Unit-1

Part-A

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| **Q.No** | **Questions** | **CO’s** | **Bloom’s Level** |
| **1.** | What are the objectives and benefits of planning and control- | CO1 | K1 |
| **2.** | What is production? | CO1 | K1 |
| **3** | Define Production Planning and Control | CO1 | K1 |
| **4** | What are the functions of production planning and control? | CO1 | K1 |
| **5** | What are the types of production? | CO1 | K1 |
| **6** | What are the two types of continuous production? | CO1 | K1 |
| **7** | What are the various aspect of product? | CO1 | K1 |
| **8** | List the various factors that influence the product design. | CO1 | K1 |
| **9** | Define – Durability | CO1 | K1 |
| **10** | Define – Dependability | CO1 | K1 |
| **11** | What is specialization? | CO1 | K1 |
| **12** | Write a note on Economics of new design. | CO1 | K1 |
| **13** | What is margin of safety? | CO1 | K2 |
| **14** | What are the phases of PPC? | CO1 | K1 |
| **15** | What is the use of break-even point analysis? | CO1 | K1 |

Part-B

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| **Q.No** | Questions | **CO’s** | **Bloom’s Level** |
| **1** | Discuss in detail:  i) Breakeven Analysis ii) Samuel Eilon model | CO1 | K2 |
| **2** | Explain the detailed notes on:  i) Standardisation ii) Simplification iii) Specialisation | CO1 | K2 |
| **3** | A manufacturer sells an item for Rs. 13 per unit. He incurs a fixed cost of Rs. 60,000 and a variable cost of Rs. 8 unit. Find the break even production quantity and also the no. of units to be produced to get a profit of Rs. 12000. | CO1 | K2 |
| **4** | Explain in detail the production aspects of product design | CO1 | K2 |
| **5** | Differentiate between product design and product development and explain detailly | CO1 | K2 |
| **6** | Explain different types of production systems. Differentiate between them. | CO1 | K2 |
| **7** | Explain the detailed account of the various factors considered while designing a product. | CO1 | K2 |

Part-C

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| --- | --- | --- | --- |
| **Q.No** | Questions | **CO’s** | **Bloom’s Level** |
| **1** | Discuss in detail:  i) Breakeven Analysis ii) Samuel Eilon model | CO1 | K2 |
| **2** | Explain the detailed notes on:  i) Standardisation ii) Simplification iii) Specialisation | CO1 | K2 |
| **3** | A manufacturer sells an item for Rs. 13 per unit. He incurs a fixed cost of Rs. 60,000 and a variable cost of Rs. 8 unit. Find the break even production quantity and also the no. of units to be produced to get a profit of Rs. 12000. | CO1 | K2 |
| **4** | Explain in detail the production aspects of product design | CO1 | K2 |
| **5** | Differentiate between product design and product development and explain detailly | CO1 | K2 |
| **6** | Explain different types of production systems. Differentiate between them. | CO1 | K2 |
| **7** | Explain the detailed account of the various factors considered while designing a product. | CO1 | K2 |

Unit-2

Part-A

|  |  |  |  |
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| **Q.No** | **Questions** | **CO’s** | **Bloom’s Level** |
| **1** | Define method study? | CO2 | K1 |
| **2** | What are the objectives of method study? | CO2 | K1 |
| **3** | What is time study? | CO2 | K1 |
| **4** | What is work sampling? | CO2 | K1 |
| **5** | Explain the outline process chart? | CO2 | K1 |
| **6** | Define – Outline Process Chart | CO2 | K1 |
| **7** | What is multiple activity chart? | CO2 | K1 |
| **8** | What is the various procedure of method study? | CO2 | K1 |
| **9** | What is Simo chart? | CO2 | K1 |
| **10** | Briefly explain the different tools and techniques used in the recording phase of method study | CO2 | K2 |
| **11** | What is called micro motion study? | CO2 | K2 |
| **12** | What is chronocycle graph? | CO2 | K2 |
| **13** | What are therbligs? | CO2 | K1 |
| **14** | What is memo motion study? | CO2 | K1 |
| **15** | What is string diagram? | CO2 | K1 |

