

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Regular/ Backlog), November 2016

B. Tech in Mechanical Engineering, Semester V

Roll No.....

ME 505: Production Planning & Control

Time: 3 hours

Max. Marks: 100

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever required are an integral part of the answer.

Q.1A Objective type multiple choice questions (10 questions @ 1 mark)

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- i. Which of the following is not a major part of manufacturing planning?
(a) machine (b) manpower (c) materials (d) product development
- ii. The correct sequence of operations in production planning and control is:
(a) Routing → Scheduling → Dispatching → Follow up
(b) Scheduling → Routing → Dispatching → Follow up
(c) Dispatching → Routing → Scheduling → Follow up
(d) Routing → Scheduling → Follow up → Dispatching
- iii. Which of the following is true for 'Routing'?
(a) It is flow of work in the plant
(b) Route sheets include list of machine tools that are to be followed
(c) It depends upon material handling facilities
(d) All of the above
- iv. Loading involves:
(a) Sending the raw material to the machine
(b) Sending the finished material to the store
(c) Assigning the work to the facilities
(d) Uploading a software in machine control panel
- v. Gantt chart is mostly used for:
(a) Routing (b) Scheduling (c) Follow up (d) Inspection and quality control
- vi. In the product concept stage of new-product development, the product is merely a _____.
(a) word description; (b) crude mock-up; (c) drawing; (d) all of the above
- vii. _____ is responsible for analyzing the marketplace and deciding the firm's response, the markets to be served, the products supplied, and desired levels of customer service.
(a) Marketing
(b) Finance
(c) Production
(d) Engineering
- viii. _____ begins when the company finds and develops a new-product idea.
During product development, sales are zero and the company's investment costs mount.

- (a) Introduction; (b) Growth; (c) Maturity; (d) Product development
- ix. _____ is a period of slow sales growth as the product is introduced into the market. Profits are non-existent in this stage because of the heavy expenses of product introduction.
(a) Growth; (b) Product development; (c) Maturity; (d) Introduction
- x. _____ is a period of market acceptance and increasing profits.
(a) Product development; (b) Maturity; (c) Growth; (d) Introduction
- Q.2 Short answer type questions (4 questions @ 2.5 marks) 10
- i. How should we determine the lot size in a production plan?
- ii. What are the components of scheduling?
- iii. List the names of the steps necessary in product planning and development?
- iv. List the steps required in concept selection of a product development project?
- Q.3A The order (setup) cost per order of an inventory is Rs. 400 with an annual carrying (holding) cost of Rs. 10 per unit. Calculate the Economic Order Quantity (EOQ) for an annual demand of 2000 units. 05
- Q.3B Explain the robustness of EOQ model of inventory management with the help of suitable graph. Also indicate optimum order quantity on the graph. 05
- Q.4A What is independent and dependent demand? Explain with the help of examples. 05
- Q.4B What is Just-In-Time (JIT) manufacturing? Explain the important features of JIT manufacturing. 05
- Q.5A What are the environmental considerations in manufacturing? What should be the steps manufacturing organizations take to make environmentally responsible manufacturing? 05
- Q.5B Why environmental considerations are necessary for the sustainability of a manufacturing enterprise? 05
- Q.6A What do you understand by Materials Requirement Planning (MRP) and how it is useful for manufacturing operations? 05
- Q.6B What are the components of a product lifecycle? Explain with the help of a graph. 05
- OR
- Q.6B What is Master Production Schedule and what are its components? 05
- Q.7A A company makes three-wheelers. It produces 450 three-wheelers a month. It buys the tires for three-wheelers from a supplier at a cost of Rs. 500 per tire. The company's inventory carrying (holding) cost is estimated to be 15% of the purchasing cost and the ordering (setup) cost is Rs. 20,000 per order. Calculate the Economic Order Quantity (EOQ). 05
- Q.7B Calculate total annual cost and reorder point in Q 7A for a lead time of 3 days and assume 250 number of working days in a year. 05
- OR
- Q.7B Explain the benefits of computer integrated manufacturing with the help of 05

suitable manufacturing examples.

Q.8A Following data is given for POQ model:

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D = 1,000 units p = 8 units per day
S = \$10 d = 4 units per day
H = \$0.50 per unit per year

Calculate the optimum order quantity for the above given data assuming POQ model.

Q.9A Explain the difference between product order quantity (POQ) and Economic order quantity (EOQ) model with the help of suitable examples.

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Q.9B What is the concept selection? What are the main tasks associated with concept selection? Explain with the help of a suitable example.

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OR

Q.9B What is concept development and how is it different than the concept selection? Explain with a suitable example.

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