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C09-M-603

3781

BOARD DIPLOMA EXAMINATION, (C-09)

OCT/NOV—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. Define method study. What are the objectives of method study?
2. State the applications of PMTS.
3. Distinguish between quality control and inspection.
4. What are the advantages of control charts?
5. State any four objectives of estimation.
6. Draw the block diagram to illustrate the selling price of a component.

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7. Explain step by step procedure to calculate the material cost of a product.
8. Find the time required to face both ends of a 4 cm dia rod of length 8 cm, when it runs at 100 rpm with a feed of 0.3 mm per revolution.
9. List out the advantages and disadvantages of welding.
10. What are the losses to be considered in hand forging?

PART—B

10×5=50

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

(2) Each question carries **ten** marks.

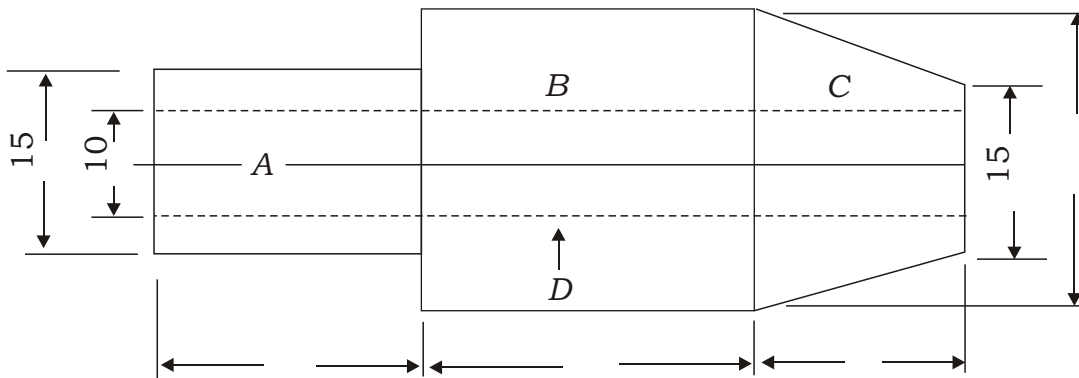
(3) The answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Briefly explain cycle graph and chronocycle graph. What is the difference between them?
12. Explain the technique of PMTS and mention the advantages and limitations.
13. The daily production in machine shop is 1000 items. These items are inspected by go and no-go gauge. A sample of 100 is inspected daily for 10 days. The samples are taken at random. Compute the control limits for (a) p-chart, and (b) np-chart and draw the charts,

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

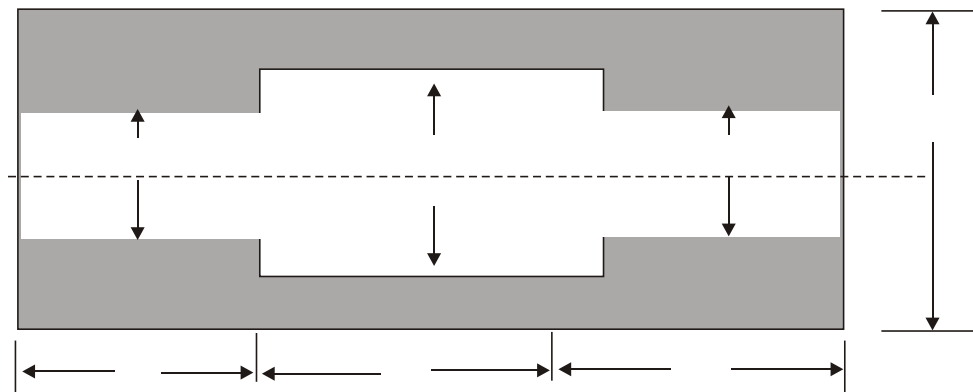
14. Explain the qualities of a good estimator. Write brief notes on each of them.

15. A small firm * 1000 pens per day. The direct material cost is found to be Rs. 1600, direct labour cost Rs. 2000 and factory overheads are 52% of the direct cost. If the selling on cost is 42% of the factory cost, what must be the selling price of each pen to realize a profit of 21% of the selling price.
16. Determine the weight of 100 M.S spindles as shown in the figure below.



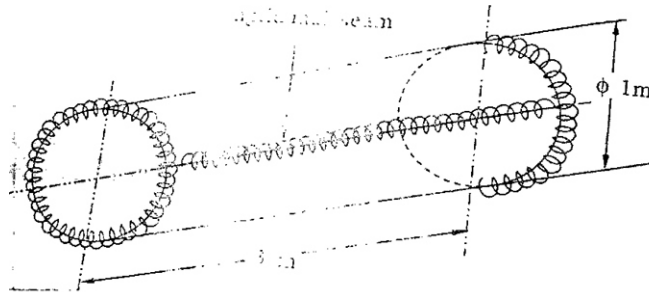
Also calculate the weight of the scrap, if, they are turned out from MS rod of 28 mm dia and facing and parting off allowances can be taken as 2 mm and 6 mm respectively. Assume that 18 mm length of rod is required for grip in the chuck. Density of M.S is 7.8 gms/cc. [All dimensions are in mm]

17. Find the time taken to prepare a job according to the dimensions shown in the figure below from a bar of 4.0 cm diameter and 6.0 cm long. Assume the following data.



*
 Cutting speed for turning and boring = 20 m/min
 Cutting speed for drilling = 30 m/min
 Feed for turning and boring = 0.02 cm/rev
 Feed for drilling = 0.023 cm/rev
 Depth of cut not to exceed 3 mm
 All dimensions are in cm.

- 18.** A cylindrical boiler drum of 3 m × 1 m dia is to be made from 15 mm thick MS plates. Both the ends are closed by welding circular plates to the drum. Cylindrical portion is welded along the longitudinal seam. Welding is done both on inner and outer sides. Calculate electric welding cost using the following data :



- (i) Rate of welding = 2 m/hr on inner side and 2.5 m/hr on outer side
 (ii) Length of electrode required = 1.5 m/m of welding
 (iii) Cost of electrode = Rs. 6/m
 (iv) Power consumption = 4 kWh / m of weld
 (v) Power charges = Rs. 15/kWh
 (vi) Labour charges = Rs. 10/hr
 * (vii) Other overhead charges = 200% of prime cost
