

Code: D-16**Subject: INDUSTRIAL ENGINEERING****December 2005****Time: 3 Hours****Max. Marks: 100****NOTE: There are 9 Questions in all.**

- **Question 1 is compulsory and carries 20 marks. Answer to Q. 1. must be written in the space provided for it in the answer book supplied and nowhere else.**
 - **Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.**
 - **Any required data not explicitly given, may be suitably assumed and stated.**
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Q.1 Choose the correct or best alternative in the following: (2x10)

a. Industrial Engineering for the first time emerged as a profession during

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|-----------------------------------|---|
| (A) Pre-industrial Revolution Era | (B) Scientific Management phase |
| (C) Industrial Revolution | (D) Operation Research and Quantitative Phase |

b. Control Limits (CL) are used in

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|------------------------|---------------------|
| (A) Production Control | (B) Process Control |
| (C) Quality Control | (D) Cost Control |

c. Linear programming is a quantitative technique for decision making and is part of

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|-------------------------|-------------------------|
| (A) Probabilistic Model | (B) Deterministic Model |
| (C) Algebraic Model | (D) Descriptive Model |

d. The technique to rate a job (but not a worker) is

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|-----------------------|---------------------|
| (A) Job Analysis | (B) Job Description |
| (C) Job Specification | (D) Job Evaluation |

e. Scientific study of the relationship between man and his working environment is

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|------------------------|------------------|
| (A) Therbligs | (B) Motion Study |
| (C) Operation Analysis | (D) Ergonomics |

f. When repairs are undertaken after the equipment is broken down, it is known as

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|----------------------------|----------------------------|
| (A) Predictive Maintenance | (B) Preventive Maintenance |
|----------------------------|----------------------------|

(C) Corrective Maintenance (D) Scheduled Maintenance

g. A Line Layout is also known as

(A) Process Layout (B) Product Layout
(C) Plant Layout (D) Factory Layout

h. The study of overall process in a factory is called

(A) Flow Analysis (B) Product Analysis
(C) Process Analysis (D) Factor Analysis

i. An interlinked production system in which all those steps are included where actual value is added in the product is called

(A) Supply Chain (B) Value Chain
(C) Product Chain (D) None of the above

j. EOQ is the quantity at which cost is the minimum

(A) Ordering (B) Set Up
(C) Carrying (D) Total

**Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.**

- Q.2** a. Describe the important Industrial Engineering Techniques. (8)
- b. Describe the steps involved in LOB technique of production, planning & control. (8)
- Q.3** a. Describe the various steps involved in developing a product. (8)
- b. Job Evaluation can be done through a number of methods. Discuss in detail any three methods. (8)
- Q.4** a. Describe the factors governing plant location. (8)
- b. What are the factors affecting plant Layout? (8)
- Q.5** a. Discuss the objectives of Inventory control. (8)

- b. Alfa Co. purchases raw material from outside for its annual requirement. For the year 2006-07, the company wishes to manufacture, at constant rate, 1,00,000 units of the products. The cost of placing each order for raw material is Rs.160/-. For any item in inventory the Company uses an annual carrying cost equal to 20 % of the items cost. The product costs Rs.20/- each. Calculate the following:-

- (i) Optimal order size.
- (ii) The total inventory cost.
- (iii) Number of orders placed in the year 2006-07? **(8)**

Q.6 a. What is morale? What factors affect the morale of an employee? **(8)**

b. Describe PERT and the PERT planning technique? **(8)**

Q.7 a. What are the objectives of Preventive Maintenance? **(8)**

b. What are the steps employed in CPM for accomplishing a Project Planning? **(8)**

Q.8 a. Explain the concept of Quality Circle. How is a quality Circle started in a company?
(8)

b. Explain the Zero Defect Concept in Quality Control? Describe the steps for implementing a Zero Defect Programme? **(8)**

Q.9 a. What are the steps involved in work-study exercise? **(8)**

b. Explain the concept of standard data. What are the steps involved in developing standard data? **(8)**