

Roll No. ....

**8537**

Printed Pages : 4

**BT-5 / D 12**  
**INDUSTRIAL ENGG.**  
**Paper-ME-307 E**

*Time allowed : 3 hours*

*[Maximum marks : 100*

*Note : Attempt five questions in all, selecting at least one question from each unit.*

**Unit-I**

1. (a) Describe the systematic procedure of work study explaining all steps.
- (b) Explain the various steps required to conduct method study. 20
2. (a) Define the terms :
  - (i) Performance rating
  - (ii) Normal time
  - (iii) Standard time
- (b) The total observed time for an operation i.e. assembling of an switch is 2-00 min. if the rating is 120% find normal time. If total allowances allowed are 10% for that job, determine the standard time. 20

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**Unit-II**

3. (a) What do you understand by the term organization structure ? Compare and contrast between line and functional type of organizations.
- (b) Give situations in which the following types of organizational structure would be recommended. Give reasons.
  - (i) Line
  - (ii) Functional
  - (iii) Line and staff 20
4. (a) What are the objectives of loading ? Explain the important techniques employed for loading and scheduling purposes. <http://www.kuonline.in>
- (b) "Dispatching really activates an Organization". Elaborate. 20

**Unit-III**

5. (a) Define sales forecasting. State the various sales promotion methods.
- (b) Find the quarterly sales for the fifth year, by suitable forecasting technique for the data given

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below (data of 4 years). Also make adjustment for expected seasonal variations.

Year	Quarter	Sales (1000 units)	year	Quarter	Sales (1000 units)
1.	1	1.0	3.	1	2.0
	2	3.0		2	4.0
	3	4.0		3	6.0
	4	2.0		4	3.0
2.	1	1.0	4.	1	2.0
	2	3.0		2	5.0
	3	5.0		3	7.0
	4	3.0		4	4.0

(c) From this data, determine the equation of the trend line. With this equation calculate the trend values of quarterly sales for the coming year i.e. 5<sup>th</sup> year and adjust these values to provide for expected seasonal variations. 20

- 6. (a) Explain ABC analysis used in inventory control.
- (b) The following data is available for a company where inventory model with planned shortage are valid.

Annual requirement = 2000 unit per year

Cost of unit = Rs. 50

Ordering/procurement cost = Rs. 25 per order

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- 8. Design and make a neat dimensioned sketch of a muff coupling which is used to connect two steel shafts transmitting 40 kW at 350 rpm. The material for the shafts and key is plain carbon steel for which allowable shear and crushing stresses may be taken as 40 MPa and 80 MPa. The material for the muff is cast Iron for which the allowable stress may be assumed as 15 MPa.

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