

4E4144

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B.Tech. IV Semester (Main/Back) Examination, June/July - 2015

Mechanical Engineering

4ME5 Industrial Engineering

Common with Automobile

Time : 3 Hours

Maximum Marks : 80
Min. Passing Marks : 26**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.

Unit - I

1. a) What is industrial engineering? Discuss the role of industrial engineer? (8)
- b) Discuss the contribution of following in the development of industrial management:
 - 1) F. B. Gilbreth
 - 2) H.L. Gannt (8)

OR

1. a) Discuss the concept of Productivity? How productivity can be measure and improve? (8)
- b) What is work study? Discuss the difference between method study and time study? (8)

Unit - II

2. a) Name the various techniques of work measurement and explain stop watch time study and work sampling in brief. (8)
- 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%;

Allowances = 13% of the normal time.

Assuming that study was made for 6 hrs per day, Calculate the standard time. (8)

OR

2. a) Name and describe the various levels of management with their functions. (6)
b) What is management and discuss the objective of management? Explain the principles of scientific management. (10)

Unit - III

3. a) Differentiate between proprietorship and partnership business. (8)
b) Differentiate between line organization and function organization. (8)

OR

3. a) Discuss the following sources of finance:
i) Debentures. (8)
ii) Equity shares.
b) Describe briefly:
i) Liabilities
ii) Assets
iii) Balance sheet
iv) Profit and loss statement. (8)

Unit - IV

4. Explain the following financial ratios with their significance:
a) Liquidity Ratio
b) Equity Ratio
c) Inventory Ratio
d) Profit-Investment Ratio. (16)

OR

4. a) Discuss the payback period? Discuss the advantage and disadvantage of payback period. (8)

b) The yearly cost of two machines A and B when money value is neglected is as follows:

Year	1	2	3	4	5
Machine A	1800	1200	1400	1600	1000
Machine B	2800	200	1400	1100	600

If the money value is 10% per year, find which machine is economical? (8)

Unit - V

5. a) What is Depreciation? Explain any two methods of calculating Depreciation. (8)

b) An Industrial plant started with initial value of Rs. 2,00,000 and salvage value of Rs. 20,000 at the end of 20 years but sold for Rs. 1,45,000 at the end of 10 years. What is the profit and loss if sinking fund method is adopted and interest charged at 9% is compounded annually? (8)

OR

5. a) Describe Break-Even Chart and Explain the following terms,

i) Margin of safety.

ii) Profit-volume ratio with their uses. (8)

b) The fixed cost for the year 1985-86 are Rs. 10,00,000 and variable cost per unit is Rs. 50. The estimated sales revenues are Rs. 25,00,000. Each unit sells at Rs. 225 each:

i) Find B.E.P. (in sales)

ii) If Rs. 20,00,000 will be the likely sales turn over for the next budget period, calculate the contribution and profit. (8)