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C14–M–**503**

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BOARD DIPLOMA EXAMINATION, (C–14)
MARCH/APRIL—2017
DME—FIFTH SEMESTER EXAMINATION

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 the methods of calculating depreciation.

2. What are the main elements of cost?

3. Define the following :

(a) Fatigue allowance

(b) Personal allowance

4. How do you estimate time required for threading?

5. Write the formula for finding the volume of *(a)* cylinder, *(b)* frustum of cone and *(c)* segment of sphere.

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6. Find the RPM for turning a steel shaft of 125 mm diameter at a cutting speed of 20 m/min.

7. How do you estimate gas welding cost?

8. List out various forging operations.

9. What is sprue loss? Explain.

10. What is process scrap?

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PART—B   10×5=50

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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. The automatic screw cutting machine has been purchased for ₹ 60,000. Its scrap value at the end of 10 years is estimated as ₹ 12,000. Calculate the following by reducing balance method :

(a) Fixed percent depreciation

*(b)* Depreciation in first two years and last two years

12. *(a)* A small firm is producing 100 pens per day. The direct material cost is found to be ₹ 160, direct labor cost ₹ 200 and factory overheads are 50% of the direct cost. Determine the factory cost.

(b) Explain the main constituents of estimating.   5+5

13. Determine the cost of brass casting shown in the figure below. Density of brass may be taken as 8·6 gm/cc and cost may be taken as ₹ 40 per kg. All dimensions are in mm :
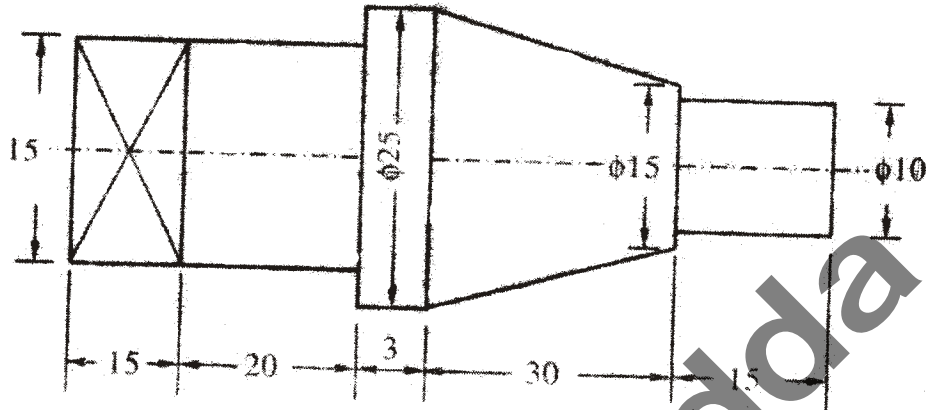
14. The shaft shown below is to be manufactured by turning out of 85 mm steel rod. Find out the minimum machining time if the job is to be turned at 300 r.p.m. with feed 0·5 mm/rev and depth of cut 3 mm. All dimensions are in mm :
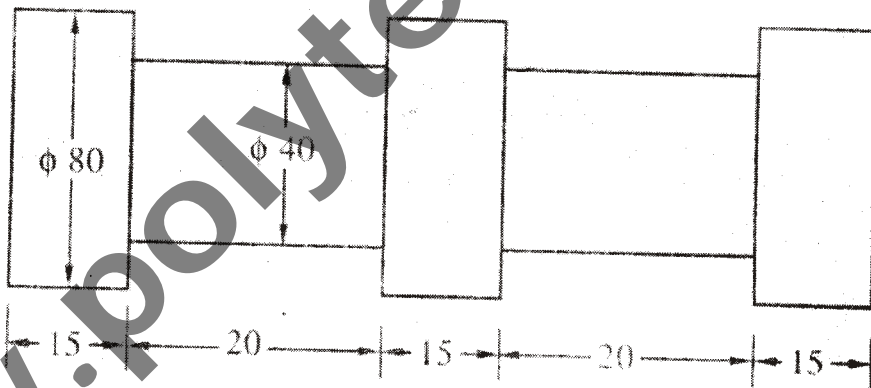
15. *(a)* A hollow spindle is to be bored to enlarge its hole diameter from 2·5 cm to 3 cm up to 12 cm depth in single cut. Estimate the boring time, if cutting speed is 30 cm/min and feed is 0·02 cm/rev.

(b) Explain the step by step procedure for estimation of weights of materials.

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16. Four plates of each 100 cm × 10 cm × 1 cm are to be welded together to form a plate of 100 cm × 40 cm × 1 cm. Neglecting the cost of preparing edges, calculate the cost of material required for welding, assuming—

(a) consumption of O_2 and C_2H_2 each $1\ m^3$/hr;

(b) welding speed = 2 m/hr;

(c) diameter of filler rod used = 5 mm;
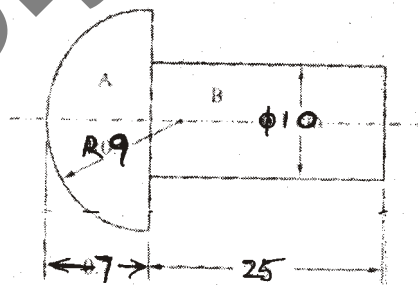
(d) length of filler rod used/m of weld = 4·5 m;

(e) cost of O_2 = ₹ $7/m^3$;

(f) cost of C_2H_2 = ₹ $50/m^3$;

(g) cost of filler metal = ₹ 20/kg;

(h) density of filler metal = 8 gm/cm^3.

17. Estimate the length and weight of 1 cm dia stock required to hand forge 200 rivets of dimensions shown in figure below. Assume density of material as 8 gm/cc. All dimensions are in mm :

18. (a) How do you estimate the foundry cost?

(b) Explain briefly the pattern making allowances used in foundry.

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