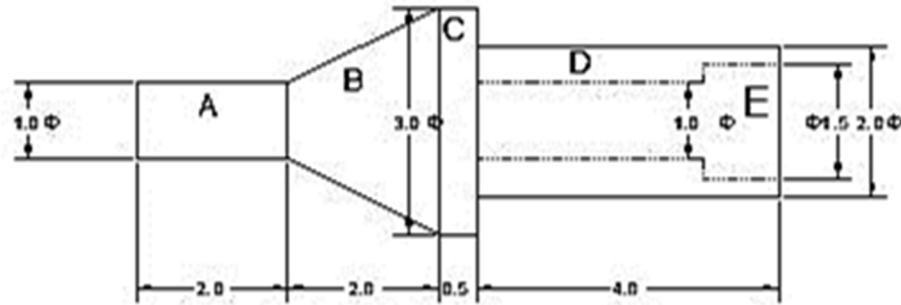


[4]

- iii. Estimate the volume of material required for manufacturing a 5 components, as shown in figure. Calculate also the weight of 10 such components, if it is made up of M.S. density of 8gm/cc. All dimensions are in cm.



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Total No. of Questions: 6

Total No. of Printed Pages: 4

Enrollment No.....



Faculty of Engineering  
End Sem Examination Dec-2023

OE00007 Mechanical Estimation & Costing

Programme: B.Tech.

Branch/Specialisation: All

Duration: 3 Hrs.

Maximum Marks: 60

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

- Q.1 i. The consistency of an estimator can be checked by comparing- 1  
(a) Standard deviation (b) Mean square  
(c) Variance (d) Mean
- ii. Cost unit is defined as- 1  
(a) Unit of quantity of product, service or time in relation to which costs may be ascertained or expressed  
(b) A location, person or an item of equipment or a group of these for which costs are ascertained and used for cost control  
(c) Centres having the responsibility of generating and maximising profits  
(d) Centres concerned with earning an adequate return on investment
- iii. Material, Labour and Expenses are the three important parameter of the cost is known as- 1  
(a) Method (b) Elements (c) Techniques (d) Process
- iv. Direct labour cost is also known as- 1  
(a) Indirect labour (b) Indirect wages  
(c) Direct wages (d) Debtors
- v. If arc voltage is 22 volts, arc current is 200 Amp., Welding time is 0.5 hr and transformer efficiency is 60 %, then power consumption is 1  
\_\_\_\_\_.  
(a) 3.66 kwh (b) 132 kwh  
(c) 3666.66 kwh (d) 5.66 kwh
- vi. Which type of surface is produced by turning operation in lathe machine? 1  
(a) Flat (b) Cylindrical  
(c) Taper (d) None of these

P.T.O.

[2]

- vii. Depreciation is generated due to- **1**  
 (a) Increase in the value of liability (b) Decrease in capital  
 (c) Wear and tear (d) Decrease in the value of assets
- viii. According to straight line method of providing depreciation, the depreciation- **1**  
 (a) Remains constant (b) Increase each year  
 (c) Decrease each year (d) None of these
- ix. Flywheel maintains consistency of power transmission due to- **1**  
 (a) Its light weight  
 (b) Its high moment of inertia  
 (c) Its speed of rotation  
 (d) Its capability to be rotated by wind p
- x. The distance from a given point on one thread to corresponding point on the next thread is called- **1**  
 (a) Helix (b) Pitch (c) Lead (d) Travel
- Q.2 i. How will you classify the costs? **2**  
 ii. Write the function of the estimating department. **3**  
 iii. Describe the procedure for the costing & also explains the source of error in the estimating. **5**
- OR iv. Describe the various allowances of time estimating. **5**
- Q.3 i. Explain in short 'Factory Overhead'. **2**  
 ii. The market price of the Lathe is Rs. 50,000 and the discount allowed to the distributor is 20% of the market price. It is found that the selling expense cost is  $\frac{1}{4}$  <sup>th</sup> of the factory cost and if the material cost, labour cost and factory overhead charges are in the ratio of 1:4:2. What profit is made by the factory on each lathe, if the material cost is Rs. 4,000? Neglect other overheads. **8**
- OR iii. A small firm is producing 100 hammers per day. The direct material cost is found to be Rs. 160, direct labour cost is Rs. 200 and factory overheads chargeable to it are Rs. 250, if the selling on-cost is 40% of the factory cost. What must be the selling price each hammer to realise the profit of 14.6% of the selling price? **8**
- Q.4 i. Define turning, knurling, and facing operations. **3**  
 ii. Estimate the material cost for the welding 2 flat pieces of M.S. [15\*6\*1 cm] size, at an angle of 90° by gas welding neglect edge preparations cost and assume: **7**

[3]

- (a) Cost of O<sub>2</sub> Rs. 10/m<sup>3</sup> & O<sub>2</sub> Consumption is 0.7 cum/hr.  
 (b) Cost of C<sub>2</sub>H<sub>2</sub> Rs. 60/m<sup>3</sup> & C<sub>2</sub>H<sub>2</sub> Consumption is 0.5 cum/hr.  
 (c) Density of filler metal is 7gm/cc, Filler rod diameter is 5 mm.  
 (d) Cost of the filler material Rs. 12/kg, Length of filler metal required 4.5m/m.  
 (e) Welding time is 30min/m.
- OR iii. A 15 cm long M.S. bar is to be turned from 4 cm diameter in single cut in such a way that for 5 cm length its diameter is reduced to 3.8 cm and remaining 10 cm length is reduced to 3.4 cm. Estimate the total time required for turning it, assuming cutting speed as 30m/min, feed as 0.02 cm/revolution and time required for setting and mountings of the job in a three jaw chuck is 30 sec. Neglect the tool setting time. **7**
- Q.5 i. What do you understand by depreciation state? Explain different causes of the depreciations. **4**  
 ii. A machine is purchased for Rs. 40,000. The estimated life of the machine is 15 years and scrap value Rs. 15,000. If the rate of interest on the depreciation fund is charged as 5%, calculate the rate of depreciation by sinking fund method. **6**
- OR iii. What do you understand by overhead expenses? **6**
- Q.6 Attempt any two:  
 i. Write the formula for calculating the area of the parallelogram, hexagon, fillet, ellipse & segment of the circle. **5**  
 ii. Calculate the number of rivets of the dimensions shown in figure, which can be manufactured from 4 kg of M.S. Assume that there is no wastage of material. Density of M.S. is 8gm/cc. All dimensions are in cm. **5**

