United International University (UIU)

Mid Term Examination

IPE 401/IPE3401: Industrial Management/Industrial and Operational Management

Fall Trimester: 2023

Total time: 1:45 hours Date: 4/11/2023 Total marks: 30

Section: A/C

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

1 (a) Describe the Five factors that influence technology acquisition decision. **[2] [CO2]**

(b) Ivan invested $15784 money at the bank at a certain rate compounded weekly for 26 years. His final amount was $3 million. Find out the effective rate and then find out the nominal rate of return. **[5.5] [CO1]**

2 (a) "Khoka kola" is a famous beverage company which is famous for their caffeine mixed beverages. Because of higher doze of caffeine, it is not suitable for everyone and it is at least 1.5 times costlier than other beverages. But those who specially love caffeine are ready to pay those extra prices. Their frequency of sale is less than other beverage companies, but they make it up with the premium price. Find out the right level of micro marketing involved here by analyzing the scenario and give proper explanation about your findings. **[2] [CO2]**

(b) Two Mutually exclusive projects are given **[5.5] [CO1]**

Project "X"

Year	0	1	2	3	4	5
Cash Flow	-16109	7220	8171	7956	4173	3781

Project "W"

Year	0	1	2	3	4	5
Cash Flow	-14887	7298	5186	6325	881.5	11089

Now select the project using **Discounted payback period** method and consider hurdle rate =**26.5**% compounded weekly. Selection authority wants the payback within 5 years

3 (a) Two Independent projects have cash flow shown below **[5.5] [CO1]**

Project "Q"

Year	0	1	2	3	4	5
Cash Flow	-15000	9987	8391	6893	9845	9784

Project "P"

Year	0	1	2	3	4	5
Cash Flow	-15000	789	2666	4897	1988	7188

Which project will you select applying **IRR** method considering **29**% WACC compounded daily? (Use trial and error method) (Show necessary calculations)

(b) If you apply **NPV** method with the given interest rate and consider them Mutually Exclusive, will the answer be same? Explain and show proper calculations. **[2] [CO1]**

4 (a) The production rate of "Torn chips" packets is 1820units per week. The daily demand of these produced packets is 200 units, set up cost is $150 and holding cost is $8.5. The factory is open for 35 weeks. **[2] [CO2]**

i) Determine optimal order quantity

ii) Determine expected time between orders

(b) In a beverage manufacturing company, the daily demand of their secret syrup is 220 litters. Numbers of working days are 250.For placing each order they had to pay $35. Holding cost is 50%. The quantity schedule chart is given below. Determine **Optimal order quantity** and **Total cost** associated with it **[5.5] [CO2]**

Discount Number	Discount quantity	Discount %	Discount price$
1	0 to2200	No discount	6
2	2200 to 11500	8%	?
3	11501and over	11%	?

5 (a) Bennet is a marketing manger in a renowned company named "Life". He is making a BCG matrix to showcase the portfolio of the company in front of the managing director. After collecting a year worth of data from retail stores he found that one of their products is not doing well in the market. The product has poor market share and its' growth is declining for the last 6 months. In this case, which category should he put the product in the BCG matrix and what can be the next steps for this particular product? Explain. **[2] [CO2]**

(b) Two Mutually exclusive public projects were being considered by Govt. have the following estimated benefit and cost. By using NPV method, select the project and consider MARR **14%** compounded quarterly. Show it with proper calculations. **[5.5] [CO1]**

Project "N"

Year	0	1	2	3	4	5
Benefit	0	0	28571	17505	9369	750
Cost	16000	3500	3587	9211	17000	700

Project "M"

Year	0	1	2	3	4	5
Benefit	0	16667	13212	14917	2222	898
Cost	12000	5982	7756	8876	3323	812

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 cost accounting techniques and solve it.