

4E4144

Roll No. \_\_\_\_\_

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**B. Tech. IV Sem. (Main) Exam., June/July-2014**  
**Mechanical Engg.**  
**4ME5 Industrial Engineering**  
**Common with AE**

**Time: 3 Hours**

**Maximum Marks: 80**

**Min. Passing Marks: 24**

**Instructions to Candidates:-**

*Attempt any five questions, selecting one question from each unit. All Questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

*Units of quantities used/ calculated must be stated clearly.*

*Use of following supporting material is permitted during examination.*

*(Mentioned in form No.205)*

1. \_\_\_\_\_

2. \_\_\_\_\_

**UNIT-I**

Q.1/(a) What contributions to the development of management has been made by:

(i) F. W. Taylor

(ii) H. L. Gantt

(iii) Henri Fayol

[4×3=12]

(b) Discuss briefly the functions of industrial engineering and the role it can play in raising industrial productivity. [4]

**OR**

- Q.1 (a) Write the basic procedure for carrying out work measurement. [6]
- (b) Following data refers to a work sampling study of a long cycle non repetitive operation.
- Total time of study = 10 days
- Total number of observations = 1200
- Observation of production activity = 900
- Manually controlled elements = 600
- M/C Controlled elements = 300
- Total units produced = 4000 pieces
- Rating index = 110%
- Observations of unavoidable delays = 100
- Assuming that study was made for 6 hrs per day and the industry is running for single shift of 8 hrs/day, calculate the standard time. [10]

## UNIT-II

- Q.2 (a) Explain functional organization with its merits, demerits showing organization chart. [8]
- (b) Give detail procedure at forming a joint stock company. [8]

### OR

- Q.2 (a) What is the difference between public limited company and private limited company? Explain. [8]
- (b) Discuss the line staff and committee type of organization. Give its utility in large scale industry. [8]

## UNIT-III

- Q.3 (a) Name the source of finance for raising fixed capital & describe any three of them in brief. [8]
- (b) Write short note on following:
- (i) Preference share
- (ii) Borrowed capital [4×2=8]

OR

Q.3 Write short note on following (any four)

(a) *Surplus profit*

(b) Profit and loss statement

(c) Liquidity ratios

(d) Leverage ratios

(e) Profitability ratios

(f) Invisibility ratios

[4×4=16]

UNIT-IV

- Q.4 (a) Machine A operated manually costs Rs. 2000 has a life of 4 years. While Automatic machine B costs Rs. 5000 and has a life of 4 years. Operating cost for machine A is Rs. 4000 per year, while of machine B is Rs. 3000 only. Which should be purchased? Consider 10% interest and use present worth method. [12]
- (b) Explain the concept of "Internal rate of return". [4]

OR

- Q.4 (a) Cost pattern for two machines A & B one shown below (cost in rupees at beginning of the year)

Year	Machine A	Machine B
1	1000	1500
2	600	100
3	900	900

If cost of money is 10% which machine is costly & by how much? [8]

- (b) Yearly outlay for machine 1, which is to be replaced every 3 years and for machine 2, which is to be replaced every 6 years are given below:

Year	Machine 1 (Rs)	Machine 2 (Rs)
1	1200	1800
2	200	100
3	400	200
4		300
5		400
6		500

If cost of money is 10%, which machine is advantageous & by how much? [8]

### UNIT-V

- Q.5 (a) What is the purpose of calculating depreciation? [8]
- (b) What are different methods of calculating depreciation? Explain any two in brief. [8]

### OR

- Q.5 (a) Define 'Break Even analysis', Explain following terms:
- (i) Contribution
  - (ii) Margin of safety
  - (iii) Angle of incidence
  - (iv) Profit volume ratio [10]
- Q.5 (b) What are the application, advantage and disadvantage of break even analysis? [6]