SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur – 603 203

DEPARTMENT OF MANAGEMENT STUDIES

QUESTION BANK

II SEMESTER

1915206 – OPERATIONS MANAGEMENT

Regulation – 2019

Academic Year 2022 – 2023 (Even Semester)

Prepared by

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Department of Management Studies

UNIT – I – INTRODUCTION TO OPERATIONS MANAGEMENT			
SYLLABUS: Production – Meaning, Nature, Types - Operations Management – Nature, Importance, functions, challenges, current priorities, recent trends - Operations Strategy – Strategic fit, framework - Supply Chain Management.			
PART- A			
S.NO	**QUESTIONS**	**BT LEVEL**	**COMPETENCE**
1.	Define Operations management.	Level 1	Remembering
2.	Summarize the types of Production.	Level 2	Understanding
3.	Identify the major components of a production system.	Level 3	Applying
4.	What is meant by Supply Chain Management?	Level 1	Remembering
5.	Outline the objectives of operation management.	Level 2	Understanding
6.	Identify the bottlenecks in operations management.	Level 3	Applying
7.	What are the functions of Operations Management?	Level 1	Remembering
8.	Outline the importance of Operations management.	Level 2	Understanding
9.	Identify the recent trends in Operations Management.	Level 3	Applying
10.	List the 5 steps in framework of operations strategy.	Level 1	Remembering
11.	Summarise your conclusions on the Continuous production system.	Level 2	Understanding
12.	Develop the framework of operations strategy.	Level 3	Applying
13.	What do you mean by Value Added Services?	Level 1	Remembering
14.	Analyse the objectives of Supply chain management.	Level 4	Analysing
15.	Identify the importance of manufacturing strategy.	Level 3	Applying
16.	What is meant by Strategic Fit?	Level 1	Remembering
17.	List down the process elements of supply chain.	Level 4	Analysing
18.	List the functions of Supply Chain Management.	Level 4	Analysing
19.	Analyse the challenges in Supply Chain Management.	Level 4	Analysing
20.	Determine the scope of Operations Management.	Level 5	Evaluating
21.	Compare Goods and Services.	Level 5	Evaluating
22.	Give your opinion on the importance of Supply Chain.	Level 5	Evaluating
23.	Compile the objectives of Supply Chain Management.	Level 6	Creating
24.	Compose the nature of Operations Management.	Level 6	Creating

PART- B				
S.NO	**QUESTIONS**		**BT LEVEL**	**COMPETENCE**
1.	What is Production? Explain the types of Production system.	**(13)**	Level 1	Remembering
2.	Summarize the nature of Production in detail.	**(13)**	Level 2	Understanding
3.	Write the nature and importance of operations management.	**(13)**	Level 3	Applying
4.	List the scope and objectives of operations management.	**(13)**	Level 4	Analyzing
5.	Discuss the role of operations in strategic management.	**(13)**	Level 2	Understanding
6.	How could you determine the objectives and historical development of operations management?	**(13)**	Level 3	Applying
7.	How would you describe the functions of Operations Management in detail.	**(13)**	Level 1	Remembering
8.	Demonstrate the recent trends in operations management.	**(13)**	Level 2	Understanding
9.	Identify the challenges and current priorities for Operations Management.	**(13)**	Level 3	Applying
10.	List importance and issues in SCM.	**(13)**	Level 1	Remembering
11.	**i)** Explain the operations strategy framework.	**(8)**	Level 2	Understanding
	ii) Explain the components of operations strategy.	**(5)**		
12.	What is SCM? Explain 8 different types of core supply chain processes in detail.	**(13)**	Level 4	Analyzing
13.	How would you explain the Transformation Process in Operations Management?	**(13)**	Level 1	Remembering
14.	Outline the objectives and Functions of supply chain management.	**(13)**	Level 4	Analyzing
15.	What inference can you make in Strategy Fit along with framework of operations strategy?	**(13)**	Level 5	Evaluating
16.	How would you elaborate the concept of SCM?	**(13)**	Level 5	Evaluating
17.	Elaborate on the various types of Production System.	**(13)**	Level 6	Creating

PART - C			
S.NO	**QUESTIONS**	**BT LEVEL**	**COMPETENCE**
1.	“Operations strategies provide the road map for achieving the operations objectives.” Justify the statement.	Level 5	Evaluating

