

**JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA**

**PGDM / PGDM (M) / PGDM (SM)**

**FIFTH TRIMESTER (Batch 2022-24)**

**END TERM EXAMINATIONS, JANUARY 2024**

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| Course Name | Materials and Inventory Management | Course Code | **20257** |
| Max. Time | **2 hours** | Max. Marks | **40 MM** |

INSTRUCTIONS:

1. All questions are compulsory.
2. Use of simple/scientific calculators is allowed

Q.1. (a) Discuss EOQ model with instantaneous supply and no shortages allowed. If shortages will be allowed in the model, how the EOQ changes? (6 Marks)

(b) A television company requires 8000 speakers a month. The initial cost for catering the order is $12000. The unit production cost is $10 per piece. The holding cost is $0.30 per piece per month. Estimate the EOQ and the cycle time, if the shortage cost is $1.10 per unit time of shortage. (6 Marks)

Q.2. For the data on the processing times of 6 jobs on 3 machines, determine the optimal sequence that will minimize the total elapsed time. Also, find the idle time of the machines. (10 Marks)

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Jobs | 1 | 2 | 3 | 4 | 5 | 6 |
| Processing time (in minutes) | Machine A | 3 | 12 | 5 | 2 | 9 | 11 |
| Machine B | 8 | 6 | 4 | 6 | 3 | 1 |
| Machine C | 13 | 14 | 9 | 12 | 8 | 13 |

Q.3. Using the following product structure tree and the inventory status file, determine the quantities of B, C, D and E needed to assemble 20 units of A. (8 Marks)

|  |  |
| --- | --- |
| **Inventory status file** | |
| **Items** | **Units available in inventory** |
| B | 5 |
| C | 10 |
| D | 8 |
| E | 50 |

Q.4. (a) What is Procurement strategy. Explain and share any 4 strategies with examples?

(b) What is selective inventory control? Discuss various methods used and related criteria for the same. (4 + 6 Marks)