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C09–M–603

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BOARD DIPLOMA EXAMINATION, (C–09)
MARCH/APRIL—2018
DME—SIXTH SEMESTER EXAMINATION

INDUSTRIAL ENGINEERING AND 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. Write six objectives of method study.

2. Define *(a)* rating factor and *(b)* standard time.

3. Distinguish between quality control and inspection.

4. Write three advantages of SQC.

5. Write any six functions of estimation.

6. Define *(a)* depreciation and *(b)* appreciation.

7. Write the formulae for finding the volumes of *(a)* sphere and *(b)* segment of sphere.

8. Find the time required to produce 8 holes on a casting each of 10 cm depth,if the hole dia is 2 cm. Cutting speed is taken as 20 m/min and feed as 0·02 cm/rev.

9. List different costs to be considered to estimate arc welding cost.

10. Explain the following :

(a) Shear loss

(b) Flash loss

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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. Illustrate the construction of string diagram. Write its uses and drawbacks.   7+3=10

12. *(a)* Define work sampling.   4

(b) Write six advantages and six disadvantages of work sampling.   3+3=6

13. The daily production in machine shop is 1000 components. These components are inspected by GO and NO GO gauges. A sample of 100 is inspected daily for continuously ten days. The samples are taken at random. Compute the control limits for *(a)* p-chart, *(b)* np-chart and draw the charts :   5+5=10

Date	1	2	3	4	5	6	7	8	9	10
Rejections	2	10	6	20	18	14	15	12	8	6

14. What are the constituents of estimation? Describe them in brief. **10**

15. *(a)* Draw the block diagram to illustrate the selling price of a product. **4**

(b) Briefly explain *(i)* obsolescence and *(ii)* inadequacy. **3+3=6**

16. Determine the cost of brass casting shown in figure below. Brass density may be taken as 8·6 gm/cc and brass cost may be taken as ₹ 60 per kg. All dimensions are in mm. **10**
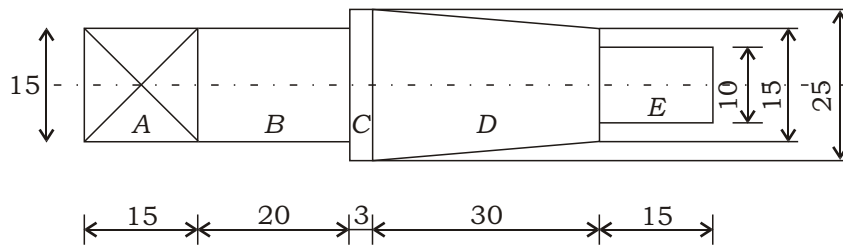
17. Find the time required to turn a 60 mm dia rod to the dimensions shown in figure below. Take cutting speed as 20 m/min, feed as 1·2 mm/rev. All cuts are 3 mm deep. **10**
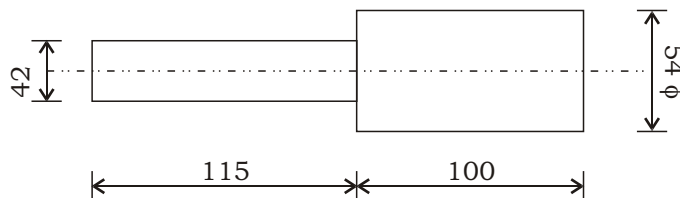
18. Estimate the gas welding cost for butt welding two mild steel plates each 300 mm   200 mm   4 mm. Assume that

     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
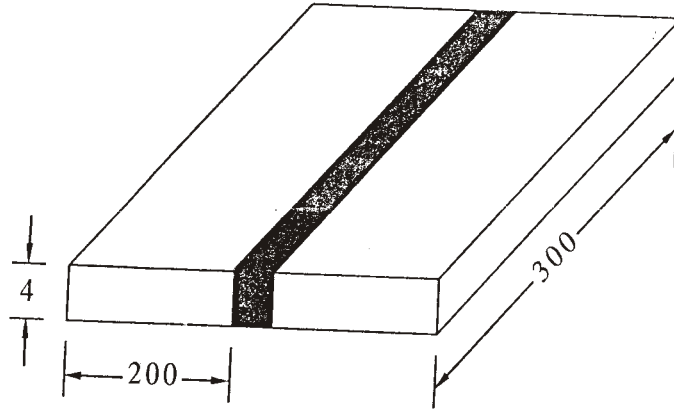
     welding time/metre of weld   20 min

density of filler material   7 2 gm/cc

cost of filler material   ₹ 45/kg

cost of oxygen   ₹ 30/m^3

cost of acetylene   ₹ 150/m^3

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