2.	Evaluate the types of production system and state its merits and demerits.	Level 5	Evaluating
3.	Discuss the process of developing an appropriate manufacturing strategy for a modern organisation.	Level 6	Creating
4.	Discuss the process of developing an appropriate strategy for a Service based organisation.	Level 6	Creating
5.	Can you give a detailed outline of the Supply Chain Process in FMCG industry?	Level 5	Evaluating

UNIT – II – FORECASTING, CAPACITY AND FACILITY DESIGN

SYLLABUS:

Demand Forecasting – Need, Types, Objectives and Steps – Overview of Qualitative and Quantitative methods – Capacity Planning – Long range, Types, Developing capacity alternatives – Overview of sales and operations planning – Overview of MRP, MRP II and ERP – Facility Location – Models, Factors affecting facility location, Steps in Selection, Location Models – Facility Layout – Principles, Types.

PART- A

S.NO	QUESTIONS	BT LEVEL	COMPETENCE
1.	Define Demand Forecasting.	Level 1	Remembering
2.	Classify the need of Demand Forecasting.	Level 2	Understanding
3.	Identify the objectives of Demand Forecasting.	Level 3	Applying
4.	Outline the various methods in Qualitative Forecasting.	Level 1	Remembering
5.	Can you list the types of demand forecasting?	Level 2	Understanding
6.	What is your opinion of Capacity planning?	Level 3	Applying
7.	What is aggregate planning?	Level 1	Remembering
8.	Infer the factors affecting Capacity Planning.	Level 2	Understanding
9.	Demonstrate the concept of Capacity Planning process.	Level 3	Applying
10.	Compare the difference between RCCP and CRP.	Level 1	Remembering
11.	What conclusions can you draw on Material Requirement Planning?	Level 2	Understanding
12.	Write a short note on the Delphi technique?	Level 3	Applying
13.	How would you explain Enterprise Resource Planning?	Level 1	Remembering
14.	Summarize the steps in Location Planning.	Level 4	Analysing
15.	How would you show your understanding of Cellular Manufacturing?	Level 3	Applying
16.	What are the features of product and process layout?	Level 1	Remembering

17.	Define MRP II.	Level 4	Analysing
18.	Compare MRP I and MRP II.	Level 4	Analysing
19.	Define product structure tree.	Level 4	Analysing
20.	Choose the relevant factors affecting facility location.	Level 5	Evaluating
21.	Assess the benefits of MRP II.	Level 5	Evaluating
22.	Recommend the factors to be considered in location planning.	Level 5	Evaluating
23.	Compile the types of Facility Layout.	Level 6	Creating
24.	Compose the difference between product and process layout.	Level 6	Creating

PART- B

S.NO	QUESTIONS	BT LEVEL		COMPETENCE
1.	Illustrate the various methods of Demand Forecasting.	**(13)**	Level 1	Remembering
2.	How would you summarize the need, types of Demand Forecasting?	**(13)**	Level 2	Understanding
3.	How would you show your understanding of the Objectives of Demand Forecasting & Steps of forecasting?	**(13)**	Level 3	Applying
4.	Discuss the factors to be considered while making a facility location decision.	**(13)**	Level 4	Analyzing
5.	From the following data, calculate 4 year moving average. Year: 1 2 3 4 5 6 7 8 9 10 Output: 20 21 23 22 25 24 27 26 28 30	**(13)**	Level 2	Understanding
6.	Develop the process of Capacity planning.	**(13)**	Level 3	Applying
7.	How would you compare the ideas in capacity planning with distinct levels? Also explain the factors influencing Capacity planning.	**(13)**	Level 1	Remembering
8.	A company has to decide on the location of a new plant. It has narrowed down the choice to 3 locations A,B and C data in respect of which is given in the below table. Use a suitable criterion and advise the company on the best choice.		Level 2	Understanding

Data	**Locations**		
	A (Rupees)	**B (Rupees)**	**C (Rupees)**
Wages and Salaries	20000	20000	20000
Power and Water Expenses	20000	30000	25000

	Raw Materials and Other Supplies	80000	75000	60000			
	Total Initial investment	200000	300000	250000			
	Distribution Expenses	50000	40000	60000			
	Miscellaneous Expenses	40000	25000	30000			
	Expected Sales Per Year	225000	250000	225000			

