



C16-M-502

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BOARD DIPLOMA EXAMINATION, (C-16)

JANUARY/FEBRUARY—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 Work study.
2. What are therbligs? Give any six symbols with their names.
3. Define rating factor.
4. Explain the differences between inspection and quality control.
5. What are the types of sampling plans?
6. Write any three differences between Estimation and Costing.
7. List out the methods of calculating depreciation.

8. What is the formula for finding the volume of (a) cylinder, (b) sphere and (c) cone?
9. Define the terms cutting speed, feed and depth of cut.
10. Explain the procedure to estimate foundry cost.

PART—B

10×5=50

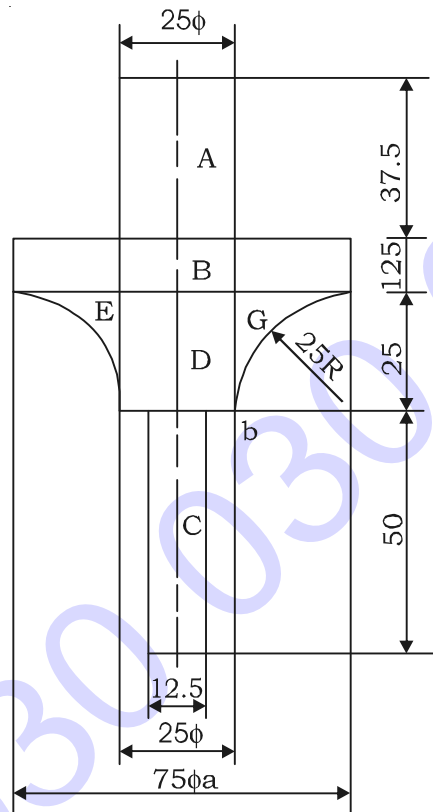
- Instructions :**
- (1) Answer *any five* questions.
 - (2) Each question carries **ten** marks.
 - (3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. Explain Cycle Graph and Chrono Cycle Graph with diagrams.
12. Write short notes on : (a) SIMO Chart and (b) Work sampling.
13. Define PMTS. Explain the methods to collect PMTS data and state its advantages, disadvantages and applications.
14. The screws from an automatic serew cutting machine are under inspection. These are inspected in samples of 200 each. Even a single defect in the thread of the screws make it unacceptable. The observations for 20 days are recorded below. Draw the (a) p chart (b) 100 p chart and state your conclusions.

Sample No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
No of defectives	2	2	1	2	1	2	3	2	2	1	1	1	2	1	2	2	1	1	2	2

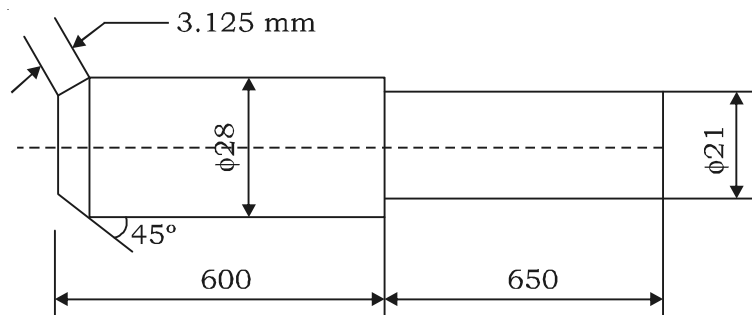
15. Estimate the volume of material required for producing 1000 parts as shown in the figure below. Assume that 15% of the finished material is wasted during finishing. All dimensions are in mm.

Take density of material as 7.8 grams/cc



16. Estimate the time required to reduce a 42 mm bar to the dimensions shown in figure below with a cutting speed of 16.5 m/min and feed of 1 mm/rev. Assume all cuts are 3.5 mm deep.

All the dimensions are in mm.



17. Write short notes on

(a) Step by step procedure to calculate the weight of given component.

(b) Forging losses

18. Two plates each 1.5 m long, 0.5 m wide and 10 mm thick are to be welded. A 60° 'V' groove is prepared by gas cutting prior to welding. The cost of oxygen and acetylene per m³ being ₹4 and ₹10 respectively. The cost of filler rod is ₹15 per kg. Cost of steel plates is ₹10 per kg. Assume overhead charges to be 400% of labour charges and the welder get ₹12 per hour of welding cutting. Calculate the cost of welding, cutting, Prime cost and Factory cost of the job.

