

Seat  
No.

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मठ - 014

**Industrial Engineering**  
**(1100, 1090, 1080)**

P. Pages : 2

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Solve **any two** sub questions from each unit.
5. Black figures to the right indicate full marks.
6. Use of non programmable electronic calculator is allowed.

**UNIT - I**

1. a) Why Taylor is regarded as a 'Father of scientific management' ?  
Explain in brief Taylor's principles of scientific management. **10**
- b) Write short notes. **10**
  - i) Objectives of method study.
  - ii) Principles of motion economy.
- c) State & Explain in brief the various allowances to be considered, while estimating the standard time. **10**

**UNIT - II**

2. a) State the various procedural steps in planning the layout for a new enterprise. **10**
- b) Describe in brief in connection with material handling. **10**
  - i) Principle of unit load.
  - ii) Fork lift truck.
  - iii) Belt conveyor.
  - iv) Monorail.
- c) Write short notes. **10**
  - i) Health provisions of factory act.
  - ii) Indian Boiler Act.

## UNIT - III

3. a) State & explain the functions of production planning & control. 10
- b) Explain the need of material planning. What are the techniques of material planning. 10
- c) Write short notes. 10
- i) Bar chart
- ii) Gantt chart.

## UNIT - IV

4. a) Name the various methods of job evaluation & describe any one of them in details. 10
- b) i) Explain Rowan wage incentive plan. 5
- ii) Workers are promised to pay incentive according to Halsey's 50-50 plan. The hourly wage rate is Rs. 5/- A worker, however, could complete the whole task in 6 hours. Find out total earnings for the standard time to complete the job in 8 hrs. 5
- c) Define value state how it can be increased. Describe the various types of values. 10

## UNIT - V

5. a) State the important aspects of a man - machine system. Explain any two of them in details. 10
- b) Define ergonomics. State its objectives & advantages. 10
- c) Write short notes. 10
- i) Percentile.
- ii) Ergonomics & safety.

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