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?

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
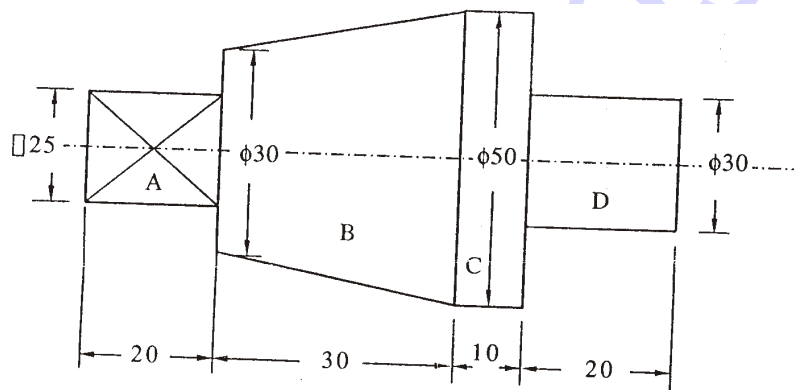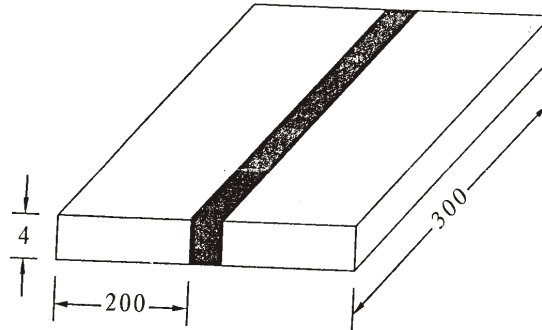

All dimensions are in mm

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
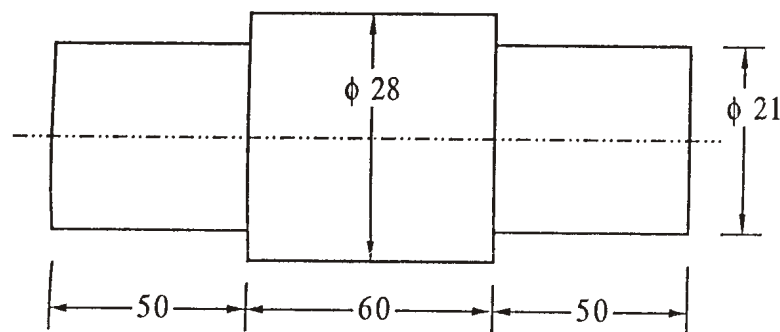
All dimensions are in mm

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 = $0.55 \, m^3/hr$

C_2H_2 consumed = $0.27 \, m^3/hr$

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

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