Q.5 i. Explain ABC analysis in detail. **4**

ii. Find the sequence that minimises the total time required in performing the following jobs on two machines in the order AB. Processing times (in hours) are given in the following table 1: **6**

Table 1

	1	2	3	4	5
Machine A	8	10	6	7	11
Machine B	5	6	2	3	4

OR iii. Explain various methods of line balancing. **6**

Q.6 Attempt any two:

i. Write short notes on: **5**

(a) Micro motion (b) Memo motion study

ii. Explain briefly following work measurement techniques: **5**

(a) Time study

(b) Predetermined motion time standard

iii. Explain information recording techniques commonly utilized in industries. **5**

******

Total No. of Questions: 6 *Total No. of Printed Pages:4*

Enrollment No.....

Faculty of Engineering

End Sem Examination Dec-2023

ME3EL18 Production Planning & Control

Programme: B.Tech. Branch/Specialisation: ME

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1 i. Objective(s) of production planning: **1**

(a) Optimize resources

(b) Scheduling of resources to meet production demand

(c) Both (a) and (b)

(d) None of these

ii. Standardization of product means **1**

(a) Same dimensions, fits and tolerance

(b) Interchangeable

(c) Appropriate service and delivery

(d) All of these

iii. Which of the following is a factor of facility decision? **1**

(a) Regional Factor (b) Community factor

(c) Both (a) and (b) (d) None of these

iv. Manufacturing lead time: **1**

(a) The time it takes to produce a product

(b) The time it takes to produce a service

(c) The time duration from the start of the manufacturing process to the point where the product or service is ready for delivery.

(d) All of these

v. Which of the following is not true for forecasting? **1**

(a) Forecasts are rarely perfect

(b) The underlying casual system will remain same in the future

(c) Forecast for group of items is accurate than individual item

(d) Short range forecasts are less accurate than long range forecasts

vi. Simple linear regression method of forcasting is/are for: **1**
(a) Constant growth rate
(b) Repeated forecast
(c) Compare one independent with one dependent variable
(d) All of these

vii. Select most appropriate statement for routing in production: **1**
(a) The process of selecting the sequence of operations to be executed in the manufacturing process.
(b) The process of operations in the manufacturing process including inspection and packing.
(c) The process of management of resources
(d) The process of selecting manpower and machines

viii. Gantt chart is applicable to: **1**
(a) Time study (b) Production scheduling
(c) Forecasting (d) Motion study

ix. Work sampling is applied for: **1**
(a) Estimate the percentage utilization of machines
(b) Estimate the percentage time consumed by various job activities
(c) Finding out the standard time
(d) All of these

x. Standard time is equal to: **1**
(a) Normal time - allowances
(b) Normal time + allowances
(c) Representative time x rating factor
(d) Normal time taken by an operator

Q.2 i. Elaborate the benefits of production control. **2**

ii. Differentiate between specialization and simplification. **3**

iii. Discuss different types of production systems and its inherent characteristics. **5**

OR iv. Explain in detail the various aspects of product development and design. **5**

Q.3 i. What do you mean by facilities planning? **2**

ii. Discuss different approaches of process planning in detail. **8**

OR iii. From the following particulars calculate: **8**
(a) Break-even point in terms of sales values and units.

(b) Number of units must be sold to earn a profit of Rs.90,000

Particulates	**Rs.**
Fixed factory overheads cost	60000
Fixed selling overheads cost	12000
Variable manufacturing cost per unit	12
Variable selling cost per unit	3
Selling price per unit	24

Q.4 i. What is Delphi method? Describe its main advantages and limitations. **4**

ii. Describe the main advantages and limitations of survey data. **6**

OR iii. The Instant Paper Clip Office Supply Company sells and delivers office supplies to companies, schools, and agencies within a 50-mile radius of its warehouse. The office supply business is competitive, and the ability to deliver orders promptly is a big factor in getting new customers and maintaining old ones. (Offices typically order not when they run low on supplies, but when they completely run out. As a result, they need their orders immediately.) The manager of the company wants to be certain that enough drivers and vehicles are available to deliver orders promptly and that they have adequate inventory in stock. Therefore, the manager wants to be able to forecast the demand for deliveries during the next month. From the records of previous orders, management has accumulated the following data for the past 10 months: **6**

Month	Jan.	Feb	Mar.	Apr	May	June	Jul.	Aug.	Sep.	Oct.
Orders	120	90	100	75	110	50	75	130	110	90

(a) Compute the monthly demand forecast for February through November using the naive method.
(b) Compute the monthly demand forecast for April through November using a 3-month moving average.
(c) Compute the monthly demand forecast for June through November using a 5-month moving average.
(d) Compute the monthly demand forecast for April through November using a 3-month weighted moving average. Use weights of 0.5, 0.33, and 0.17, with the heavier weights on the more recent months.
(e) Which method would you use to forecast demand for November?