GUJARAT TECHNOLOGICAL UNIVERSITY
MBA– SEMESTER -II - EXAMINATION- SUMMER-2023

Subject Code: 1529605   **Date: 15/07/2023**
Subject Name: Production & Operations Management
Time: 10:30 AM TO 1:30 PM   **Total Marks: 70**
Instructions:

    1. Attempt all questions.
    2. Make Suitable assumptions wherever necessary.
    3. Figures to the right indicate full marks.
    4. Use of simple calculators and non-programmable scientific calculators are permitted.

		Marks
Q.1	**Define terms.**	
a	Production and Operations Management	**14**
b	Robust Design	
c	System View Organization	
d	Goods and services	
e	Mass Production	
f	Kanban	
g	Lean Manufacturing	

Q.2 (a)   What is Product and Process Design. Explain Production life cycle.   **07**

Q.2 (b)   Write a note on various ISO Standards pertaining to quality, safety and environment.   **07**

OR

Q.2 (b)   Write a note on Industrial safety & safety management.   **07**

Q.3 (a)   Savemart needs 1000 coffee makers per year. The cost of each coffee maker is 78 Rs. Ordering cost is 100 Rs per order. Carrying Cost is 40% of per unit cost. Shop runs for 360 days in a year.   **07**
1. What is the optimal order quantity?
2. Find out total no. of order to be place in a year
3. Expected order time between two orders.
4. Total Cost

Q.3 (b)   What is plant layout and explain various factor affecting plant layout.   **07**

OR

Q.3 (a)   Explain various strategies of aggregate production planning.   **07**
Q.3 (b)   Trinity Hospital at Bangalore sources 20,000 disposable syringes every year from a supplier. The OC per order is RS. 100 and the CC is Rs. 1 per unit per year. The price of syringes is RS.5. The supplier offers a 5% discount if purchases are made in lots of 10,000 syringes or more. Determine whether the discount model is better than the EOQ model in this situation.   **07**

Q.4 (a)   **07**

Following table gives the processing times (in hours) of seven jobs to be processed on three machines M1, M2, and M3 in the order M1, M2, M3. Sequence these jobs using Johnson's method and find the overall processing time. Also find the waiting time for the jobs and idle times for the machines.

Jobs	A	B	C	D	E	F	G
M 1	1	3	7	9	4	5	2
M 2	7	3	8	2	8	6	1
M 3	8	10	9	11	9	14	12

Q.4 (b) The table below gives following details about the various activities of a project   **07**

Activity	Node	a	m	b
A	1-2	10	11	12
B	2-3	6	10	14
C	2-4	5	8	11
D	2-5	1	5	9
E	3-6	3	5	13
F	4-6	4	9	14
G	5-7	1	2	3
H	6-7	3	7	11
I	7-8	9	12	15
J	7-9	3	5	7

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Find
i) the critical path of the project and its expected duration, and
ii) Find Z Score that the project will be completed within 50 days

OR

Q.4 (a)   **07**

Sahara Company is in Project industry. Details of the project given below:

Activity	Predecessor	Duration (weeks)
A	----	2
B	A	3
C	B	7
D	B	7
E	B	6
F	C	2
G	E	3
H	D	1
I	H,F	4
J	G,I	2

From above details. Find out;
1. Draw network diagram.
2. Find out ES, LS, EF, LF and slack

Q.4 (b)   **07**

System software Ltd is planning to develop new software. It has identified the activities given in table. Find the expected duration of the project and probability that the project will be completed within 30 days

Activity	Predecessor	a	m	b
A	----	1	2	3
B	A	3	5	7
C	A	6	10	14
D	A	4	6	8
E	BCD	8	9	10
F	E	2	4	6
G	F	1	3	5

Z	1.10	1.12	1.14	1.16	1.17	1.18	1.19
P	0.36433	0.36864	0.37286	0.37698	0.37900	0.38100	0.38298

Q.5 Case Study   14

Struteledge is a small private arts school located within 50 km of a major urban area in the State. As with most institution of higher education, Struteledge's costs are rising, and its enrollments are decreasing. In an effort to expand its students base, build valuable ties with area businesses and simply survive, the board of Regents is considering establishing an MBA programme. Currently no under graduate degree is given in business, although business courses are taught. The dean of the school visualizes the MBA as an inter disciplinary program emphasizing problem solving, communication, and general awareness. Faculty expertise would be supplemented by instructors from local industries. The use of local faculty would better connect the university with the business community and provide opportunities for employment of the program graduates. In terms of competition, a major state founded university that offers an MBA is located in the adjacent urban area. Struteledge hopes that state budget cutbacks and perception of overcrowded class rooms and overworked professor at public institution will open the door for a new entrant into the market. The board of Regents also feels that the school's small size will allow. Struteledge to tailor the MBA program more closely to area business needs. Several members of the board are connected about recent report of the dwindling value of the MBA and are wondering if a better niche could be found with other graduate degree.

Q.5 (a) Which are the major issues faced by Struteledge in its operations?

Q.5 (b) What action would you recommend to the board of Regents?

OR

Q.5 (a) How should Struteledge go about making a strategic decision?

Q.5 (b) How operations management is helpful to a service industry as given in the case?

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