



Name: Enrolment No:			
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, May 2023			
Course: Manufacturing Operations for FMCG Program: BBA-OM Course Code: LSCM 2014P		Semester: IV Time : 03 hrs. Max. Marks: 100	
Instructions:			
SECTION A 10Qx2M=20Marks			
S. No.		Marks	CO
Q1	Operations is often described as a) the creative core of an organization b) a transformation process c) the source of firm profitability d) all answer choices are correct	2 Marks	CO1
Q2	Companies go global to a) take advantage of favorable costs b) gain access to international markets c) build reliable sources of supply d) all answer choices are correct	2 Marks	CO1
Q3	A company's _____ is what they do better than anyone else. a) primary task b) core competence c) order qualifier d) positioning strategy	2 Marks	CO1
Q4	The last factor considered in a purchasing decision is the a) order qualifier b) order winner c) quality factor	2 Marks	CO1

	d) core competency		
Q5	<p>In the Hurwicz criterion if the coefficient of optimism is 0.7 then the decision maker is</p> <ul style="list-style-type: none"> a) completely optimistic b) completely pessimistic c) somewhat optimistic d) somewhat pessimistic 	2 Marks	CO1
Q6	<p>A decision tree is used instead of a payoff table when</p> <ul style="list-style-type: none"> a) there are more than 3 states of nature b) there are more than 3 decision payoffs c) the decisions situation encompasses and extended time period d) a sequence of decisions is required 	2 Marks	CO1
Q7	<p>Facility layouts are designed to</p> <ul style="list-style-type: none"> a) Minimize movement and material handling costs b) Eliminate bottlenecks c) Promote product and service quality d) all answer choices are correct 	2 Marks	CO1
Q8	<p>If a company has an ordering cost of \$250, a carrying cost of \$4 per unit, and annual product demand of 6,000 units, the optimal order quantity is approximately</p> <ul style="list-style-type: none"> a) 923 b) 866 c) 751 d) 1,027 	2 Marks	CO1

Q9	<p>If a company has an ordering cost of \$250, a carrying cost of \$4 per unit, and annual product demand of 6,000 units, the total minimum inventory cost is approximately</p> <p>a) \$3,464 b) \$3,250 c) \$3,944 d) \$2,921</p>	2 Marks	CO1
Q10	<p>An up and down movement in demand that repeats itself over a lengthy time span is a</p> <p>a) trend b) random variation c) seasonal pattern d) cycle</p>	2 Marks	CO1
SECTION B 4Qx5M= 20 Marks			
Q1	What is production management and system?	5 Marks	CO2
Q2	Explain the difference between operation management and project management.	5 Marks	CO2
Q3	<p>The following costs are incurred per show at Sebastian’s Dinner Theater:</p> <ul style="list-style-type: none"> • Facilities cost \$500 • Staff (actors who double as servers) 1000 • Kitchen staff 200 • Stage crew 300 • Food cost (per ticket) 10 • Ticket Price is \$30 <p>Task: Calculate Breakeven number of tickets.</p>	5 Marks	CO2
Q4	Explain the different types of inventory cost.	5 Marks	CO2
SECTION-C 3Qx10M=30 Marks			
Q1	The demand for a two-wheeler was 900 units and 1030 units in April 2023 and May 2023, respectively. The forecast for the month of	10 Marks	CO3

	April 2023 was 850 units. Considering a smoothing constant of 0.6, the forecast for the month of June 2023 is?																						
Q2	<p>Merrifield Post Office is evaluating the productivity of its mail processing centers. The centers differ in the degree of automation, the type of work that can be performed, and the skill of the workers.</p> <table border="1"> <thead> <tr> <th>Center</th> <th>1</th> <th>2</th> <th>3</th> </tr> </thead> <tbody> <tr> <td>Pieces processed/hr</td> <td>1000</td> <td>2000</td> <td>3000</td> </tr> <tr> <td>No. of worker/hr</td> <td>10</td> <td>5</td> <td>2</td> </tr> <tr> <td>Hourly wage rate</td> <td>\$5.50</td> <td>\$10</td> <td>\$12</td> </tr> <tr> <td>Overhead rate/hr</td> <td>\$10</td> <td>\$25</td> <td>\$50</td> </tr> </tbody> </table> <p>a. Calculate the multifactor productivity for each center.</p> <p>b. Workers in Center 1 are scheduled to receive a 10% pay raise next month. How will that affect productivity?</p> <p>c. A new processing machine is available for Center 3 that would increase the output to 5000 pieces an hour at an additional overhead rate of \$30 an hour. Should Merrifield install the new processing machine?</p>	Center	1	2	3	Pieces processed/hr	1000	2000	3000	No. of worker/hr	10	5	2	Hourly wage rate	\$5.50	\$10	\$12	Overhead rate/hr	\$10	\$25	\$50	10 Marks	CO3
Center	1	2	3																				
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Q3	<p>The Southern Textile Company is contemplating the future of one of its plants located in South Carolina. Three alternative decisions are being considered: (1) Expand the plant and produce lightweight, durable materials for possible sale to the military, a market with little foreign competition; (2) maintain the status quo at the plant, continuing production of textile goods that are subject to heavy foreign competition; or (3) sell the plant now. If one of the first two alternatives is chosen, the plant will still be sold at the end of the year. The amount of profit that could be earned by selling the plant in a year depends on foreign market conditions, including the status of a trade embargo bill in Congress. The following payoff table describes this decision situation.</p>	10 Marks	CO3																				

