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C16-M–502

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BOARD DIPLOMA EXAMINATION, (C-16)

JUNE/JULY—2022

DME – FIFTH 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. Define productivity.

2. List out commonly used recording techniques (tools) in method study.

3. What are the uses of standard data?

4. Define *(i)* Lot size, *(ii)* Sample size and *(iii)* Acceptance number.

5. Briefly explain the causes for “Shifts” in the control chart patterns.

6. What are the causes of depreciation?

7. Draw a block diagram to illustrate the selling price of a component.

8. Write the formula for finding volume of *(i)* Frustum of cone *(ii)* Circular ring.

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9. Define *(i)* feed and *(ii)* depth of cut.

10. How do you estimate the foundry cost?

PART—B

10×5=50

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

(2) Each question carries ten marks.

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

11. Describe outline process chart. Prepare an operation process (outline process) chart for turning a shaft of 40 mm diameter to 34 mm diameter in a single cut on a lathe machine at a given speed and feed.

12. *(i)* Briefly describe the process of 'critical examination' in work study.

(ii) What are the advantages of work sampling over time study?

13. Describe the procedure to be followed for 'Time Study' by stop watch with the help of a sketch.

14. Find mean and standard deviation from the following data :

x	3	6	9	12	15	18	21
f	4	7	10	15	9	7	7

15. *(i)* Explain different types of overheads with examples.

(ii) Briefly explain various losses in forging operation.

16. Estimate the volume of material required for manufacturing 200 pieces of shaft as shown in the figure 1. The shafts are made of mild steel weighs 8 gm/cc and cost Rs. 30 per Kg. Calculate the material cost for the shaft.

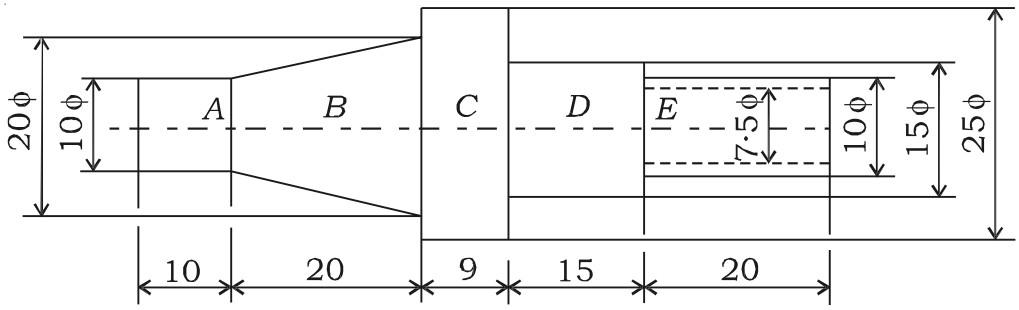

Fig. 1

17. Find the time required to turn a 50 mm diameter rod to the dimensions shown in the figure 2. Take cutting speed as 20 m/min, feed as 1·2 mm/rev. All cuts are 3 mm deep.

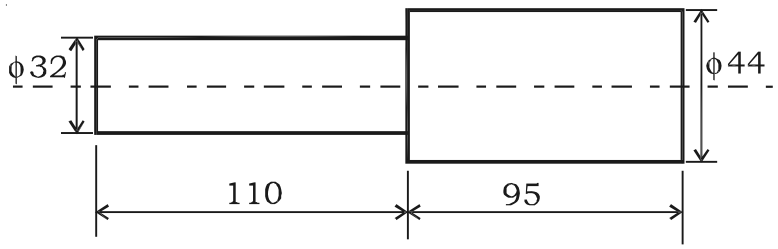

Fig. 2

18. Estimate the length and weight of 1 cm diameter stock required to hand forge 200 rivets of dimensions shown in figure 3. Assume density of material as 8 gm/CC.

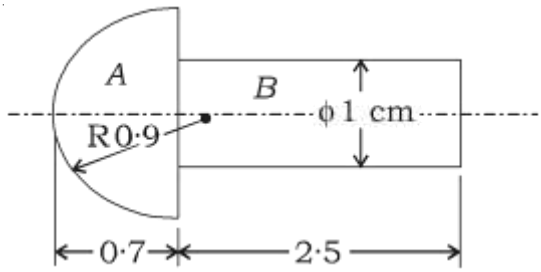

Fig. 3

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