**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE, APRIL - 2025**

INDUSTRIAL ENGINEERING

[Maximum marks: 100]   [Time: 3 Hours]

PART – A
Maximum marks: 10

I. (Answer *all* the questions in one or two sentences. Each question carries **2** marks)

1. Define the term productivity.

2. What is routing?

3. What is a flow process chart?

4. What are the terms used to indicate the central tendency of frequency

   distribution?

5. Explain the term Depreciation?   (5 x 2 = 10)

PART – B
Maximum marks: 30

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

1. What are the aims of value analysis?

2. What are the applications of string diagram?

3. Explain method study procedure.

4. What are the purposes of P chart?

5. Describe the terms used in acceptance sampling.

6. What are the actions involved in PMTS?

7. A factory produces two components A and B. Component A requires 20 hours and
   is manufactured by the workers paid at the rate of Rs.10 per hour, while component
   B also requires 20 hours but the workers producing it are paid at the rate of Rs.7.5
   per hour. Find out the ON-Cost of each component, if (i) It is 40% of the direct
   labour cost. (ii) Rs.2/- per man-hour.   (5 x 6 = 30)

PART – C
Maximum marks: 60
(Answer *one full* question from each unit. Each full question carries **15** marks)

UNIT – I

III. (a) Define dispatching and list the various functions of dispatching.   (8)

(b) Explain (a) Break down (b) Scheduled and (c) Preventive maintenance   (7)

OR

IV.   (a) List down basic types of productivity improvement techniques.   (8)

(b) Explain the characteristics of job order production.   (7)

UNIT - II

V.   (a) Draw any 8 therbligs with symbols.   (8)

(b) List down the uses of MTM.   (7)

OR

VI.   (a) With line diagram explain the method study procedure.   (8)

(b) What is the procedure for analytical estimating?   (7)

UNIT - III

VII. (a) Compare between Inspection and Quality control.   (8)

(b) What are the advantages of C chart?   (7)

OR

VIII. (a) Illustrate and explain the significance of normal distribution curve   (8)

(b) Ten samples of size 5 where subjected to inspection. Sample mean and sample range are given as below. Construct X chart and comment on the state of control assume suitable values for constants required.   (7)

Sample No.	1	2	3	4	5	6	7	8	9	10
Sample range	5	6	5	7	4	8	6	6	4	6
Sample mean	43	49	37	44	45	37	51	46	43	47

UNIT – IV

IX.   (a) In a factory certain products is manufactured in batches of 50. The direct material cost per batch is Rs.200 and direct labour cost is Rs.350. Direct expenses is Rs.100 and overhead Rs.250 per batch. Selling cost is 40% of factory cost. If the profit is 10% of selling price, find the selling price of each product.   (8)

(b) A small firm produces 100 pens per day. The direct material cost is found to be Rs.160, direct labour cost is Rs.200/- and factory overhead chargeable to it is

Rs.250. If the selling on-cost is 40% of the factory cost, what must be the selling price of each pen to realize a profit of 14.6% of selling price? (7)

OR

X. (a) A machine was purchased for Rs.8,000/- Expected life is 10 years and scrap value after 10 years is Rs.2,000/-. If depreciation is calculated by reducing balance method, calculate the percentage depreciation per year and the depreciation fund after 2 years. (8)

(b) In factory products are manufactured in batches of 50. The direct material cost per batch is Rs.250 and the direct labour cost is Rs.400. Direct expenses are Rs.100 and overheads amount to be Rs.300/- batch. The selling cost is 45% of factory cost. If the profit is 10% of selling price. Find the selling price of each product. (7)