



C14-M-503

4651

BOARD DIPLOMA EXAMINATION, (C-14)

OCT/NOV—2018

DME—FIFTH SEMESTER EXAMINATION

ESTIMATING AND COSTING

Time : 3 hours ]

[ Total Marks : 80

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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 reasons for conducting estimation.

2. Differentiate between estimating and costing.

3. Define the terms (a) depreciation (b) book value and (c) appreciation

4. Write the formula for finding the volume of the following :

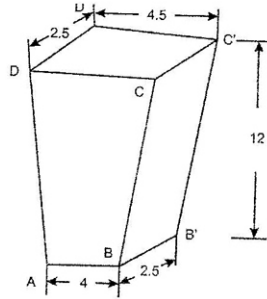
(a) Fructum of cone

(b) Circular ring

(c) Sphere

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5. An iron wedge, shown in fig 1., has been made by forging from a 3 cm dia bar stock. If the density of the material remains unchanged after forging, find out the length of bar is required to make the wedge. All dimensions in the fig. are in cm.



6. State the meaning of the following terms:

- (a) Setup time
- (b) machine time
- (c) handling time

7. Mention the various costs to be considered to arrive at the total cost of gas welding.

8. Give any three examples to each of the following overheads involved in welding cost:

- (a) Direct overheads
- (b) Indirect overheads

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9. How do you estimate the time required for forging?

10. List out indirect materials used in foundry.

**PART—B**

10×5=50

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

11. (a) What are the main constituents of estimating?  
(b) List out the various methods of calculating depreciation.
12. (a) Explain the component of cost and selling price. Show the relationship between various components of cost with the help of a block diagram.  
(b) What do you understand by the term overhead expenses. Give any four examples of overhead expenses in a factory.
13. Determine weight of 60 articles of aluminium shown in fig 2. Take density of mild aluminium as  $2.685 \text{ gram/cm}^3$ .

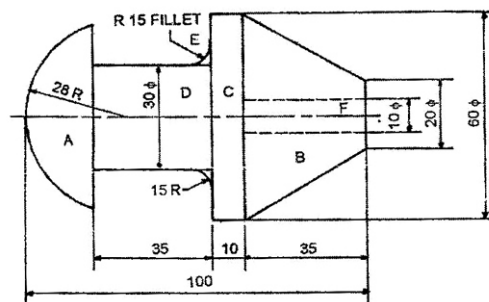


Fig.2 (all dimensions are in mm)

- \* 14. Estimate time required to reduce a 42 mm dia bar to the dimensions shown in fig. 3 below with a cutting speed of 16.5 m/min and feed of 1 mm/rev. Assume all cuts are 3.5 mm deep.

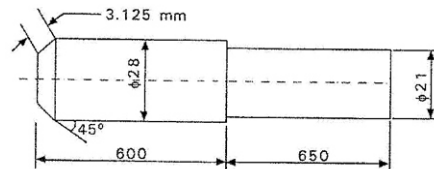


Fig.3. (All dimensions are in mm.)

15. Find the time required on a shaper to machine a plate 600 mm × 1200 mm, if the cutting speed is 15 meters/min. The ratio of return stroke time to cutting time is 2:3. The clearance at each end is 25 mm along the length and 15 mm in width. Two cuts are required, one roughing cut with cross feed of 2 mm per stroke and one finishing cut with feed of 1 mm per stroke.

16. Estimate the welding cost for a cylindrical boiler drum 2.5 m × 1m dia, which is to be made from 15 mm thick mild steel plates. Both ends are closed by arc welding of circular plates to the drum and it is single side welding. Cylindrical portion is welded along the longitudinal seam and welding is done both in inner and outer side.

Assume the following data :

Rate of welding = 2 m/hour on inner side and 2.5 m/hour on outer side

Length of electrodes required = 1.5m/meter of weld length

Cost of electrode = Rs. 0.60/meter

Power charges = 4 kWh/meter of weld

Power charges = Rs. 2/kWh

Labour charges = Rs. 40/hour

Other overheads = 200% of prime cost

Discarded electrodes = 5%

Fatigue and setting up time = 6% of welding time

- \* 17. A mild steel bolt shown in fig. is made by upsetting process from 20 mm diameter bar stock. Calculate the length of each bolts, if 4% length is goes as scrap.

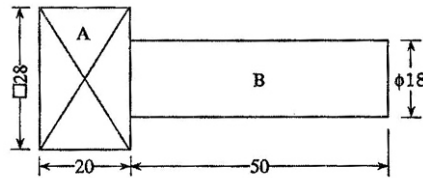


Fig.4(All dimensions are mm.)

18. Estimate the total cost of 20 Cast Iron flanged pipe castings shown in Fig. 5

Assuming the following data :

Cost of C.I. casting = Rs. 5/kg

Cost of process scrpa = Rs. 2/kg

Process scrap = 2% of net weight of casting

Moulding and pouring charges = Rs. 2/piece

Casting removal and cleaning = Rs. 0.50/piece

Administrative overheads = 5% of factory cost

Selling overheads = 70% administrative overheads.

Density of C.I. casting = 7.2 gm/cc.

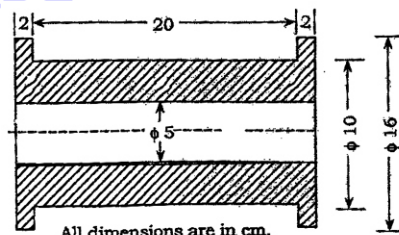


Fig 5

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