Part-B

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| **Q.No** | Questions | **CO’s** | **Bloom’s Level** |
| **1** | Discuss two types of each of the charts and diagrams used in the recoding phase of the method study. | CO2 | K2 |
| **2** | Explain in brief the steps involved in conducting the method study procedure. | CO2 | K2 |
| **3** | Explain the short notes on:  a) Micro motion study b) Memo motion study | CO2 | K2 |
| **4** | Explain briefly the various steps involved in conducting the work study. | CO2 | K2 |
| **5** | Discuss the various steps involved in conducting a stopwatch time study. | CO2 | K2 |
| **6** | Explain the procedural steps involved in the work sampling study and illustrate how work sampling is used for the computation of standard time for an operation which involves both manual and machine elements. | CO2 | K2 |
| **7** | Explain the principles of motion economy as applied to the use of human body, arrangement of workplace and design of tools and equipment. | CO2 | K2 |
| **8** | Illustrate about the work measurement. Explain the various techniques used for work measurements | CO2 | K2 |

Part-C

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| --- | --- | --- | --- |
| **Q.No** | Questions | **CO’s** | **Bloom’s Level** |
| **1** | Discuss two types of each of the charts and diagrams used in the recoding phase of the method study. | CO2 | K2 |
| **2** | Explain in brief the steps involved in conducting the method study procedure. | CO2 | K2 |
| **3** | Explain the short notes on:  a) Micro motion study b) Memo motion study | CO2 | K2 |
| **4** | Explain briefly the various steps involved in conducting the work study. | CO2 | K2 |
| **5** | Discuss the various steps involved in conducting a stopwatch time study. | CO2 | K2 |
| **6** | Explain the procedural steps involved in the work sampling study and illustrate how work sampling is used for the computation of standard time for an operation which involves both manual and machine elements. | CO2 | K2 |
| **7** | Explain the principles of motion economy as applied to the use of human body, arrangement of workplace and design of tools and equipment. | CO2 | K2 |
| **8** | Illustrate about the work measurement. Explain the various techniques used for work measurements | CO2 | K2 |

Unit-3  
Part-A

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| **Q.No** | **Questions** | **CO’s** | **Bloom’s Level** |
| **1** | What are the factors affecting production planning? | CO3 | K1 |
| **2** | Compare and contrast the manual process planning with CAPP. b. Explain the steps involved in product planning. | CO3 | K2 |
| **3** | Define – Machine Loading | CO3 | K1 |
| **4** | When to apply value analysis? | CO3 | K2 |
| **6** | What are the steps in process planning? | CO3 | K1 |
| **7** | What are the purposes of process planning? | CO3 | K1 |
| **8** | What are the factors used for selection of machine and equipment? | CO3 | K1 |
| **9** | What is the function of CAPP? | CO3 | K1 |
| **10** | Explain the various phases of value engineering. | CO3 | K2 |
| **11** | What is the information required for process planning? | CO3 | K1 |
| **12** | How the process selection is determined? | CO3 | K1 |
| **13** | Write short notes on analysis of process capabilities in a multi-product system. | CO3 | K1 |
| **14** | Explain the Quantity determination in batch production | CO3 | K2 |
| **15** | What are the criteria for the selection of batch size? | CO3 | K1 |

Part-B

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| **Q.No** | **Questions** | **CO’s** | **Bloom’s Level** |
| **1** | A gear manufacturer has gear shaper and gear hobbers. The gear can be processed on gear shaper as well as gear hobber. The following is given. Which of the two machines will you choose to do the job if the order quantity is (i) 1000 numbers and order is unlikely to repeat and (ii) 1000 numbers and the order is likely to repeat for 3 years?   |  |  |  |  | | --- | --- | --- | --- | | Gear shaper | Gear hobber |  |  | | Machine time per piece (min) | | 12 | 04 | | Machine cost per hour | | 45 | 120 | | Set up time (min) |  | 60 | 90 | | Tooling up cost (Rs) | | 400 | 200 | | CO3 | K2 |
| **2** | Summarize about the product planning? Explain, in detail, the various steps involved in the product planning process. | CO3 | K2 |
| **3** | Explain the importance of process planning with reference to production control. Discuss the activities in process planning. | CO3 | K2 |
| **4** | Explain briefly about the value analysis? Describe the basic steps involved in the value analysis. | CO3 | K2 |
| **5** | Discuss about the machine loading? Also enumerate the various methods to the cycle time to a minimum. | CO3 | K2 |
| **6** | Explain about the machine balancing? Also explain the effect of balancing on number of machines required with an illustration. | CO3 | K2 |
| **7** | Discuss short notes on analysis of process capacities in a multiproduct system | CO3 | K2 |
| **8** | Explain short notes on:   * + 1. Quantity determination in batch production     2. Analysis of process capability in a multi-product system. | CO3 | K2 |

