Reg. No.															

Question Paper Code	13316

MBA - DEGREE EXAMINATIONS, NOV / DEC 2024

Second Semester

Master of Business Administration

20MBT204 - MANAGING OPERATIONS

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Write about the Transformation Processes in Operations Management.	2	K2	CO1
2.	Identify the primary challenges in Operations Management today.	2	K2	CO1
3.	Recall the Delphi method in forecasting.	2	K1	CO2
4.	Indicate two objectives of capacity planning.	2	K2	CO2
5.	Define product design.	2	K1	CO3
6.	List the methods to improve productivity.	2	K1	CO3
7.	Interpret the term vendor rating.	2	K1	CO4
8.	Show the purpose of classification and coding in stores management.	2	K2	CO4
9.	What is meant by "flow shop scheduling" in project management?	2	K2	CO5
10.	Mention few advantages of using project management software for scheduling.	2	K2	CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

			Marks	K – Level	CO
11.	a)	Explain how the historical development of Operations Management has contributed to modern practices in manufacturing and services with examples.	13	K2	CO1
		OR			
	b)	Discuss the various functions of Operations Management and their significance in achieving operational excellence.	13	K2	CO1
12.	a) i)	Explain the moving average and exponential smoothing methods, including their applications and differences.	7	K3	CO2
	ii)	Discuss the purpose and applications of forecasting in business operations.	6	K3	CO2
		OR			
	b) i)	Explain the principles of Just-In-Time and discuss its importance in improving quality.	7	K2	CO2
	ii)	Describe MRP and MRP II. Also explain how they support manufacturing.	6	K2	CO2

13. a) Analyze the key factors that influence product design and explain how they affect design choices. *13 K4 CO3*

OR

b) i) Discuss the importance of work measurement in assessing performance and setting standards. *7 K4 CO3*

ii) Examine the role of technology in measuring and improving productivity. *6 K4 CO3*

14. a) Discuss the role of budgeting and control in inventory management process. *13 K3 CO4*

OR

b) Find how effective stores management impacts inventory levels, cost control, and operational efficiency. *13 K3 CO4*

15. a) i) Describe the steps in CPM analysis and its role in project scheduling. *7 K3 CO5*

ii) Discuss the concept of crashing in network scheduling and its implications on project costs and time. *6 K3 CO5*

OR

b) A factory has to schedule 5 jobs in a two-machine flow shop. The processing times are as follows:

Job	Machine 1 (M1)	Machine 2 (M2)
1	8	5
2	4	3
3	7	2
4	5	4
5	6	3

(i) Use **Johnson's Algorithm** to find the optimal job sequence. *7 K3 CO5*

(ii) Compute the **makespan** for the scheduled sequence. *6 K3 CO5*

PART - C (1× 15 = 15 Marks)
(Compulsory)

16. a) This case is about HIsarna, a new steel production technology developed as an alternative to the existing steel production technologies which were not only energy intensive but also high on CO2 emissions. The new process was developed in the wake of the Paris Agreement, which aimed at reducing CO2 emissions globally. The European Union targeted cutting down the emissions to 80-90% of 1990 levels by 2050. The European Union was also looking at adopting a circular economy, which would not only reduce pressure on the environment but also enhance the security of the supply of raw materials and lead to economic growth. As far as the steel industry was concerned it was looking at increasing the efficiency of production and *15 K5 CO3*

to redesigning production processes to reduce CO2 emissions. Toward this end, the steel industry in Europe formed a consortium called Ultra-Low Carbon Dioxide Steelmaking (ULCOS) in 2004 to identify technologies that would help reduce carbon emissions, ensure energy efficiency, and allow flexibility in the selection of raw materials in the steel industry. The consortium was of the view that a completely new process needed to be developed as the limits of the existing production systems had already been achieved. This resulted in the development of a breakthrough technology, HIsarna, which removed a number of energy-intensive pre-processes and provided flexibility in terms of the quality of raw materials and use of fuels. In the process, the CO2 emissions fell by 20%, and by capturing the high quality CO2, the emissions could be reduced by 80%. The emissions of other fine particles could also be reduced. The technology was tested in a pilot plant of Tata Steel Europe in the Netherlands and the € 75 million project was funded by ULCOS, the European Union, and the Dutch government. HIsarna was a combination of two different technologies, one from metal and mining company Rio Tinto and the other from Tata Steel. After years of trial runs and experiments, Tata Steel was all set to take the new sustainable production process to industrial scale. This called for more investments and it remained to be seen whether steel majors from across the world would show an interest in adopting the new technology in a bid to reduce emissions, or whether they would continue with the traditional steel making processes.

Questions:

(i) Examine how the steel industry can move toward a low-carbon future and reduce the negative impact of its production.

(ii) Demonstrate the way in which manufacturing processes can be redesigned to increase production efficiency and achieve lower emissions.