



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. Answer sheet 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. Attempt all questions, solve **any two** out of **three** subquestions.
5. Figures to the right indicate full marks.

UNIT - I

1. a) Discuss the scope and objectives of industrial engineering. **10**
- b) Define method study. Briefly describe the procedure for conducting it. **10**
- c) i) What is work sampling ? How does it work ? **5**
- ii) The following is the summary of time study. **5**
 - i) Total average observed time for completing the each job = 20 minutes.
 - ii) Average operator performance 90%
 - iii) Relaxation allowance - 12% (total) out of which contingency allowance is 2% of the basic time:
Calculate basic time for each job and standard time for the above job.

UNIT - II

2. a) Enlist important principles of good material handling system and discuss at least three of them. **10**
- b) Write short notes on **10**
 - i) Factors governing plant layout.
 - ii) Factory Act. 1948.

- c) What is the relation between plant layout and material handling system ? 10

UNIT - III

3. a) "Production and material planning as integral and interdependent system" comment. 10
- b) Define forecasting. What are the different methods of forecasting ? Explain any two methods. 10
- c) Write short note on: 10
- i) Bar chart
- ii) Gantt chart

UNIT - IV

4. a) What is value analysis ? Explain the procedure for value analysis. 10
- b) List down the various methods of job evaluation. Explain any two in detail. 10
- c) Write short notes on: 10
- i) Rowan Plan
- ii) Taylors differential piece rate system.

UNIT - V

5. a) i) Define Ergonomics. What are the importance of ergonomics in Industrial engineering ? 5
- ii) What is safety engineer ? Describe its responsibilities. 5
- b) Define Anthropometry. Explain the principles importance for the application of anthropometric data to the design problem. 10
- c) What do you understand by man - machine system ? How are the man machine system classified ? 10
