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## LDRP INSTITUTE OF TECHNOLOGY AND RESEARCH GANDHINAGAR

### B. E. Semester- V   Mid Semester Examination
### Subject Name: Industrial Engineering

Date: 27-08-2014                           Time: 08:30 a.m. to 10:00 a.m.
Branch: Mechanical                          Max. Marks: 30

**Instructions:**
1. Attempt all questions.
2. Make suitable assumption whenever necessary.
3. Figures to the right indicate full marks.


Q.1   (a)   List factors affecting plant location and explain any two in brief.          (5)

(b)   Define plant layout. Discuss following types of plant layout.          (5)

(1) Product layout

(2) Process Layout

Q.2   (a)   Discuss the following methods of sales forecasting          (5)

(1) exponential smoothing

(2) methods of weighted moving average

(b)   The demand for a product during the last 10 years is given below. Estimate the (5)
demand for the next two years by the method of regression analysis.

| Year | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Units | 124 | 135 | 145 | 150 | 167 | 157 | 161 | 170 | 187 | 168 |

OR

Q.2   (a)   Explain the different phases of production planning and control          (5)

(b)   What is PPC? Give the major objectives of the PPC.          (5)

Q.3         Explain any two:          (10)
(a)   Write a short note on

(1) Flow diagram and

(2) String Diagram

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(b) What are factories Act? As per the factories act 1948, what are the major provisions for safety and Health?

(c) Calculate normal time for each element of the job for detail given below: Also calculate standard time of job.

| Element | Observed time | Rating | Relaxation allowance (%) |
|---------|---------------|--------|--------------------------|
| A | 10 | 95 | 8 |
| B | 8 | 105 | 14 |
| C | 6 | 110 | 12 |
| D | 25 | 120 | 5 |
| E | 16 | 110 | 10 |

(d) Explain the workman's compensation Act, 1923.

(e) What is Work measurement? List the various techniques of work measurement and also explain how the Standard time is calculated.