PGDM (IB), 2018-20

Operations Management

IB 201

Trimester –II, End-Term Examination: December 2018

Time allowed: 2 Hours 30 mins. **Max Marks:50**

Roll No: _____

Instruction: Students are required to write Roll No on every page of the question paper, writing anything except the Roll No will be treated as **Unfair Means.** In case of rough work please use answer sheet.

Sections	No. of Questions to attempt	Marks	Marks
A	3 out of 5 (Short Questions)	5 Marks each	3*5 = 15
B	2 out of 3 (Long Questions)	10 Marks each	3*10 = 20
C	Compulsory Case Study	15 Marks	15
		Total Marks	**50**

SECTION A

Q1. A furniture manufacturing company has provided the following data. Compare the labour, raw material and supplies and total productivity for 2017 and 2018.

		2017 (INR)	2018 (INR)
Output	Sales Value	22000	35000
Input	Labour	10000	15000
	Raw Material and Supplies	8000	12500
	Capital Equipment and depreciation	700	1200
	Other	2200	4800

Q2. What kind of layout are required for the following. a. Physical Fitness Center b. Customized Bike Manufacturer c. Furniture Manufacturer d. Departmental store. Please state your reason for each of the layout identified by you.

Q3. In an agreement between a supplier and a customer, the supplier must ensure that all parts are within tolerance before shipment to the customer. What, according to you is the effect of this statement? If customer expects some improvement in the tolerance for next production year, then, what according to you are the practices the supplier should resort to?

Q4. Compare A type production flow with V type production flow. Also highlight the major challenge the A & V type flow pitch towards the supply chain design?

Q5. Describe the output of aggregate planning. When is aggregate planning most useful?

SECTION B

Q1.

a. Metal parts from a stamping machine constitute an important component in a machine assembly. The stamping process is sought to be controlled with the help of statistical control chart. Sampling procedure consist of taking 100 consecutive stamped out of the machine, checking for any defective in the sample and computing the percentage defectives. Construct a control chart based on following data od 20 samples.

Sample No.	No. of defectives	Sample No.	No. of defectives
1	2	11	9
2	1	12	0
3	0	13	2
4	0	14	1
5	1	15	5
6	1	16	6
7	2	17	0
8	0	18	1
9	3	19	1
10	2	20	0

b. In Vayuputra Aircraft's landing gear assembly the defects are detected as given in the table below.

Aircraft Number	Serious A	Not so Serious B	Minor C
1	--	--	5
2	--	1	4
3	--	1	--
4	1	--	2
5	--	2	1
6	--	--	3
7	--	--	3
8	--	--	9
9	--	1	6
10	--	--	1
11	1	--	3
12	--	--	1
13	--	2	--
14	--	4	3
15	--	--	--
16	--	1	4
17	--	1	6
18	1	1	2

19	--	--	3
20	--	--	2

If the weightage given for the different class of defects are A:10, B:5, C:1 construct appropriate control chart for quality.

Q2.

a. Bharat Telecoms entered into a contract with Mahan Instruments for the purchase of 12,360 instruments from the latter at the rate of Rs 235 per instrument during the years 2017, 2018. It has not, however, entered into a staggered deliver contract. The deliveries of the instrument will be made each time half a month after the order is placed. Bharat estimates its carrying cost at Rs. 47 per instrument per annum. The costs of paper work, follow-up, transport and receipt and inspection work out to Rs. 2000.What is the optimum ordered quantity, how frequently should Bharat place orders on Mahan? What is the reorder point? What is the total cost of transaction?

b. What are the limitations of an EOQ model? What are the good foundations on which EOQ model is set?

Q3

a. State the types of data that would be carried in the bill of material file and the inventory record file?

b. In the following MRP Planning schedule for the item J, indicate the correct net requirements, planned order receipts, and planned order releases to meet the gross requirements. Lead time is one week.

	Week Numbers					
Item J	0	1	2	3	4	5
Gross Requirement			75		50	70
On Hand	40					
Net requirement						
Planned order receipt						
Planned order released						

SECTION C

"The mission of the project which you will head is to get our new Mexican subsidiary ready for take-over by Mexican managers. My hope is that you will be able to do this in about two years," explained Robert Linderman, president of Linderman Industries, Inc., to Carl Conway, newly appointed manager for "Operation Mexicano." Conway had been hired specifically for this assignment because of his experience in managing large defence projects in the aerospace industry.

"The first thing that I will have to do is put a project team together," said Conway. "I imagine that you have in mind my drawing people from the functional divisions."

"Yes, I have already sent memoranda to the division managers informing them that you will be asking for some of their key people to work under you for about two years," said Linderman.

"In addition, I have advised them to be prepared to process work orders from Operation Mexicano with the personnel and equipment of their organizations. Later on in the project's life, you will begin to get Mexican personnel, both managers and technicians, in to your organization. These people will have Mexican supervisors, but until the mission is accomplished, they also will report to you. I will have to admit that you are going to have some complex authority relationships, especially as you personally will be responsible to the president of the subsidiary, Felix Delgado, as well as to me.

