



**T.E. (Mechanical) (Semester – I) Examination, 2010**  
**INDUSTRIAL ENGINEERING AND MANAGEMENT**  
**(2003 Course)**

Time : 3 Hours

Max. Marks : 100

- Instructions :** i) *All questions are compulsory.*  
ii) *Options are given within a question.*  
iii) *Use separate answer sheet for each Section.*  
iv) *Draw neat diagrams wherever necessary.*  
v) *Assume suitable data, if necessary.*

**SECTION – I**

1. a) Explain the various techniques and tools used in industrial engineering. 8  
b) Explain the relation between method study and productivity of a factory. 6  
c) Write limitations of time study. 4

**OR**

- a) Compare method study and time study. 8  
b) Following data refers to the time study carried in a machine shop. If relaxation and contingency allowances are 15% and 3% of normal time respectively, calculate standard time of the operation. 6

Element	Observed Time (min)	Performance Rating (%)
1	1.29	85
2	2.13	90
3	0.18	80
4	3.57	95
5	2.97	85

- c) What are the criteria for qualified worker ? 4  
2. a) With the help of suitable examples explain the scope of Ergonomics. 8  
b) What is Man-machine system ? Explain its important characteristics. 8

**OR**



- a) Explain the significance of Anthropometry. How it is useful in workplace design ? 8
- b) Explain the relationship between Ergonomics and safety. 8
3. a) What is the necessity to calculate productivity of a certain production system ? How it is evaluated ? 8
- b) How Motivation will help to enhance the productivity of a company ? Explain Maslow's hierarchy of needs. 8

OR

- a) Explain the following concepts : 8
- i) Job Evaluation
- ii) Merit Rating
- b) Whether Management is an art or science ? Explain it with suitable justification. 8

#### SECTION – II

4. a) What is importance of standard costing ? How it is calculated ? 8
- b) Explain the following concepts : 8
- i) Budgetary control
- ii) Zero Based Budget (ZBB)

OR

- a) Explain the concept of variance analysis. What are various types of variances ? 8
- b) Explain the following terms : 8
- i) Transfer pricing
- ii) Responsibility accounting
5. a) Explain the importance of facility planning with reference to its elements like water, power, market, capital etc. 8
- b) Explain, "Material handling system is an important factor of an industry". 8

OR



- a) Explain the following layouts with their advantages and limitations : 8
- i) Line type layout
  - ii) Process type layout
- b) Explain the principles of plant layout with suitable examples. 8
6. a) Compare between MRP and JIT. 6
- b) What is selective inventory techniques ? Explain FSN analysis in brief. 6
- c) Discuss the important functions of production planning and control. 6

OR

- a) Explain in brief KANBAN production system. 6
- b) Discuss the importance of sales forecasting. Explain any one method of sales forecasting. 6
- c) A factory requires 12000 units per year. The cost of procurement and set-up is Rs. 80 and the cost of each unit is Rs. 6/-. If average inventory carrying cost is 15% of total inventory cost calculate :
- i) Economical Order Quantity (EOQ)
  - ii) Total cost of inventory
  - iii) Frequency of production run if production capacity is 60 units per day. 6