

TED (10)–4023

Reg. No.

(REVISION—2010)

Signature

FIFTH SEMESTER DIPLOMA EXAMINATION IN ENGINEERING/
TECHNOLOGY—OCTOBER, 2013

INDUSTRIAL ENGINEERING

(Common for ME and TD)

[Time : 3 hours

(Maximum marks : 100)

PART—A

(Maximum marks : 10)

Marks

I Answer all questions in one or two sentences. Each question carries 2 marks.

1. Differentiate production and productivity.
2. Name four types of plant layout.
3. Define method study.
4. What is floor inspection ?
5. Define overhead.

(5×2=10)

PART—B

(Maximum marks : 30)

II Answer *any five* of the following questions. Each question carries 6 marks.

1. What is value engineering ? Mention the fields of applications of value engineering.
2. Explain a combination layout with a suitable line diagram.
3. What is Therbligs ? How the following therbligs are denoted by symbols ?
Search, find, select, hold, transport, grasp, position, inspect.
4. What is a p-chart ? How to fix up the control limits for a p-chart ?
5. The percentage of marks of 8 students in a particular subjects are 60, 35, 70, 50, 50, 45, 50 and 80. Find the mean, mode, median and standard deviation.
6. State the causes of depreciation.
7. Give four examples each for the following :
 - (i) Factory overheads
 - (ii) Administrative overheads
 - (iii) Selling and distribution overheads.

(5×6=30)

PART—C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each question carries 15 marks.)

UNIT—I

- III (a) What is batch production? State the characteristics of batch production. 7
 (b) Explain product layout with the aid of flow diagram and state two advantages. 8

OR

- IV (a) What are the functions of production planning and control? 7
 (b) State the factors to be considered in selecting material handling equipment. 8

UNIT—II

- V (a) Explain the different steps in method study procedure. 7
 (b) What is a two handed process chart? Explain its features with a practical example. 8

OR

- VI (a) What is standard time? Explain the different types of allowances used for calculating standard time. 7
 (b) State the principles of motion economy related to use of human body. 8

UNIT—III

- VII (a) What is inspection? State the purpose and objectives of inspection. 7
 (b) Ten rolls of cloth were subjected to inspection. The number of defects in each roll is given below. Construct C-chart and comment on the state of control of the process :

Roll No.	:	1	2	3	4	5	6	7	8	9	10
No. of defects	:	2	3	4	1	4	3	1	2	1	2

OR

- VIII (a) Explain the terms chance cause and assignable cause with respect to production variation. 7
 (b) Plot \bar{X} and R-chart from the following data. Sample size = 5. Comment on the process. Take $A_2 = 0.58$; $D_3 = 0$; $D_4 = 2.11$.

Sample No.	1	2	3	4	5	6	7	8	9	10
\bar{X}	7	7.5	8	10	9.5	11	11.5	4	3.5	4
R	2	3	2	2	3	4	3	2	3	2

8

UNIT—IV

- IX (a) Define costing. What are the elements of cost? Explain briefly. 7
- (b) Estimate the machining time to run a M.S. bar of 50 mm diameter down to 40 mm for a length of 100 mm in a single cut. Assume cutting speed 40 m/minute and feed = 0.5 mm/rev. Assume amount of tool approach and amount of tool over run are 5 mm each. 8

OR

- X (a) A machine was purchased for ₹ 60,000. Life of the machine is estimated as 10 years and scrap value is ₹ 20,000. If the rate of interest on depreciation fund is 5%, calculate the annual depreciation using sinking fund method and straight line method. 7
- (b) Briefly explain various methods of allocating overheads. 8
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