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C09–M–603

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BOARD DIPLOMA EXAMINATION, (C–09)

APRIL/MAY—2015

DME—SIXTH SEMESTER EXAMINATION

INDUSTRIAL ENGINEERING, ESTIMATING AND COSTING

Time : 3 hours] [*Total Marks* : 80

PART—A 3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Define work study. Mention any three advantages of work study.

2. What are the allowances to be considered in determining standard time?

3. Write any three differences between inspection and quality control.

4. List any three differences between single and double sampling plans.

5. List any three differences between estimation and costing.

6. State any three examples for each of the following overheads :

(a) Factory overheads

(b) Administrative overheads

7. Write the formula for finding the volume of the following solids :

(a) Sphere

(b) Cone

(c) Circular ring

8. Calculate the time required to face a work piece of 40 mm diameter. The spindle speed is 80 r.p.m. and feed is 0·3 mm/rev.

9. How do you estimate the cost of arc welding?

10. List any three forging losses.

PART—B

10×5=50

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. *(a)* What are the various charts used in method study?

(b) Explain SIMO chart.

12. Explain the technique of PMTS and mention the advantages.

13. Draw the fraction defective chart for the following data :

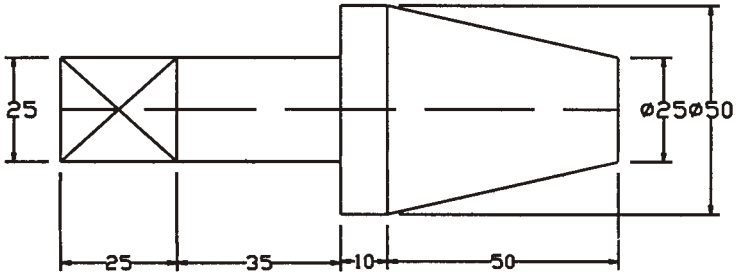
Sample no.	1	2	3	4	5	6	7	8	9	10
Sample size	100	100	100	100	100	100	100	100	100	100
No. of defectives	2	10	6	20	18	14	15	12	8	6

14. *(a)* List any four objectives of estimation.

(b) Describe the various allowances of time in estimation.

15. Explain in detail the various elements which make up the total cost of any product.

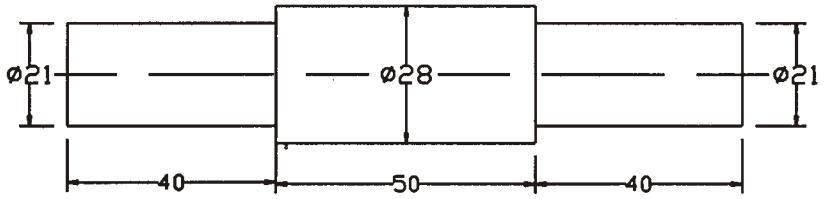
16. Determine the cost of brass castings shown in Fig. 1 :



All dimensions are in mm
Fig. 1

Assume cost of brass is ₹ 100 per kg and density of material is 8·6 grams/cc.

17. Calculate the time required to turn 35 mm diameter bar to the dimensions shown in Fig. 2 :



All dimensions are in mm
Fig. 2

Take cutting speed as 20 m/min and feed as 1 mm/rev. All cuts are 3·5 mm deep.

18. Two one-meter long MS plates of 10 mm thick are to be welded by a lap joint on both sides with the help of 6 mm electrode. Calculate the cost of welding. Assume the following data :

(i) Current used = 250 amp

(ii) Voltage = 30 V

(iii) Welding speed = 10 m/hr

(iv) Electrode used = 0·5 kg/m of weld

(v) Labour charges = ₹ 50 per hour

(vi) Power charges = ₹ 10 per kWh

(vii) Cost of electrode = ₹ 50 per kg

(viii) Welding transformer efficiency = 60%

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