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PRESIDENCY UNIVERSITY BENGALURU

SCHOOL OF ENGINEERING

END TERM EXAMINATION - AUGUST 2024 SUMMER TERM

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| **Semester : Summer Term** | **Date : 05.08.2024** |
| **Course Code : MEC3068** | **Time : 09.30 AM to 12.30 PM** |
| **Course Name : Production and Operations Management** | **Max Marks : 100** |
| **Program : B. Tech – Mechanical Engineering** | **Weightage :** 50% |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Question paper consists of 3 parts.*
3. *Scientific and non-programmable calculator are permitted.*
4. *Do not write any information on the question paper other than Roll Number.*

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| **PART A** | | | |
| **ANSWER ANY 10 QUESTIONS 10Q X 2M=20M** | | | |
| 1 | Differentiate production and manufacturing. | (CO 1) | [Knowledge] |
|  | | | |
| 2 | What are the 5M’s of production management? | (CO 1) | [Knowledge] |
|  | | | |
| 3 | List the important objectives of production management. | (CO 1) | [Knowledge] |
|  | | | |
| 4 | What is Group Technology? |  | [Knowledge] |
|  | | | |  | |
| 5 | What is Production Planning and Control? | (CO 2) | [Knowledge] |
|  | | | |  | |
| 6 | How will you differentiate product and service? | (CO 2) | [Knowledge] |
|  | | | |  | |
| 7 | What are all the levels in Production Planning and Control? | (CO 2) | [Knowledge] |
|  | | | |  | |
| 8 | What do you mean by "Production Scheduling"? | (CO 3) | [Knowledge] |
|  | | | |  | |
| 9 | What is the purpose of Gantt chart in production settings? | (CO 3) | [Knowledge] |
|  | | | |
| 10 | What is Supply Chain Management? | (CO 4) | [Knowledge] |
| 11 | Mention the purpose of Quality Function Deployment (QFD). | (CO 4) | [Knowledge] |
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| 12 | What is the meaning of Poka-Yoke? Mention the purpose of it. | (CO 4) | [Knowledge] |
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| 13 | What is lean operations? | (CO 4) | [Knowledge] |
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| 14 | What is Toyota Production System? | (CO 4) | [Knowledge] |

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| **PART B** | | | |
| **ANSWER ANY 4 QUESTIONS 4Q X 10M=40M** | | | |
| 15 | Explain various type of production systems in detail with suitable examples. | (CO 1) | [Comprehension] |
|  | | | |
| 16 | Describe about the evolution of Production and Operations Management in detail. | (CO 1) | [Comprehension] |
|  | | | |
| 17 | Discuss in detail about various factors influencing facility location decision considering your own case example of the company | (CO 2) | [Comprehension] |
|  | | | |  |
| 18 | Briefly explain Process layout and Group layout used in manufacturing plant. | (CO 2) | [Comprehension] |
| 19 | Explain about Business Process Re-engineering and various phases in it. | (CO 4) | [Comprehension] |
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| 20 | With some real life example write about how Push - Pull view of supply chain will help to achieve operational efficiency and responsiveness. | (CO 4) | [Comprehension] |

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| **PART C** | | | |
| **ANSWER ANY 2 QUESTIONS 2Q X 20M=40M** | | | |
| 21 | A new location for a manufacturing facility is being considered. The facility has frequent relationships with its five major suppliers and since the supplied material is bulky and transportation costs are high the closeness to the five suppliers has been determined as the major factor for the facility location. The current coordinates of the suppliers are S1=(1,1), S2=(5,2), S3=(2,8), S4=(4,4) and S5=(8,6). The cost per unit distance traveled is the same for each supplier, but the number of trips per day between the facility and each of its suppliers are 7,6,5,8 and 9. | (CO 2) | [Application] |
|  | | | |
| 22 | A scheduler has four jobs that can be done on any of four machines with respective times (minutes) as shown below. Determine the allocation of jobs to machines that will result in minimum time.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Job | Machine | | | | | 1 | 2 | 3 | 4 | | A | 5 | 6 | 8 | 7 | | B | 10 | 12 | 11 | 7 | | C | 10 | 8 | 13 | 6 | | D | 8 | 7 | 4 | 3 | | (CO 3) | [Application] |
|  | | | |
| 23 | Consider the following two machines and six job scheduling problem. Using Johnson’s algorithm, obtain the optimal sequence which will minimize the makespan and do the scheduling and find out the total elapsed time and idle time of machines.   |  |  |  | | --- | --- | --- | | Job ‘i’ | Processing Time in  Machine 1 | Processing Time in  Machine 2 | | 1 | 5 | 4 | | 2 | 2 | 3 | | 3 | 13 | 14 | | 4 | 10 | 1 | | 5 | 8 | 9 | | 6 | 12 | 11 | | (CO 3) | [Application] |