



C09-M-603

3781

BOARD DIPLOMA EXAMINATION, (C-09)

MARCH/APRIL—2021

DME - SIXTH SEMESTER EXAMINATION

INDUSTRIAL ENGINEERING, ESTIMATING AND COSTING

Time : 3 hours]

[Total Marks : 80

PART—A

4×5=20

- Instructions :** (1) Answer *any five* questions.
(2) Each question carries **four** marks.
(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Define work study.
2. List different time study techniques.
3. Distinguish between quality control and inspection.
4. Draw normal curve for frequency distribution.
5. List out any three overheads.
6. What are the main elements of cost?
7. Write the formulae for finding the volumes of (a) circular ring and (b) cylinder.
8. Write the general formulae for calculation of machining time.
9. List the components of arc welding cost.
10. List any three forging losses.

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PART—B

15×4=60

- Instructions :** (1) Answer *any four* questions.
 (2) Each question carries **fifteen** marks.
 (3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

- 11.** Briefly explain various process chart symbols with neat sketches.
- 12.** Describe the procedure to be followed for time study by stopwatch method.
- 13.** The values of sample means and range for 10 samples of size 5 each is given below. Draw charts for the means and ranges. Comment on the state of control of the process. For $n = 5$: take $A_2 = 0.58$, $D_3 = 0$, $D_4 = 2.11$.

Sample No	1	2	3	4	5	6
Mean	42	49	38	44	45	37
Range	6	5	5	7	6	5

- 14.** (a) Write any five functions of estimation.
 (b) Differentiate estimating and costing.
- 15.** Explain the procedure for calculating the selling price of a product.
- 16.** Calculate the cost of brass casting shown in the Fig. 1. Density of brass may be taken as 8.6 gm/cc. The cost of brass material is ₹60 per kg. All dimensions are in mm.

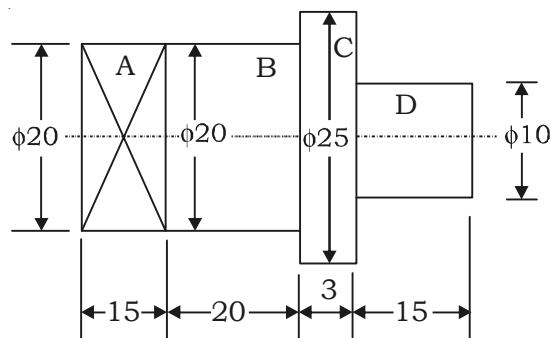


Fig. 1 Brass Vasting

17. Estimate the time required to turn 35 mm diameter bar to the dimensions shown in the Fig. 2. Cutting speed is 15.4 m/min and feed is 2 mm/rev. All cuts are 3.5 mm deep.

All dimensions are in mm

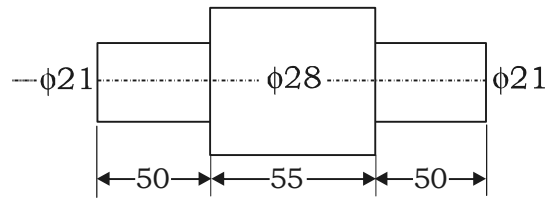


Fig. 2

18. Two one meter long MS plates 10 mm thick are to be welded by a lap joint with 6 mm electrodes as shown in the Fig 3. Calculate the cost of welding if: Electrical supply is 250 amps and 30 volts; Welding speed: 10 m/hr; Electrodes used: 0.5 kg/m of welding; Labour charges: ₹15 per hour; Power charges: ₹1/kWh; Cost of electrode: ₹15/kg.



Fig. 3
