Scheme – I

Sample Question Paper

Program Name : **Production Technology**
Program Code : **PG/ PT**
Semester : **Fifth**
Course Title : **Production and Operations Management**
Marks : **70** **Time: 3 Hrs.**

22569

Instructions:

(1) All questions are compulsory.

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data if necessary.

(5) Preferably, write the answers in sequential order.

Q.1) Attempt any FIVE of the following. **10 Marks**

a) State Objectives of Plant Layout

b) Write any four functions of production planning and control system.

c) Define Inventory Control

d) Define the term Work Study.

e) State principle of Lean Manufacturing

f) State any four rules to construct network diagram

g) Give any four methods used in operation research.

Q.2) Attempt any THREE of the following. **12 Marks**

a) List the factors affecting on Plant location

b) Define Forecasting. Describe any one method of forecasting sales of a product

c) Classify Inventory according to the types of goods during manufacturing cycle.

d) Differentiate between Method Study and Work Measurement.

Q.3) Attempt any THREE of the following. **12 Marks**

a) Differentiate between process layout product layout

b) Write the steps for the Designating the plant layout

c) In a four- month period the best forecast is derived by using 40% of the actual sales for the most recent month, 30% of two month ago, 20% of three months ago, and 10% of four months ago. If actual sales experience was as follows,

Month-1	Month-2	Month-3	Month-4	Month-5
100	90	105	95	?

Forecast the actual sales of fifth month.

d) Explain the term Material Requirement Planning‘ MRP’

Q.4) Attempt any THREE of the following. 12 Marks

a) Write the procedure of Process Planning from Raw material to Finish product in Automobile Manufacturing Industry

b) Draw any Six Therbligs along with their definition, symbols and colors used.

c) Find Economic Order Quantity from the following data:

Average annual demand	=30,000 units.
Inventory Carrying cost	= 12% of the unit value per year.
Coast of placing an order	= Rs.70.
Cost of unit	=Rs.2.

d) Describe the steps for taking Time study

e) Describe Agile manufacturing concept in relation to features, advantages and limitations

Q.5) Attempt any TWO of the following. 12 Marks

a) Illustrate a JIT system with the help of neat block diagram

b) The normal cycle time for an operation is 1.14 minutes. It is estimated that 405 minutes of 480 minutes day are available to the operator for production purposes. Determine the Standard time (S.T.) and the number of pieces for a standard hour.

c) Explain

1. SIMO Chart with application
2. The term ‘MOST’ with suitable example

Q.6) Attempt any TWO of the following. 12 Marks

a. A project to manufacture a product is composed of the following activities:

Activity	Predecessors	Duration (days)
A = train workers	--	6
B = purchase row material	--	9
C = manufacture product1	A, B	8
D = manufacture product 2	A, B	7
E = test product 2	D	10
F = Assemble products 1 and 2	C, E	12

Draw network diagram and calculate critical path

b. A company plans to manufacture and sell two products X and Y. These two products require the use of 3 different raw materials, A,B and C which are available in limited quantities. The profit per unit of products X and Y is 5 and 6 units of money respectively. The other relevant data are given below:-

Raw material	Units of raw material needed for making one unit of product		Total units of raw material available.
	X	Y	
A	2	3	18
B	2	1	12
C	3	3	27

The company wants to determine the product-mix that would maximize the total profit. Formulate as a linear programming problem and determine the capital product-mix graphically.

c. Compare Lean and agile manufacturing techniques for optimizing a development process.

Scheme – I

Sample Test Paper - I

Program Name : **Production Technology**
Program Code :**PG/ PT**
Semester : **Fifth**
Course Title : **Production and Operations Management**
Marks : **20** **Time: 1 Hour**

22569

Instructions:

(1) All questions are compulsory.

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data if necessary.

(5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR. 08 Marks

a) Define 'Productivity'

b) State the term 'Sahety Stock'.

c) List any four techniques of sales forecasting.

d) Define term 'EOQ'

e) State the significance of GANTT chart.

f) List any four factors to be considered for process Planning..

Q.2 Attempt any THREE. 12 Marks

a) Explain in brief 'JIT'

b) Describe clearly the functions of forecasting.

c) State the basic steps involved in setting up MRP.

d) In what ways can inventories serve to reduce the cost and to increase the cost?

e) List different productivity improvement techniques. Explain any one technique in brief

Scheme – I

Sample Test Paper - II

Program Name : **Production Technology**
Program Code : **PG/PT**
Semester : **Fifth**
Course Title : **Production and Operations Management**
Marks : **20** **Time: 1 Hour**

22569

Instructions:

(1) All questions are compulsory.

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data if necessary.

(5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR. 08 Marks

a) List any four Method study Chart.

b) State any four limitations of agile manufacturing.

c) Define Operation Research.

d) Draw any four Therbligs

e) State need of Advanced Production techniques

f) Explain term "PERT'

Q.2 Attempt any THREE. 12 Marks

a) Describe linear programming with example.

b) Can lean manufacturing be used in environments outside of the shop floor? Justify your answer.

c) Compare PERT with CPM?

d) Following data refers to the activities of a project, where, node 1 refers to the start and node 5 refers to the end of the project. Draw network diagram and show the critical path (CP) in the network.

Activity	1-2	2-3	4-3	1-4	2-5	3-5	4-5
Duration(Days)	2	1	3	3	3	2	4

e) A workshop has three (3) types of machines A, B and C; it can manufacture two (2) products 1 and 2, and all products have to go to each machine and each one goes in the same order; First to the machine A, then to B and then to C. The following table shows:

- The hours needed at each machine, per product unit
- The total available hours for each machine, per week
- The profit of each product per unit sold

Type of machine	Product 1	Product 2	Available hours per week
A	2	2	16
B	1	2	12
C	4	2	28
Profit per unit	1	1.50	

Formulate and solve using the graphical method a Linear Programming model for the previous situation that allows the workshop to obtain maximum gains.