

**R19**

**Code No: 763AA**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**MBA III Semester Examinations, February -2024  
PRODUCTION AND OPERATIONS MANAGEMENT**

**Time: 3 Hours**

**Max.Marks:75**

- Note:** i) Question paper consists of Part A, Part B.  
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.  
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

**PART - A**

**(25 Marks)**

- 1.a) Illustrate the role of operations management in a business organization. [5]
- b) What is ergonomics? With examples illustrate the ergonomics consideration in product design. [5]
- c) Describe the problems of multi facility location. [5]
- d) What are heuristic procedures? What is its relevance to scheduling? [5]
- e) What is VED analysis? What are the areas of its applications? [5]

**PART - B**

**(50 Marks)**

- 2.a) Discuss the types of production systems and brief on lean manufacturing.
- b) What are generic strategies? What is its relevance to POM? [6+4]

**OR**

- 3.a) How justified could be one in applying the concepts of POM to services? What are the complexities peculiar to operation of services as against manufacture of physical goods?
- b) What are the situations for which batch production is best suited? Give illustrative examples. [6+4]

- 4.a) Describe the basic diagrams methodology of FAST as a Value Engineering tool.
- b) What is the manufacturing process by which we can achieve mass customization? Explain briefly. [5+5]

**OR**

- 5.a) Process design closely follows the product design. Comment on the statement.
- b) Explain how the stage of the product life cycle influences the production process selection. [4+6]

6. A particular city is trying to find the best location for a master solid waste disposal station. The four substations located presently have the following coordinates. Station 1 ( 4,12) Station 2 ( 7,4) station 3 ( 10, 9) and station 4 ( 2,14) . The number of loads hauled to the master station will be 350, 250, 400 and 500 tonnes from stations 1,2,3 and 4 respectively. Find the best location using a) median model and b) gravity model. [10]

**OR**

7.a) Describe product lay out and process lay out. What are the advantages and disadvantages of each of the layouts?

b) Brief on model to determine X-coordinates of new facilities. [6+4]

8.a) Provide the optimal job sequence involving three machines M1,M2 and M3 in the order M1M2M3 for the following and also find out the total time for completing all the jobs:

Jobs	1	2	3	4	5
M1	7	12	11	9	8
M2	8	9	5	6	7
M3	11	13	9	10	14

b) Brief on extension of Johnson's rule. [6+4]

**OR**

9.a) Bring out the difference between forward and backward scheduling.

b) Briefly discuss the different priority rules for scheduling N jobs in a single machine. [5+5]

10.a) What is the basis of ABC analysis? What framework would you suggest for ordering and controlling inventory for items under each of the ABC classification?

b) What are scraps in manufacturing industry? How are they disposed? [6+4]

**OR**

11. A company uses 25,000 numbers of a component per year. It costs Rs.100 to place and receive an order and carrying cost is 30% of unit price, and the supplier quotes the following prices for the component.

Quantity	Unit price
0-499	Rs. 21.60
500-999	Rs. 20.95
1000+	Rs. 90

a) What is EOQ? b) What is the minimum total cost of component for the annual requirement? [10]

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