



C09-M-603

3781

BOARD DIPLOMA EXAMINATION, (C-09)

MARCH/APRIL—2017

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. List out any three method study activities and give their symbols.
2. Write the applications of PMTS.
3. What is meant by (a) operation inspection and (b) functional inspection?
4. Write the advantages of SQC.
5. Why is estimation necessary for a product?
6. What are the main elements of cost?

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7. Write the formula for finding volume of (a) cone and (b) frustum of cone.
8. Find the time required to face both ends of a 4 cm diameter rod of length 8 cm, when it runs at 100 r.p.m. with a feed of 0.3 mm per revolution.
9. How do you estimate cost of arc welding?
10. What are the forging losses to be considered in drop forging?

PART—B

10×5=50

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

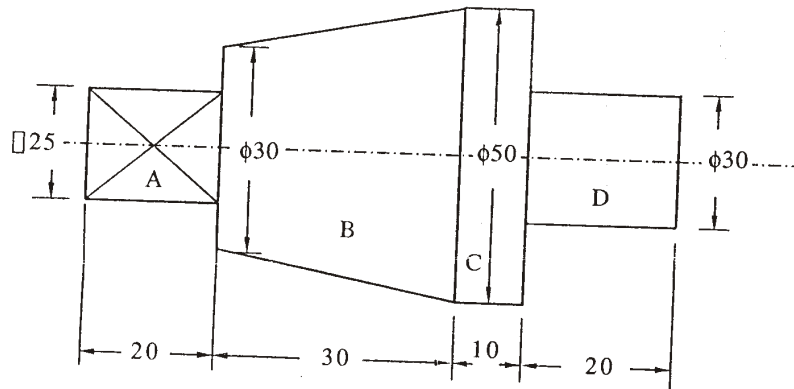
(2) Each question carries **ten** marks.

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

11. Explain in detail : 5+5
 (a) Two-hand process chart
 (b) String diagram
12. Describe the procedure to be followed for time-study by stop-watch method. 10
13. (a) What is quality assurance? 3
 (b) Explain quality-cost relationship with neat diagram. 7
14. (a) Differentiate between estimating and costing. 5
 (b) Write the meaning of design time and drafting time. 5

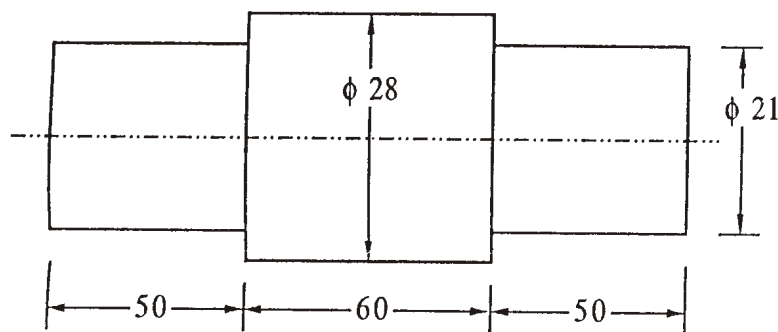
15. A machine was purchased for ₹ 2,00,000. The estimated life of the machine was 20 years and its scrap value being ₹ 20,000. The machine was sold for ₹ 1,45,000 at the end of 10 years. What is the profit or loss, if sinking fund method at 8% compounded annually was adopted? 10

16. The density of material for the part shown in the figure below is 8.5 gm/cc. Calculate the weight of the workpiece and also the cost, if rate of material is ₹ 30 per kg : 10



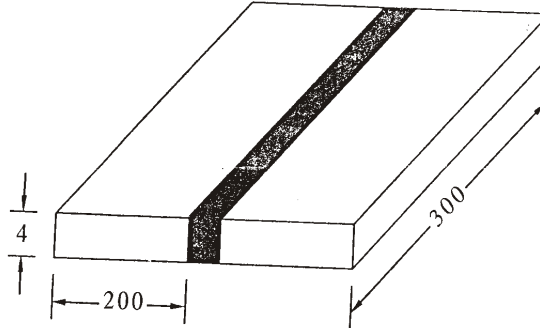
All dimensions are in mm

17. Find the time required to turn 3.5 cm diameter bar to the dimensions shown in the figure below. Cutting speed is 15.4 m/min and feed is 1 mm/rev. All cuts are 3.5 mm deep : 10



All dimensions are in mm

18. Estimate the welding cost for butt welding two mild steel plates each 300 mm×200 mm×4 mm. Assume the following : 10



Filler rod diameter = 3 mm
 Filler material lost during welding = 20%
 Oxygen consumed = $0.55 \text{ m}^3/\text{hr}$
 C_2H_2 consumed = $0.27 \text{ m}^3/\text{hr}$
 Filler rod length consumed = 3.4 m/m of weld
 Welding time/meter of weld = 20 min
 Density of filler material = 7.2 gm/cc
 Cost of filler material = ₹ 45 per kg
 Cost of oxygen = ₹ 30 per m^3
 Cost of acetylene = ₹ 150 per m^3
