

Code: D-16 Subject: INDUSTRIAL ENGINEERING

Time: 3 Hours Max. Marks: 100

NOTE: There are 11 Questions in all.

Question 1 is compulsory and carries 16 marks. Answer to Q. 1. must be written in the space provided for it in the answer book supplied and nowhere else.

Answer any THREE Questions each from Part I and Part II. Each of these questions carries 14 marks.

Any required data not explicitly given, may be suitably assumed and stated.

Q.1 Choose the correct or best alternative in the following: (2x8)

a. Productivity may be defined as the ratio between

(A) amount and the number of items produced.

(B) amount or the number of items produced and the various resources employed.

(C) output and number of items produced.

(D) input and the resources employed.

b. An approach to the problem of securing a high level of error-free work performance is called

(A) Zero Defect Approach. (B) Quality Control Approach.

(C) Inventory Control Approach. (D) Error Approach.

c. The duration of the critical path of a project is known as

(A) Earliest Finish Time. (B) Earliest Start Time.

(C) Total Project Time. (D) Latest Finish Time.

d. The use of human senses or other sensitive instruments to predict trouble before the equipment fails is known as

(A) Corrective Maintenance. (B) Preventive Maintenance.

(C) Predictive Maintenance. (D) Scheduled Maintenance.

e. Segregation of items according to their value and number for the purpose of inventory control is known as

(A) ABC Analysis. (B) VED Analysis.

(C) MRP Analysis. (D) FSN Analysis.

f. A systematic process of evaluating different jobs of an organisation is known as

(A) Job Rotation. (B) Job Evaluation.

(C) Job Description. (D) Job Rating.

g. The deterministic model used for planning and controlling the most logical and economic sequence of operations for accomplishing a project is known as

(A) CPM. (B) PERT.

(C) EOQ. (D) ABC.

h. The laying down of the flow of work in the plant is known as

(A) Dispatching. (B) Scheduling.

(C) Routing. (D) Loading.

PART I

Answer any THREE Questions. Each question carries 14 marks.

Q.2 a. Trace the historical development of Industrial Engineering. (7)

b. Explain the input-output model of the production system. (7)

Q.3 a. Discuss the principles of a good plant layout. (7)

b. What are the factors affecting Product Design? (7)

Q.4 a. Discuss the different kinds of inspection. (7)

b. A Multiple Activity Chart records simultaneously the activities of all the workers and machines on the Common Time Scale Discuss the purpose and application of a Multiple Activity Chart. (7)

Q.5 a. Explain the Queuing Technique used in Operation Research to solve optimisation problems. (7)

b. Discuss the recent developments in plant maintenance. (7)

Q.6 a. A foreman is a person in-charge or is a coordinator of the activities of a group of workers engaged in one type of task. Discuss the qualifications and qualities of a foreman. (6)

b. Calculate EOQ from the following data

Annual Consumption = 600 Units.

Procurement Cost = Rs.15 per order.

Cost per Piece = Rs.100

Cost of carrying inventory = 20% (8)

PART II

Answer any THREE Questions. Each question carries 14 marks.

Q.7 a. Discuss the different methods of merit rating. (5)

b. What are the different stores records maintained in an organisation for recording goods received, issued or transferred? (9)

Q.8 a. Discipline may be defined as an instruction or training to behave in accordance with rules and regulations. Discuss bringing out the effects of indiscipline. (7)

b. Discuss the factors to be considered for replacing equipments. (7)

Q.9 a. Explain the terms Stock Time, Float and Independent Float used in network analysis. **(3)**

b. Discuss the terms related to Network Planning Methods. **(6)**

c. Mention any five network techniques. **(5)**

Q.10 a. Discuss the construction and use of string diagram in work study. **(7)**

b. Discuss the different kinds of productivity measures. **(7)**

Q.11 Write short notes on any **TWO** of the following: -

- (i) ISO Quality Standards.
- (ii) Line Balancing.
- (iii) ABC Analysis.
- (iv) Linear Programming. **(7 x 2)**