Part-C

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| **Q.No** | Questions | **CO’s** | **Bloom’s Level** |
| **1** | Discuss two types of each of the charts and diagrams used in the recoding phase of the method study. | CO2 | K2 |
| **2** | Explain in brief the steps involved in conducting the method study procedure. | CO2 | K2 |
| **3** | Explain the short notes on:  a) Micro motion study b) Memo motion study | CO2 | K2 |
| **4** | Explain briefly the various steps involved in conducting the work study. | CO2 | K2 |
| **5** | Discuss the various steps involved in conducting a stopwatch time study. | CO2 | K2 |
| **6** | Explain the procedural steps involved in the work sampling study and illustrate how work sampling is used for the computation of standard time for an operation which involves both manual and machine elements. | CO2 | K2 |
| **7** | Explain the principles of motion economy as applied to the use of human body, arrangement of workplace and design of tools and equipment. | CO2 | K2 |
| **8** | Illustrate about the work measurement. Explain the various techniques used for work measurements | CO2 | K2 |

Unit-4  
Part-A

|  |  |  |  |
| --- | --- | --- | --- |
| **Q.No** | **Questions** | **CO’s** | **Bloom’s Level** |
| **1** | What is production sequencing? | CO4 | K1 |
| **2.** | Define loading? | CO4 | K1 |
| **3** | Describe about the scheduling? | CO4 | K2 |
| **4** | What are the advantages of master scheduling? | CO4 | K1 |
| **5** | Compare techniques of loading and scheduling? | CO4 | K2 |
| **6** | What is master scheduling? | CO4 | K1 |
| **7** | Describe the information flow for master scheduling. | CO4 | K2 |
| **8** | What are the advantages of Gantt load chart? | CO4 | K1 |
| **9** | What is Gantt chart? | CO4 | K1 |
| **10** | What is Gantt Work load chart? | CO4 | K1 |
| **11** | List the steps in solving line balancing problems? | CO4 | K2 |
| **12** | Define kanban system? | CO4 | K1 |
| **13** | Explain the priority rules used for job sequencing. | CO4 | K2 |
| **14** | Define – Capacity | CO4 | K1 |

Part-B

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| --- | --- | --- | --- |
| **Q.No** | **Questions** | **CO’s** | **Bloom’s Level** |
| **1** | Explain briefly about the functions of dispatching? Explain the various documents raised by dispatching department. | CO4 | K2 |
| **2** | Discuss the concepts, inputs, characteristics, working, outputs, and benefits of MRP. | CO4 | K2 |
| **3** | Explain the common methods adopted in industries for progress reporting. | CO4 | K2 |
| **4** | Explain the various techniques adopted for aligning completion time and due dates. | CO4 | K2 |
| **5** | Discuss the scheduling approaches followed in job and flow shops along with their merits and demerits | CO4 | K2 |
| **6** | Discuss in detail about the various factors that affect scheduling. Explain any one technique used in loading and scheduling process. | CO4 | K2 |
| **7** | Explain about the common causes for delay? How can they be avoided and types. | CO4 | K2 |
| **8** | 1. Summarize about the product control systems? Explain, in detail, the various steps involved in the product control systems process. | CO4 | K2 |

