



T.E. (Mech.) (Semester – I) Examination, 2010
INDUSTRIAL ENGINEERING & MANAGEMENT
(2003 Course)

Time : 3 Hours

Max. Marks : 100

Instructions : 1) Answer **three** questions from Section **I** and **three** questions from Section **II**.

2) Answers to the **two** Sections should be written in **separate books**.

3) **Neat** diagrams must be drawn **wherever** necessary.

4) **Black** figures to the **right** indicate **full** marks.

5) Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is **allowed**.

6) Assume suitable data, **if** necessary.

SECTION – I

1. a) Define “Industrial Engineering” and state the importance of the same in the Indian Industry. **6**

b) State and explain various process chart symbols used for recording of an event in Method study. Draw a “Two hand process chart” for assembly of “Nut, bolt and two washers” by using process chart symbols. **6**

c) What do you mean by “Allowances” in Time study ? Explain various “Allowances” used in the Time study. Also explain with the help of bar diagram, the calculation of “Standard Time”. **6**

OR

2. a) Explain the various tools and techniques used in Industrial Engineering. **6**

b) Define ‘Method Study’ and explain the procedure of carrying the same. **6**



- c) The observed time and the performance ratings for the five elements of an event are given below. Calculate the standard time assuming personal allowance as 12% and contingency allowance as 2% of Basic time.

Element	1	2	3	4	5
Observed time (min)	0.3	1.5	1.2	2.5	0.3
Rating (%)	85	90	85	80	80

6

3. a) Define “Ergonomics”. Explain the scope and importance of the same in Industrial Engineering.

6

- b) Define “Anthropometry” and its use in the design.

6

- c) Explain the various types to displays used on the m/c.

4

OR

4. a) Explain the various ergonomic considerations in the design of a system.

6

- b) Explain any six guidelines for seat design for a computer operator’s chair.

6

- c) What do you mean by “Work Space”? Explain with a sketch the “maximum” and “normal” working area for a seated personnel.

4

5. a) Define “Productivity”. Explain the various techniques to improve the same.

6

- b) What do you mean by

- Line organization
- Functional organization and
- Line and staff organization.

State the merits and demerits of each one.

6

- c) Define “Leadership”. Explain any four qualities of a good leader.

4

OR

6. a) Define “Motivation” and explain the importance of the same in the organization.

6

- b) Explain in detail the management theory as proposed by F.W. Taylor.

6

- c) Explain four “Forms of Business Organization”.

4



SECTION – II

7. a) What do you understand by term 'financial planning'? State and explain various steps involved in financial planning. 8

b) Explain the following :

1) Investment centre

2) Dividend Decision.

8

OR

8. a) Explain the possible causes of material price variance and material usage variance in standard costing. What are remedial measures ? 8

b) State various investment evaluation techniques and explain any two of them. 8

9. a) Explain the term 'plant location'. Why the problem of plant location arises ? 8

b) Explain in brief the following :

1) Air distribution

2) Heating

3) Water and its treatment

4) Drainage

with reference to facility layout.

8

OR

10. a) List out the symptoms of bad material handling practices. Explain what factors are considered during selection of material handling system ? 8

b) Explain the various methods for evaluating location alternatives. 8

11. a) A hardware store procures and sells hardware items information on item is below :

Expected annual sale = 8000 units

Ordering cost = Rs. 180/- per order

Holding cost = 10% of average inventory cost.

The items can be purchased according to following schedule.

Lot size	Unit price (Rs.)
1-999	22=00
1000-1499	20=00
1500-1999	19=00
2000 and above	18=50

Determine the best order size.

6



b) Explain the following :

- 1) Aggregate planning
- 2) Master production schedule.

6

c) State and explain functions of material management.

6

OR

12. Write short note on the following (any three) :

18

- 1) MRP and MRP – II
- 2) EOQ
- 3) PPC
- 4) ABC
- 5) JIT.

OR

2) Heating
3) Water and its treatment
4) Drainage

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10. a) List out the symptoms of bad material handling practices. Explain what factors are considered during selection of material handling system. (2 marks)
b) Explain the various methods for evaluating location alternatives. (2 marks)

The items can be purchased according to following schedule:
Holding cost = 10% of average inventory cost per unit.
Ordering cost = Rs. 180/- per order.
Expected annual sale = 8000 units.

Lot size	Unit price (Rs.)
1000-1499	22-00
1500-1999	20-00
2000 and above	18-20

OR

Determine the best order size.