"Conway began to make his plans for the project team. The plant building was available and empty in Mexico City, and it was important to get equipment purchased and installed as soon as possible. A plant layout would have to be prepared, but before that could be done there would have to be a manufacturing plan. Therefore, he needed to recruit an industrial engineer, a production planner, and an equipment buyer. They, in turn, would have to build their own staffs.

He made an appointment with Sam Sargis, corporate manager of industrial engineering. "I have had a preliminary talk with Bob Cates about his joining Operation Mexicano, and he is quite interested," Carl said. "Will you release him to me?"

"Why, I'm grooming Cates to take over my job when I retire," replied Sargis. "He is my best man. Let me pick someone else for you, or better still, you just tell me what industrial engineering work you want done, and I will have it done for you."

"Sorry, I want Cates." said Carl firmly. "And besides, you are not due to retire for five years. This will be good experience for him."

For production planning, Carl had in mind Bert Mill, an older man with extensive experience in managing production operations, but Mill rejected his offer. "I talked it over with my wife," he said, "and we feel that at my age I shouldn't take a chance on not having a job to come back to when Operation Mexicano is finished."

Carl next talked to Emil Banowetz, who was assistant to Jim Burke, the vice president for manufacturing, and Banowetz decided that he would like to join the project team. However, Burke told Conway that if Banowetz were forcibly taken away from him, he would give Mr. Linderman his resignation, so Carl decided to back down. He finally accepted a man that Burke recommended.

Filling the equipment buyer's slot was easy. The director of procurement phoned Carl and said that a senior buyer, Humberto Guzman, had requested permission to ask for the assignment, and that he strongly recommended him. Guzman has been purchasing agent for a large mining company in Mexico for about 10 years.

Carl had about the same experiences in getting the people he wanted for the functions of engineering, quality control, cost marketing, and advertising as he did for the first three positions; in other words, he won some confrontations with the division managers and lost some.

For personnel, he got Dr. Juan Perez, who was slated to be personnel director of the subsidiary company, to affiliate temporarily with the project team.

The first brush that Project Mexicano had in getting a functional division to do work for it came when Cart's engineering man, Frank Fong, reported to him that the engineering vice president, who was formerly Fonq's boss, refused to authorize top priority to the changing of dimensions in the production drawings to the metric system. Carl had to take this issue to Linderman, who ruled in his favor. The defeated vice president, of course, did not take kindly to the decision.

The next incident revolved around Cart's desire to have a pilot run of products made with metric measurements for shipment to Mexico. The purpose was to test the market acceptance of the Linderman articles. Jim Burke stated flatly that there was no way that his production workers could be trained to work with metric drawings, Carl quickly saw that this was an issue that he was not going to win, so he had his buyer, Guzman, work with the newly appointed manufacturing manager for the subsidiary in getting a run of the products subcontracted in Mexico City.

Bob Cates made a special trip from Mexico City to present Carl with an interesting problem. The Mexican industrial engineer, whom Bob was supposed to be training, had his own Ideas

about plant layout. When they differed from Bob's as they usually did, he would take his complaint directly to Felix Delgado, the president of the Mexican subsidiary. Because Delgado's competence was primarily in finance, he would not know how to decide the argument and would simply table it. Carl took examples of some of the disagreements to Bob's former boss, Sam Sargis, who quite unexpectedly ruled against Bob's proposed methods. Carl saw that there was bad feeling by Sargis against Bob for leaving his department, which boded ill for Bob's return. To solve the immediate problem, however, Carl asked Dr. Perezto try to reconcile the situation in Mexico City.

Despite these problems, and many more of a similar nature, Project Mexicano was successful, and the transition to Mexican management was made in just a little over two years. By a curious twist, through Dr. Perez's intercession Felix Delgado became very impressed by Bob Cates and convinced him to accept the job of director of industrial engineering for the Mexican company. Humberto Guzman also stayed on to head the procurement operation.
Other members of the project team were not so fortunate. Linderman Industries was laying off personnel when the project ended, and only the project production man was able to get a job in the company at as high a level as the one he had when he joined the team. The cost expert elected to leave Linderman because he said the glamour of Project Mexicano had spoiled him for any routine job.

Carl Conway had a difficult decision of his own to make. Robert Linderman said that he was extremely pleased with his performance and that something good would open up in the company for him soon. In the meantime, there was a staff assignment available for him. Carl had seen enough project managers in the aerospace industry who had figuratively rotted on staff assignments when their projects were completed to be somewhat wary.

Questions

1. Was Linderman Industries' adoption of project organization an appropriate one for getting the Mexican subsidiary started?

2. In consideration of Robert Linderman's letting the division managers know that the project manager would be asking for some of their key people, why would Conway have any difficulty in getting the ones he wanted?

3. Would you expect that many people would turn down a chance to join a project organization, as Bert Mill did?

4. What could Linderman Industries have done to assure good jobs for the people coming off Project Mexicano, including Carl Conway, the project manager?