Part-C

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| --- | --- | --- | --- |
| **Q.No** | Questions | **CO’s** | **Bloom’s Level** |
| **1** | Discuss two types of each of the charts and diagrams used in the recoding phase of the method study. | CO2 | K2 |
| **2** | Explain in brief the steps involved in conducting the method study procedure. | CO2 | K2 |
| **3** | Explain the short notes on:  a) Micro motion study b) Memo motion study | CO2 | K2 |
| **4** | Explain briefly the various steps involved in conducting the work study. | CO2 | K2 |
| **5** | Discuss the various steps involved in conducting a stopwatch time study. | CO2 | K2 |
| **6** | Explain the procedural steps involved in the work sampling study and illustrate how work sampling is used for the computation of standard time for an operation which involves both manual and machine elements. | CO2 | K2 |
| **7** | Explain the principles of motion economy as applied to the use of human body, arrangement of workplace and design of tools and equipment. | CO2 | K2 |
| **8** | Illustrate about the work measurement. Explain the various techniques used for work measurements | CO2 | K2 |

Unit-5  
Part-A

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| **Q.No** | **Questions** | **CO’s** | **Bloom’s Level** |
| **1** | List the types of inventories? | CO5 | K1 |
| **2.** | What are the benefits of inventory control? | CO5 | K1 |
| **3** | What are the various costs associated with inventory? | CO5 | K1 |
| **4** | What is inventory control? | CO5 | K1 |
| **5** | Distinguish between in-process inventory, safety stock inventory and seasonal inventory |  |  |
| **6** | Define – Re-order level | CO5 | K2 |
| **7** | What is holding (Or) inventory carrying costs? | CO5 | K1 |
| **8** | Describe the fixed period quantity inventory model? Also compare and contrast P-system with Q- System. | CO5 | K1 |
| **9** | Explain the various costs associated with the inventory control with suitable examples. | CO5 | K2 |
| **10** | Define – Order Cycle | CO5 | K2 |
| **11** | What is an Economic order quantity? | CO5 | K1 |
| **12** | What are the advantages of ABC analysis? | CO5 | K1 |
| **13** | Define lead time | CO5 | K1 |
| **14** | What is Re-order point (Or reorder level)? | CO6 | K1 |

Part-B

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| **Q.No** | **Questions** | **CO’s** | **Bloom’s Level** |
| **1** | A manufacturer has to supply his customers 3600 units of his product per year. Shortages are not permitted. Inventory carrying cost amounts Rs. 12 per uit per annum. The set up cost per run is Rs. 80. Find (i) Economic order quantity (ii) Optimum number of orders per annum (iii) Average annual inventory cost (iv) Optimum period of supply per optimum order. | CO5 | K2 |
| **2** | Explain detailed about the ABC analysis? Explain its significance in the inventory control with suitable example. | CO5 | K2 |
| **3** | Explain about the EOQ? Derive the expression for EOQ when the demand of the item is uniform, the production rate is infinite and no stock-outs are allowed. | CO5 | K2 |
| **4** | Explain the terms: lead time, stock out, buffer stock, inventory carrying cost. | CO6 | K2 |
| **5** | Discuss in detail about the P and Q systems of inventory replenishment along with their merits and demerits. | CO6 | K2 |
| **6** | Discuss in detail: a) JIT b) ERP | CO6 | K2 |
| **7** | Explain detailed about the JIT? Explain its significance in the JIT with suitable example and application | CO6 | K2 |
| **8** | Explain short notes on  (i) ABC analysis  (ii) Computer integrated production planning systems   * + 1. Manufacturing resource planning (iv) Enterprise resource planning. | CO6 | K2 |

Part-C

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| **Q.No** | Questions | **CO’s** | **Bloom’s Level** |
| **1** | Discuss two types of each of the charts and diagrams used in the recoding phase of the method study. | CO2 | K2 |
| **2** | Explain in brief the steps involved in conducting the method study procedure. | CO2 | K2 |
| **3** | Explain the short notes on:  a) Micro motion study b) Memo motion study | CO2 | K2 |
| **4** | Explain briefly the various steps involved in conducting the work study. | CO2 | K2 |
| **5** | Discuss the various steps involved in conducting a stopwatch time study. | CO2 | K2 |
| **6** | Explain the procedural steps involved in the work sampling study and illustrate how work sampling is used for the computation of standard time for an operation which involves both manual and machine elements. | CO2 | K2 |
| **7** | Explain the principles of motion economy as applied to the use of human body, arrangement of workplace and design of tools and equipment. | CO2 | K2 |
| **8** | Illustrate about the work measurement. Explain the various techniques used for work measurements | CO2 | K2 |