency distribution table (Classes, Class Boundaries, Class Mark, Frequency, Percentage Frequency, Relative Frequency, Cumulative Frequency "Less than and More"). Assume the a grouped frequency distribution for the data

using seven classes and five class width. S

(15 Marks) Find the standard deviation and coefficient of variation of the following data using step deviation method, given that Assumed Mean= (92.5).

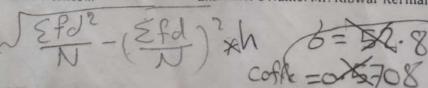
Class 70-75 75-80 80-85 85-90 90-95 95-100 100-105 105-110 110-115 Frequency 3 4 7 7 15 9 6 6 3												
Frequency 3 4 7 7 15 9 6 6 3	Class	70-75	75-80	80-85	85-90	90-95	95-100	100-105	105-110	110-115		
	Frequency	3	4	7	7	15	9	6	6	3		

(33 Marks)

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Best Wishes...

Examiner's Name: Mr. Ribwar Kermani Abdulrahman





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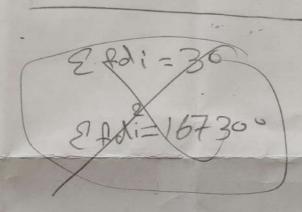
4. Answer the following in details:

a. Cost estimates is one of the most important project feasibility study structures and it is normally estimated annually and by a stable currency. Write all potential costs types that need to be estimated in any project feasibility study.

b. What is alternate cost (AC)? and how it can be calculated?

(20 Marks/ 10 each)







Midterm Examination Spring Semester (2024-2025)



Course Title: Engineering Statistics and Economics

Course Code: KOU20454 Time Allowed: 90 minutes Attached Sheet: NA

Faculty of Engineering Department: DCHE Stage: 3rd

Total Mark: 100

Dear Students: Please answer all questions.

1. Define the following:

a. Engineering Economic Analysis.

b. Equilibrium quantity.

(10 Marks/ 5 each)

2. Answer the following in detail:

a. What are the potential mechanisms to distribute engineering project profits?

b. List the potential reasons to achieve (to do) Feasibility Study?

c. When can it be said that the market is an Imperfect Competition Market?

(45 Marks /15 each)

3. In the following table shows the data record in a specific experiment. Construct a frequency distribution table (Classes, Class Boundaries, Class Mark, Frequency, Percentage Frequency, Relative Frequency, Cumulative Frequency "Less than and More"). Assume the a grouped frequency distribution for the data using Six classes and 150 class width.

190	161	192	191	110	(403)	200	30,0	(500)	600
604	(545)	900	999	990	12/3	124	345	(567)	(666)
777	888	999	999	545	987	522	(444)	1	212
567	890	987	323	23/1	12/3	128	234	(432)	(655)
655)	771	(400.)	(401)	(430)	(507)	600	911	844	(00)

50

4. Calculate the value of the mode of the following given data:

grouped

(25 marks)

	Class	Frequency		
0	- 100	[19]		
100	- 200	13		
(200	- 300 D	40		
300	1-400	[11		
400	- 500	12		
500	- 600	9		
600	- 700	39		
700	- 800	2		
800	- 900	1		
900	- 1000	3		

mode= L+ P1 1

(20 marks)