



# 17557

15116

3 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) All questions are **compulsory**.
  - (2) Illustrate your answers with neat sketches **wherever** necessary.
  - (3) Figures to the **right** indicate **full** marks.
  - (4) Assume suitable data, if **necessary**.
  - (5) Use of Non-programmable Electronic Pocket Calculator is **permissible**.
  - (6) Mobile Phone, Pager and any other Electronic Communication devices are **not** permissible in Examination Hall.

Marks

1. Attempt any five :

20

- a) Define costing. State its objectives.
- b) Why overhead costs are to be controlled ? Explain.
- c) What are the various causes of depreciation ?
- d) Write the importance and use of estimating.
- e) How machine time is calculated for turning operation ?
- f) What are the factors affecting welding costs and welding cost estimation ?
- g) What is 'blank layouts' in sheet metal shop ? Explain.
- h) Define wages and incentive.

2. Attempt any two :

16

- a) Calculate volume of material for funnel shown in Figure No. 1 taking 150 mm and 15 mm as the mean diameters of the top and bottom rings respectively. Consider the thickness of MS sheet to be 2 mm.

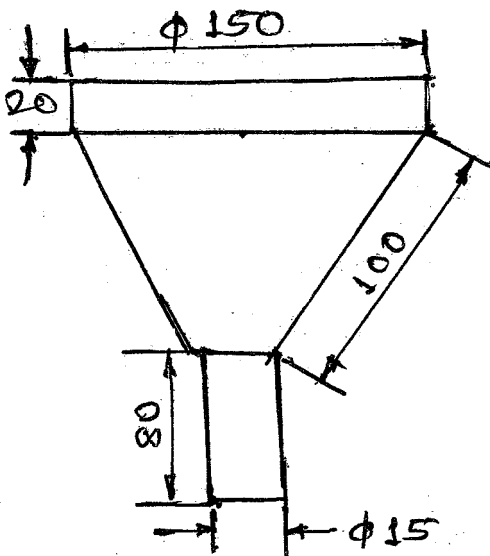
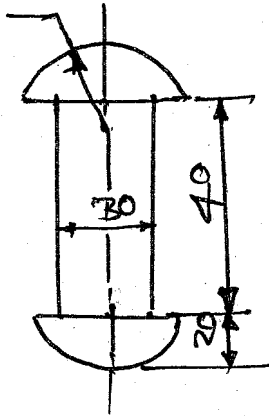


Figure No. 1

P.T.O.



- b) Explain the steps in estimation of erection costs.
- c) Calculate the number of rivets of dimensions shown in Figure No. 2, which can be manufactured from 4 kg of MS. Assume that there is no wastage of material. Density of M.S. is 8 gm/cc.



All dimensions are in mm

Figure No. 2

3. Attempt **any two** :

16

- a) i) What are the characteristics of process cost accounting ?  
 ii) Explain job order and process order costing.
- b) i) How to calculate selling price of a product ?  
 ii) Distinguish between costing and estimating.
- c) List the methods of evaluating materials issued from stores. Explain any one method.

4. Attempt **any two** :

16

- a) The estimated life of a lathe is 10 years and its works 16 hours a day. The initial cost of lathe is Rs 1.00 lac. and scrap value after 10 years is Rs. 25,000/-. If the machine works for 5840 hours in a year. Calculate the rate of depreciation charged annually as per machine hour basis method.
- b) Explain in brief :  
 i) Qualities required by estimator  
 ii) Estimating procedure.
- c) Find the time required for doing rough grinding of a 160 mm long steel shaft to reduce its diameter from 42 to 40 mm in a grinding wheel of 20 mm face width. Assume cutting speed as 16.5 m/min and depth of cut as 0.25 mm.

**5. Attempt any two :****16**

- a) Find the welding material cost for making a rectangular frame for a gate of  $2\text{ m} \times 1\text{ m}$  frame angle iron of size  $30\text{ mm} \times 30\text{ mm} \times 5\text{ mm}$ . Assume :
- Oxygen consumption  $0.4\text{ m}^3/\text{hr}$  @ Rs.  $20/\text{m}^3$ .
  - Acetylene consumption  $0.4\text{ m}^3/\text{hr}$  @ Rs.  $100/\text{m}^3$ .
  - Welding speed  $4\text{ m/hr}$ .
  - Length of filter rod of dia.  $2.5\text{ m} = 3.4\text{ m/m}$  welding.
  - Filter rod material cost = Rs.  $25/\text{kg}$ .
  - Welding is to be done on both sides.
- b) A press making 60 strokes per minute is used for making 30 blanks of  $100\text{ mm} \times 170\text{ mm}$  size from each strip. Calculate the time required for blanking each strip if only 60% of the strokes are utilized. If notes are also pierced on this press. Find out the total time for blanking and piercing for 200 components.
- c) i) What is material costing ? Which are the expenses included in the cost of material ?  
ii) Draw a block diagram to illustrate the relation between 'elements of cost and components of cost'.

**6. Attempt any four****16**

- Differentiate between depreciation and obsolescence.
  - Explain different forging losses.
  - How machining time for milling operation is determined ?
  - Enlist the names and draw different types of welded joints.
  - Explain estimation procedure used in sheet metal work.
  - Explain job cost sheet.
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