Decision	States of Nature	
	Good Foreign Competitive Conditions	Poor Foreign Competitive Conditions
Expand	\$800,000	\$500,000
Maintain status quo	1,300,000	-150,000
Sell now	320,000	320,000

Determine the best decision using each of the decision criteria.

1. Maximax
2. Maximin
3. Minimax regret
4. Hurwicz
5. Equal likelihood

SECTION-D
2Qx15M= 30 Marks

Q1

Decision Tree

Kroft Food Products is attempting to decide whether it should introduce a new line of salad dressings called Special Choices. The company can test market the salad dressings in selected geographic areas or bypass the test market and introduce the product nationally. The cost of the test market is \$150,000. If the company conducts the test market, it must wait to see the results before deciding whether to introduce the salad dressings nationally. The probability of a positive test market result is estimated to be 0.6. Alternatively, the company can decide not to conduct the test market and go ahead and make the decision to introduce the dressings or not. If the salad dressings are introduced nationally and are a success, the company estimates that it will realize an annual profit of \$1.6 million, whereas if the dressings fail, it will incur a loss of \$700,000. The company believes the probability of success for the salad dressings is 0.5 if they are introduced without the test market. If the company does conduct the test market and it

15 Marks

CO4

	<p>is positive, then the probability of successfully introducing the salad dressings increases to 0.8. If the test market is negative and the company introduces the salad dressings anyway, the probability of success drops to 0.3.</p> <p>Using decision tree determine whether the company should conduct the test market.</p>		
Q2	<p>Whither an MBA at Strutledge?</p> <p>Strutledge is a small liberal arts college faced with rising costs and decreasing enrollments. It would like to increase revenues (including tuition, donations, and grants) by expanding its student base and building ties with businesses in the surrounding area. To do so, it is considering establishing a new graduate program—an MBA, a masters in computer science, a masters in information technology, a masters in nursing (affiliated with a major hospital in a nearby urban area), or a masters in health-care administration. In addition to generating additional enrollments within a new program, administrators also believe that a new graduate program could increase exposure and visibility for the school and enhance its reputation, as a whole, which could also result in increased enrollments and revenue sources. The cost to establish and maintain each new program differs according to faculty salaries, facilities, and the support necessary to attract new students, which, in turn, affects revenues. The degree of success that each new graduate program might achieve is affected by competition from other colleges and universities, and the ability of a program to attract new faculty and students. The following payoff table summarizes the possible gains (i.e., revenues less costs) the college might realize with each new program under different future success scenarios.</p> <p>Determine the best decision for the college using the following criteria.</p> <ol style="list-style-type: none"> Maximax Maximin Equal likelihood Hurwicz ($\alpha = 0.50$) 	15 Marks	CO4

Graduate Program	Program Success			
	Moderate		Very	
	Unsuccessful	Success	Successful	Successful
MBA	-\$316,000	-\$57,000	\$231,000	\$424,000
Computer Science	-210,000	-35,000	190,000	375,000
Information Technology	-472,000	-75,000	305,000	517,000
Nursing	-135,000	81,000	205,000	307,000
Health Administration	-75,000	55,000	180,000	245,000

e. If Strutledge administrators use the Hurwicz criterion to make their decision, explain what this might mean about their decision-making strategy?

f. Strutledge has estimated probabilities of occurrence for the different states of program success as shown in the following table. What is the best decision using expected value?

Graduate Program	Program Success			
	Moderate		Very	
	Unsuccessful	Success	Successful	Successful
MBA	0.32	0.35	0.24	0.09
Computer Science	0.38	0.41	0.16	0.05
Information Technology	0.25	0.33	0.30	0.12
Nursing	0.17	0.28	0.41	0.14
Health Administration	0.08	0.34	0.47	0.11

	<p>g. Based on these decision analysis results what would you recommend that Strutledge College's decision be?</p> <p>h. What decision would you recommend to Strutledge? Explain your reasons.</p>		
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