9.	How would you show your utilization of the sales and operations planning cycle?		Level 3	Applying
10.	Analyse the principles of Facility layout and the objectives of a good facility layout.		Level 1	Remembering
11.	From the given data below, estimate the demand using 3 and 5 Year Moving Average method.	**(13)**	Level 2	Understanding

Year	1	2	3	4	5	6	7	8	9	10	11	12
Sales	5.2	4.9	5.5	4.9	5.2	5.7	5.4	5.8	5.9	6.0	5.2	4.8

12.	**i)** Analyse the salient features of ERP.	**(7)**	Level 4	Analyzing
	ii) Examine the pros and cons of an ERP System.	**(6)**		
13.	Estimate the demand using Weighted Moving Average method for the below data. (Weights are 1, 2 & 1).	**(13)**	Level 1	Remembering

Year	1	2	3	4	5	6	7
Sales ('000)	2	4	5	7	8	10	13

14.	Analyse the various types of Facility Layout.	**(13)**	Level 4	Analyzing
15.	Assess the factors to be considered in making a location decision.	**(13)**	Level 5	Evaluating
16.	Elaborate the basic types of Facility Layouts.		Level 5	Evaluating
17.	Demonstrate the following ➢ MRP I ➢ MRP II ➢ ERP		Level 6	Creating

PART - C

<table>
<tr><th>S.NO</th><th>QUESTIONS</th><th></th><th>BT LEVEL</th><th>COMPETENCE</th></tr>
<tr><td>1.</td><td>The table below gives the actual demand in units for the past month period. Compute a weighted 3 Month Moving Average where the weights are highest for the latest months and desc the order of 3, 2, 1
<table>
<tr><td>Month</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr>
<tr><td>Demand</td><td>100</td><td>105</td><td>108</td><td>110</td><td>112</td><td>114</td><td>120</td><td>130</td><td>128</td><td>140</td></tr>
</table></td><td></td><td>Level 5</td><td>Evaluating</td></tr>
<tr><td>2.</td><td>Elaborate on the factors influencing Materials Requirement Planning.</td><td></td><td>Level 6</td><td>Creating</td></tr>
<tr><td>3.</td><td>Potential locations Kanyakumari, Srivilliputhur, and Theni, have the cost structures shown for producing a product expected t at Rs. 100 per Unit. Find out the most economical location for which each of the locations would be most economical.
<table>
<tr><th>Location</th><th>Fixed Cost /Year</th><th>Variable Cost /Unit</th></tr>
<tr><td>Kanyakumari</td><td>25000</td><td>50</td></tr>
<tr><td>Srivilliputhur</td><td>50000</td><td>25</td></tr>
<tr><td>Theni</td><td>80000</td><td>15</td></tr>
</table></td><td>(15)</td><td>Level 5</td><td>Evaluating</td></tr>
<tr><td>4.</td><td>Fit a regression line $Y=a+b X_i$ by the method of least squares to the following sample information:
<table>
<tr><th>Observations</th><th>Income(X)('00 Rs)</th><th>Consumption Expenditure(Y) ('00 Rs)</th></tr>
<tr><td>1</td><td>44</td><td>41</td></tr>
<tr><td>2</td><td>60</td><td>65</td></tr>
<tr><td>3</td><td>39</td><td>50</td></tr>
<tr><td>4</td><td>51</td><td>57</td></tr>
<tr><td>5</td><td>80</td><td>96</td></tr>
<tr><td>6</td><td>68</td><td>94</td></tr>
<tr><td>7</td><td>84</td><td>110</td></tr>
<tr><td>8</td><td>34</td><td>30</td></tr>
<tr><td>9</td><td>55</td><td>79</td></tr>
<tr><td>10</td><td>48</td><td>65</td></tr>
</table></td><td>(15)</td><td>Level 6</td><td>Creating</td></tr>
<tr><td>5.</td><td>The sales of flats in one of the cities during the past 8 years have been increased as can be seen in the following sales data.
<table>
<tr><td>Year</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr>
<tr><td>Sales</td><td>90</td><td>95</td><td>88</td><td>91</td><td>98</td><td>101</td><td>100</td><td>105</td></tr>
</table></td><td></td><td>Level 5</td><td>Evaluating</td></tr>
</table>

