2025

BUSINESS ADMINISTRATION — HONOURS

Paper : BBAA-403-CC7

(Production and Operations Management)

Full Marks : 75

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Group - A

(Marks : 20)

1. Answer ***any ten*** questions : 2×10

(a) What is MTBF?

(b) Is there any difference between Job Scheduling and Job Sequencing?

(c) State the basic feature of Job-shop type of production.

(d) Define 'Statistical Quality Control'.

(e) What is meant by Order Winning Attributes?

(f) Name different quantitative measures of Forecasting.

(g) State, with reason, the type of production for which the product layout is suitable.

(h) What is termed as 'Reneging' in queuing system?

(i) In dual card Kanban Production control system, what is P-Kanban?

(j) How 'Critical Ratio' is computed in priority decision of job scheduling?

(k) What is the Decision node of a Decision tree?

(l) Which of the following is an example of a product that has highest percentage of service in it?

(i) Automobile

(ii) Hospital care

(iii) Meal at restaurant

(iv) Transportation.

(m) What is Gantt Chart?

(n) What is 'Balance Efficiency' in assembly line balancing?

(o) Write the control limits for Number of Defects chart.

Group - B

(Marks : 25)

2. Answer ***any five*** questions : 5×5

(a) A daily sample of 30 items was taken over a period of 14 days in order to establish control limits for attributes. If 21 defectives were found, what should be the upper and lower control limits of fraction defectives?

(b) Elucidate Flexible Manufacturing System.

(c) State the benefits of a good Plant Layout.

(d) The following information is given regarding demand of a product for six-month period. Applying 3-month weighted moving average with the weights of 0.5, 0.4, 0.1 (for most recent to past value respectively), find out the forecast demand for the 7th month.

Time (month) :	1	2	3	4	5	6
Demand (Units) :	110	120	130	140	120	130

(e) Explain Bath-tub curve in failure.

(f) Describe different Aggregate Planning Strategies.

(g) Briefly state the key factors of Weber's theory for plant location.

(h) Define Lean Production and state its basic objectives.

Group - C

(Marks : 30)

3. Answer ***any three*** questions :

(a) Use the method of exponential smoothing, find forecasts for the following sales data, taking an initial forecast 25 and smothing coefficient 0.4. 10

Day	1	2	3	4	5	6	7	8
Sales	26	28	23	27	24	30	26	27

(b) (i) Explain any two qualitative approaches of forecasting.

(ii) Customers arrive at a sales counter manned by a single person with mean rate of 20 per hour following Poisson distribution. The time required to serve a customer has an exponential distribution with mean of 100 seconds. Find the average waiting time of a customer in the queue and also in the system. 4+6

(c) Explain different types of Production Process with their applications, merits and demerits. 10

(d) (i) Six jobs are processed first in machine I and then in machine II. Processing times in hours are given below. Find the optimal sequence in which jobs are to be processed.

Job	A	B	C	D	E	F
Machine I	5	9	4	7	8	6
Machine II	7	4	8	3	9	5

(ii) What is Production management? State its application in manufacturing as well as in service sectors, with examples, stating the Input, Resource used, Output and Nature of conversion. 4+6

(e) (i) Define MAD as applied to measure forecast error.

(ii) A manager of a company has a choice between (A) A risky contract promising ₹ 7.00 lakh with probability 0.6 and ₹ 4.00 lakh with probability 0.4 and (B) A diversified portfolio consisting of two contracts with independent outcomes each promising ₹ 3.50 lakh with probability 0.6 and ₹ 2.00 lakh with probability 0.4. Construct a Decision Tree and arrive at a decision using EMV criteria. 4+6
