



C14-M-503

4644

BOARD DIPLOMA EXAMINATION, (C-14)

MARCH / APRIL - 2019

DME - V SEMESTER EXAMINATION

ESTIMATING & COSTING

Time : 3 Hours]

[Total Marks : 80

PART - A

3×10=30

Instructions :

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

- 1 Define the terms : (a) Prime cost (b) Total cost.
- 2 List any three causes of depreciation.
- 3 Write any three differences between Estimating and Costing.
- 4 Write the formula for finding volume of (a) Sphere, (b) Cylinder, (c) Segment of a sphere.
- 5 Write the purposes of calculating the machining time.
- 6 Estimate the machining time to turn MS rod from 4 cm diameter to 3.5 cm diameter for a length of 15 cm in a single cut. Assume cutting speed 30m/min and feed 0.4mm/revolution.
- 7 List the various elements to be considered to calculating gas cutting cost.
- 8 List the components for estimating the forging cost.
- 9 List the types of forging operations. Explain any two.
- 10 Write short notes on :
 - (a) Shrinkage allowance
 - (b) Distortion allowance

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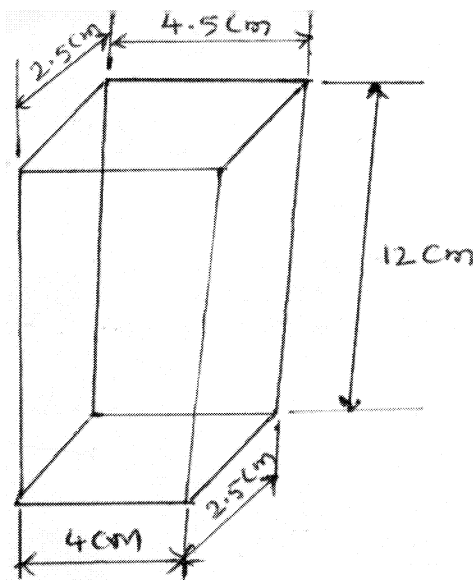
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PART - B

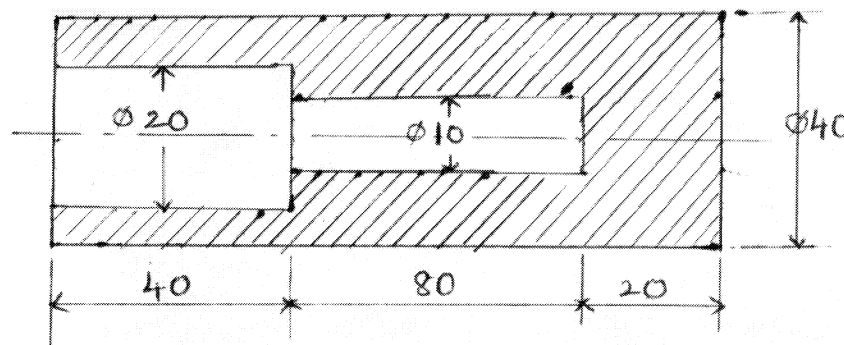
10×5=50

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

- 11** Find the factory cost of a component made from solid steel bar 5 cm long and 2 cm in diameter. The machining operation requires $1\frac{1}{2}$ hour. Assume the following data :
 The density of mild steel is 8 grams/cc
 Cost of mild steel is Rs. 10 per kg
 Labour charges are Rs. 8 per hour
 Overhead charges are 50% of direct labour cost.
- 12** (i) Write short note on Reducing balance depreciation method.
 (ii) Write the functions of estimation department.
- 13** An iron wedge has been made by forging out of 3 cm diameter round bar. The length and breadth of the base of the wedge being 4.5 cm and 2.5 cm respectively, the length of the wedge being 4 cm and height 12 cm. If the density of metal remains unchanged after forging, determine length of bar is required for making the wedge.



- 14 Calculate the time required to rough grind a steel shaft of 3.75 cm diameter to 3.7 cm diameter size using grinding wheel of 5 cm face. Assume cutting speed 12 m/min and the depth of cut 0.0025 cm, length of shaft to be ground is 25 cm.
- 15 Calculate the time required for drilling a component as shown in the fig. cutting speed is assumed as 20m/min and feed as 0.02 cm/rev.



- 16 Estimate the total cost of manual flux shielded metal arc welding using following data :
- Length of weld = 3m
 - Arc voltage = 22V
 - Arc current = 200 A
 - Welding speed = 12 m/hour
 - Electrode consumed = 0.4 kg/meter of weld
 - Labour and overheads = Rs. 8 per hour
 - Rate per unit of electrical power = Rs. 0.80 per kWh
 - Cost of electrode = Rs. 30 per kg
 - Operating factor = 30%
 - Efficiency = 65%
- 17 A square bar of 3 cm side and 25 cm long is to be converted by hand forging in to a bar of hexagonal section having each side equal to 1.5cm. Calculate the length of hexagonal bar produced. Consider scale loss to be 7%.

- 18 Estimate the weight of cast iron used in the manufacturing of a stepped pulley as shown in fig. Density of cast iron is 7.2 gram/cc.