	Determine the following: i) What is the forecasted sale of the flats in the next two years? Use regression analysis for determining the forecasted sales. ii) Calculate the Coefficient of Correlation. Interpret its meaning. iii) Calculate Coefficient of Determination of the sales. Interpret its meaning.	**(5)** **(5)** **(5)**		

UNIT – III – DESIGN OF PRODUCT, PROCESS AND WORK SYSTEMS			
SYLLABUS: Product Design and Development – Process, Elements, Issues, New Product development phases and Techniques – Process – Planning, Selection, Strategy, Major Decisions – Production Planning and Control – Production Planning System – Benefits and Limitations, Scheduling, elements and types – Method Study, Motion Study – Work Measurement and Productivity – Measuring Productivity and methods to improve productivity.			
PART- A			
S.NO	**QUESTIONS**	**BT LEVEL**	**COMPETENCE**
1.	Define product design.	Level 1	Remembering
2.	Classify the approaches to product design.	Level 2	Understanding
3.	Identify the main purpose of motion study.	Level 3	Applying
4.	List the features for a good product design.	Level 1	Remembering
5.	Outline the benefits of product development.	level 2	Understanding
6.	Identify the elements in Product Design.	Level 3	Applying
7.	What is meant by process planning?	Level 1	Remembering
8.	Outline the concept of Productivity.	Level 2	Understanding
9.	Write down the factors influencing the design of a new product.	Level 3	Applying
10.	What are the steps in Process Planning?	Level 1	Remembering
11.	Compare MTO, ATO, ETO.	Level 2	Understanding
12.	Identify the objectives of motion study.	Level 3	Applying
13.	Recall the meaning of method study.	Level 1	Remembering
14.	Compare the method study and work measurement.	Level 4	Analysing
15.	Analyse the use of work measurement.	Level 3	Applying
16.	How is the Motion study connected with manufacturing?	Level 1	Remembering
17.	Differentiate Standardization and Simplification.	Level 4	Analysing
18.	Summarize the objectives of work measurement.	Level 4	Analysing

19.	Explain SIMO chart.	Level 4	Analysing
20.	Assess the concept of partial productivity.	Level 5	Evaluating
21.	Compare Method Study and Work Measurement.	Level 5	Evaluating
22.	Compare Product and Process design.	Level 5	Evaluating
23.	Compile the Product Development Procedure.	Level 6	Creating
24.	Compile the techniques in New Product Development.	Level 6	Creating

PART- B				
S.NO	**QUESTIONS**		**BT LEVEL**	**COMPETENCE**
1.	Describe the various aspects of product design, and its elements in detail.	**(13)**	Level 1	Remembering
2.	Can you explain scheduling elements and types?		Level 2	Understanding
3.	a) Write down the components of work measurement.	**(6)**	Level 3	Applying
	b) Tell the various techniques of work measurement.	**(7)**	Level 3	Applying
4.	Analyse the various stages involved in developing a product.		Level 4	Analysing
5.	Explain the product development techniques in detail.		Level 2	Understanding
6.	Discuss the documentation requirement and steps involved process planning.		Level 3	Applying
7.	What would you recommend the various stages in process selection methods? Also explain the process selection decision.		Level 1	Remembering
8.	Illustrate production planning and control in detail.		Level 2	Understanding
9.	Demonstrate some of the influencing factors for designing a New Product.		Level 3	Applying
10.	How would you organize the Objectives in Motion study and principles in motion study?		Level 1	Remembering
11.	Explain the principles of motion study and its objectives in detail.		Level 2	Understanding
12.	Examine the concept of Productivity and discuss the three major types of productivity.		Level 4	Analysing
13.	Write down and explain the methods to improve productivity?		Level 1	Remembering
14.	Examine the elements in Product Design and the characteristics of a Good Product Design.		Level 4	Analysing
15.	Assess the categorization of process selection decision.		Level 5	Evaluating

16.	**i)**	Examine the importance of productivity	**(7)**	Level 5	Evaluating
	ii)	List the factors influencing productivity.	**(6)**		
17.	Elaborate the steps in Work measurement and the components of Work Measurement.			Level 6	Creating

