

[Total No. of Questions - 9] [Total No. of Printed Pages - 4]
(2064)

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B. Tech 6th Semester Examination

Industrial Engineering

ME-6005

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions with minimum of one question from each section. Question 9 is compulsory.

SECTION - A

1. (a) Define Organization. What do you mean by (i) Line and staff (ii) functional and (iii) Project organization? Draw organization chart for large enterprises.
(b) State importance of organization chart. Enlist various organizational design principles and explain any five.
(10+10=20)
2. (a) Explain Labour compensation. Is profit sharing an effective incentive?
(b) What are financial and non-financial incentives? Explain British and American bonus systems. (10+10=20)

SECTION - B

3. (a) State importance of standardization, simplification and diversification aspects in product design with examples.
(b) Explain the role of CSIR in promotion of research in India. What are other research organizations in India?
(10+10=20)

14698/1700

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4. (a) State the importance of limits, fits and tolerances in design. What are their various types? Provide neat sketches.
- (b) State the importance of standards? Explain the activities being undertaken by BIS? Discuss the role of BIS in promotion of standards. (10+10=20)

SECTION - C

5. (a) State the objectives of PPC. Provide a figure which shows PPC Cycle. Bring out difference between Production planning and Production control phase.
- (b) Define production control. State importance of production control charts. What are progress charts? How route sheet is different from operations or process sheet ? Give example. (10+10=20)
6. (a) Compare (in tabular form) some important characteristics of Job order, batch and Continuous types of production systems. Provide volume- variety relationship sketch comparing these systems.
- (b) Bring out difference between control charts for attributes and control charts for variables. Also differentiate between sampling inspection and 100% inspection. (10+10=20)

SECTION - D

7. (a) Differentiate between cyclegraph and chronocyclegraph. What are the different types of principles of motion study? Explain.
- (b) Write the procedure for ABC type of inventory control. The Table shows the bought-in-price and annual sales of the set of different types of garments which are held in stock by a wholesaler. The aim is to construct an ABC chart for these items and identify which items should be treated as classes A, B, and C.

3

14698

Item Type	A	B	C	D	E	F	G	H	I	J
Purchase price (\$)	8	18	30	25	3	4	18	7	12	26
Annual sales (items per year)	1250	450	75	10	280	80	45	250	150	30

(10+10=20)

8. (a) For a special component outsourced to a vendor and used in textile machinery manufactured by Orient Machine tools works at Coimbatore, we have the following situation

Yearly Demand 300,000 units

Purchase quantity 100,000 units

Safety Stock 50,000 units

The ordering cost independent of purchase quantity is Rs 1500 for each purchase. The purchase price of component is Rs 75/unit. Annual Holding cost is Rs 20% of the value of component (inv interest rate 20%). Assume 230 working days per year. Calculate

- (i) Average inventory level (including safety stock)
 - (ii) The number of purchases during a year
 - (iii) Inventory turnover
 - (iv) Reorder point if lead time 15 days
 - (v) Total Inventory Cost per year
 - (vi) Economic Order quantity
- (b) Explain the procedure of time study. Define standard time and give its applications. State various advantages of using PMTS systems over the ordinary time study.

(10+10=20)

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SECTION - E

9. Explain the questions in brief
- (a) What are the symbols which are used in flow process charts?
 - (b) Give qualities of good purchase officer.
 - (c) Define loading and scheduling in PPC.
 - (d) Write down the various types of symbols used in therbligs.
 - (e) What are various types of Inspection? Discuss.
 - (f) Enumerate the reasons for holding inventory in the light of its classical definition 'an idle resource'. Define EOQ.
 - (g) What are advantages and limitations of merit rating system?
 - (h) Draw the outline process chart for the followings for loading a job on machine.
 - (i) What is man-machine chart? How is it used to make a method analysis?
 - (j) Explain the importance of a travel chart in the design of plant layout. (2×10=20)