PART - C			
S.NO	**QUESTIONS**	**BT LEVEL**	**COMPETENCE**
1.	Discuss the types of Production-Planning and Control Systems	Level 5	Evaluating
2.	Prepare a flow process chart for a patient admittance process.	Level 5	Evaluating
3.	Conclude your understanding about the strategy for the Process along with types.	Level 6	Creating
4.	Tell the key decisions relating to the process design and the influencing factors in it.	Level 6	Creating
5.	Assess the procedure to be adopted in the New Product Development process.	Level 5	Evaluating

UNIT – IV – MATERIALS MANAGEMENT

SYLLABUS:

Inventory Management – Nature, importance and Classification of Inventory and Inventory Control Techniques, Budgeting and Control - Purchasing – Objectives, Functions, Policies and Procedure - Vendor rating and Value Analysis – Stores Management – Nature, Layout, Classification and Coding – Overview of JIT.

PART- A

S.NO	**QUESTIONS**	**BT LEVEL**	**COMPETENCE**
1.	Define Inventory Management.	Level 1	Remembering
2.	Classify Inventory on the basis of elements and purpose.	Level 2	Understanding
3.	Identify the various facts in Economic Ordering Quantity.	Level 3	Applying
4.	List the objectives of purchasing.	Level 1	Remembering
5.	What do you think about “Inventory position”?	Level 4	Analyze
6.	Identify the bottlenecks in material planning.	Level 3	Applying
7.	What do you mean by purchasing?	Level 1	Remembering
8.	What is meant by Mnemonic Code in materials management?	Level 2	Understanding
9.	Identify the recent trends in lean manufacturing.	Level 3	Applying

10.	Why do you think JIT is needed in manufacturing?	Level 1	Remembering
11.	Compile the various components of Inventory Carrying Cost.	Level 2	Understanding
12.	Identify the objectives of “Store Layout”.	Level 3	Applying
13.	List the types of stores.	Level 1	Remembering
14.	Define Value Analysis.	Level 4	Analyze
15.	How would you make use of FSN and ABC analysis?	Level 4	Analyze
16.	What is the relationship between the “push” and “pull” methods of material flow?	Level 2	Remembering
17.	Recognize the term Re-order point.	Level 6	Create
18.	Infer the meaning of Vendor rating.	Level 5	Evaluate
19.	Explain value analysis.	Level 1	Remembering
20.	Define JIT.	Level 5	Evaluate
21.	Give your opinion on the importance of Purchasing.	Level 5	Evaluate
22.	Compile the Value Analysis procedure.	Level 6	Create
23.	Define Purchasing.	Level 2	Understanding
24.	Summarize the objectives of store management.	Level 4	Analyze

PART- B				
S.NO	**QUESTIONS**		**BT LEVEL**	**COMPETENCE**
1.	What is the nature of inventory management? Discuss the importance of inventory control.	**(13)**	Level 1	Remembering
2.	Explain the classification of inventory.	**(13)**	Level 2	Understanding
3.	Identify the inventory control techniques and its applications.	**(13)**	Level 3	Applying
4.	What are the features in selective inventory control?	**(13)**	Level 1	Remembering
5.	Discuss the objectives purchasing?	**(13)**	Level 5	Evaluate
6.	Assess the importance of budgeting and control in inventory process.	**(13)**	Level 3	Applying
7.	Describe the procedure in purchasing.	**(13)**	Level 1	Remembering
8.	How would you summarize the policies in purchasing?	**(13)**	Level 2	Understanding
9.	Explain the VED, XYZ, HML Techniques of Selective Inventory Control.	**(13)**	Level 4	Analyze

10.	What are the different techniques involved in vendor rating? Elaborate in detail.	**(13)**	Level 1	Remembering
11	How would you analyze the different levels of stock in a company?	**(13)**	Level 2	Understanding
12.	Illustrate the elements and benefits of JIT with real world example.	**(13)**	Level 3	Applying
13.	Analyse the benefits and limitations of Just-in-Time methodology?	**(13)**	Level 4	Analyze
14.	What inference can you make in Store management? Can you list the objectives and procedure of Store Management?	**(13)**	Level 6	Creating
15.	Evaluate the functions of the Purchasing department and its importance in the context of a manufacturing organisation.	**(13)**	Level 5	Evaluate
16.	Examine the concept of stores management in detail.	**(13)**	Level 4	Analyze
17.	Explain the nature and layout of stores management.	**(13)**	Level 2	Understanding

PART - C			
S.NO	**QUESTIONS**	**BT LEVEL**	**COMPETENCE**
1.	As a purchase manager of Chozhan Group of companies, what factors do you consider evaluating the Suppliers?	Level 6	Creating
2.	Assume you are a storekeeper of a textile unit. What are your roles and responsibilities?	Level 5	Evaluating
3.	Conclude your understanding about the criteria for evaluation of vendor rating.	Level 6	Creating
4.	Discuss the factors to be considered while classifying and coding of materials in stores.	Level 5	Analysing
5.	Can you give a detailed outline of the elements of JIT?	Level 5	Evaluating

UNIT V – SCHEDULING AND PROJECT MANAGEMENT

Project Management – Nature, Constraints in Projects, Project Life Cycle – Scheduling Techniques, PERT, CPM; Scheduling – Process, Techniques, shop floor control – Flow shop scheduling – Johnson's Algorithm – Gantt charts – Personnel scheduling in services.			
PART – A			
Q.No	**Questions**	**BT Level**	**Competence**
1.	Define project.	Level 2	Understanding
2.	Compare forward scheduling and backward scheduling.	Level 1	Remembering
3.	Identify the purpose of PERT?	Level 3	Applying
4.	List the objectives of project management.	Level 4	Analyzing
5.	Construct the estimate expected time in PERT network.	Level 1	Remembering
6.	Write down the tasks that project team must perform before the project begins.	Level 2	Analyzing
7.	What is PERT?	Level1	Remembering
8.	How would you compare CPM and PERT?	Level 5	Creating
9.	Construct the meaning of Gantt Chart.	Level 5	Creating
10.	What inference can you make of Zero Total Float?	Level1	Remembering
11.	Discuss any two principles of Work Center Scheduling.	Level 2	Evaluating
12.	How would you determine the concept of Personnel Scheduling in services?	Level 2	Understanding
13.	Explain Shop floor control.	Level 6	Evaluating
14.	What is meant by technical feasibility?	Level 6	Evaluating
15.	Discuss the Project Management Triangle	Level 3	Applying
16.	What are the ways of scheduling work centers?	Level 3	Applying
17.	Define Johnson's rule.	Level 4	Analyzing
18.	What is the main idea of Slack?	Level 5	Creating
19.	How would you describe the Load leveling?	Level 1	Remembering
20.	Define the term critical path method (CPM).	Level 3	Applying
21.	Compile the objectives of scheduling.	Level 5	Creating
22.	Outline the benefits of CPM.	Level 2	Understanding
23.	Summarize the objectives of PERT.	Level 4	Analyzing
24.	Define project management.	Level 4	Analyzing

PART- B

<table>
<tr><th>S.NO</th><th>QUESTIONS</th><th></th><th>BT LEVEL</th><th>COMPETENCE</th></tr>
<tr><td>1.</td><td>Can you elaborate the project management process?</td><td>(13)</td><td>Level 5</td><td>Evaluating</td></tr>
<tr><td>2.</td><td>Demonstrate the features and constraints in Project Management.</td><td>(13)</td><td>Level 2</td><td>Understanding</td></tr>
<tr><td>3.</td><td>Identify the techniques you would use to explain in scheduling.</td><td>(13)</td><td>Level 3</td><td>Applying</td></tr>
<tr><td>4.</td><td>How do you classify the steps in PERT?</td><td>(13)</td><td>Level 1</td><td>Remembering</td></tr>
<tr><td>5.</td><td>Explain the tools and functions of Shopfloor Control?</td><td>(13)</td><td>Level 2</td><td>Understanding</td></tr>
<tr><td>6.</td><td>Elaborate the project management tools.</td><td>(13)</td><td>Level 3</td><td>Applying</td></tr>
<tr><td>7.</td><td>A project consisting of 8 activities has the following characteristics:
<table>
<tr><th rowspan="2">Activity</th><th rowspan="2">Preceding Activity</th><th colspan="3">Time Estimates (in Weeks)</th></tr>
<tr><th>Most Optimistic</th><th>Most Likely</th><th>Most Pessimistic</th></tr>
<tr><td>A</td><td>-</td><td>2</td><td>4</td><td>12</td></tr>
<tr><td>B</td><td>-</td><td>10</td><td>12</td><td>26</td></tr>
<tr><td>C</td><td>A</td><td>8</td><td>9</td><td>10</td></tr>
<tr><td>D</td><td>A</td><td>10</td><td>15</td><td>20</td></tr>
<tr><td>E</td><td>A</td><td>7</td><td>7.5</td><td>11</td></tr>
<tr><td>F</td><td>B,C</td><td>9</td><td>9</td><td>9</td></tr>
<tr><td>G</td><td>D</td><td>3</td><td>3.5</td><td>7</td></tr>
<tr><td>H</td><td>E,F.G</td><td>5</td><td>5</td><td>5</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
</table>
(i) Draw the PERT Network for the project.
(ii) Determine the Critical Path.</td><td>(13)</td><td>Level 5</td><td>Evaluating</td></tr>
<tr><td>8.</td><td>Classify your view about Scheduling of Work Centers.</td><td>(13)</td><td>Level 2</td><td>Understanding</td></tr>
<tr><td>9.</td><td>The following table gives the activities in a Production project and other information:
<table>
<tr><th>Activity</th><th>Optimistic Time a</th><th>Normal Time m</th><th>Pessimistic Time b</th></tr>
<tr><td>1-2</td><td>30</td><td>44</td><td>54</td></tr>
<tr><td>1-3</td><td>8</td><td>12</td><td>16</td></tr>
<tr><td>2-3</td><td>1</td><td>2</td><td>3</td></tr>
<tr><td>2-4</td><td>2</td><td>3</td><td>5</td></tr>
<tr><td>3-4</td><td>8</td><td>10</td><td>12</td></tr>
<tr><td>4-5</td><td>14</td><td>22</td><td>25</td></tr>
</table>
i) Draw a PERT Diagram.
ii) Find the probability that the project will be completed in less than 60 days.</td><td>(13)</td><td>Level 1</td><td>Remembering</td></tr>
<tr><td>10.</td><td>Describe the priority rules for job sequencing?</td><td>(13)</td><td>Level 1</td><td>Remembering</td></tr>
<tr><td>11.</td><td>How would you describe the different types of Gantt Chart?</td><td>(13)</td><td>Level 6</td><td>Creating</td></tr>
</table>

12.	Describe personnel scheduling in services by two ways?	**(13)**	Level 4	Analyze
13.	What is the relationship between PERT and CPM?	**(13)**	Level 1	Remembering
14.	Describe how to calculate a) Earliest Finish and Latest Finish Time b) Earliest Start and Latest Start Time	**(13)**	Level 2	Understanding
15.	Examine the material flow system and patterns in facility layout and give their characteristics.	**(13)**	Level 3	Applying
16.	Examine the concept of sequencing in detail.	**(13)**	Level 4	Analysing
17.	Summarize the Gantt Charts in detail.	**(13)**	Level 4	Analysing

PART - C

S.NO	QUESTIONS	BT LEVEL	COMPETENCE
1.	Given the following information about a Project, you are required to calculate: 1) Find the Total Float for each activity. 2) Critical Path of the project and its duration **Activity** / **Duration** / **Activity** / **Duration** 1-2 / 2 / 4-6 / 8 1-3 / 2 / 5-8 / 4 1-4 / 1 / 6-9 / 3 2-5 / 4 / 7-8 / 3 3-6 / 1 / 8-9 / 3 3-7 / 5	Level 6	Creating
2.	Elaborate the Johnson's Rule for optimal sequence of 'n' jobs on 2 machines with an example.	Level 5	Evaluating
3.	Explain the following terms: i) Active Schedule ii) Semi-active Schedule iii) Non-delay Schedule iv) Gantt Chart	Level 6	Creating
4.	A small project consists of seven activities for which the relevant data are given below: Activity / Preceding Activity / Activity Duration (Days) A / - / 4 B / A / 7 C / - / 6	Level 5	Evaluating

	<table><tr><td>D</td><td>C</td><td>5</td></tr><tr><td>E</td><td>B</td><td>7</td></tr><tr><td>F</td><td>D,E</td><td>6</td></tr><tr><td>G</td><td>F</td><td>5</td></tr></table> i) Draw the network and find the project completion time. ii) Calculate total float for each activity.		
5.	Elaborate the importance of project management.	Level 5	Evaluating