

22662

23124

3 Hours / 70 Marks

Seat No. 

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Answer each next main Question on a new page.
- (3) Illustrate your answer with neat sketches wherever necessary.
- (4) Figures to the right indicate full marks.
- (5) Assume suitable data, if necessary.
- (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

1. Attempt any FIVE of the following: 10
- a) State the importance of estimating.
- b) Enlist four elements of costs.
- c) State cost based pricing method.
- d) Differentiate between fixed cost and variable cost.
- e) Define rationalization.
- f) Define MRR for drilling.
- g) State the meaning of EMI.

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2. **Attempt any THREE of the following:** **12**
- a) Explain the procedure for costing.
  - b) Differentiate between estimating and costing.
  - c) Explain competition based pricing and customer based pricing.
  - d) Fixed cost for manufacturing a product is Rs. 5,00,000 per year. The variable cost is Rs. 10 per unit and the selling price is Rs. 12 per unit. Calculate break even point.
  - e) State obsolescence with respect to machine shop.
3. **Attempt any THREE of the following:** **12**
- a) Apply standardization principles for manufacturing of Gearbox for lathe machine.
  - b) Differentiate clearly between value analysis and value engineering.
  - c) Describe the process of estimation of machining time for slab milling.
  - d) Describe the estimation process for pattern dimensions in casting process.
4. **Attempt any THREE of the following:** **12**
- a) A fixed asset is purchased on 1 January 2020. Information relating to the asset is as follows:–  
Cost of acquisition = Rs. 1,50,000  
Residual value estimated at the time of acquisition = Rs. 15,000.  
Useful life estimated at the time of acquisition = 10 years.  
Calculate depreciation expense for the year ending 31 December, 2020.
  - b) Explain estimation of melting efficiency in arc welding.
  - c) Compute total time taken to turn a 100 mm long and 40 mm diameter M.S. rod to a diameter of 38 mm in a single cut. Assume cutting speed to be 25 m/min, feed to be 0.1 mm/rev. and the mounting time in self centering three jaw chuck to 40 sec. Neglect time taken for setting up tool etc.
  - d) Define N.P.V. and D.C.F.

**5. Attempt any TWO of the following:****12**

- a) Prepare cost sheet for manufacturing of students desk with fabrication machines. Assume order of 500 desks and usual costs in the market and labour.
- b) Draw break even chart and explain various terms in it.
- c) Two 1 m long M.S. plates of 12 mm thickness are to be welded by a lap joint with a 6 mm electrode. Calculate the cost of welding. Assume following data –

Current used = 250 Amp.,

Voltage = 30 V.,

Welding speed = 10 m/hr.,

Electrode used = 0.1 kg/m of welding,

Labour charges = Rs. 50 per hr.,

Power charges = Rs. 10/kwh.

Cost of electrode = Rs. 50/kg and

Efficiency of machine = 60%.

**6. Attempt any TWO of the following:****12**

- a) A certain piece of work is produced by a firm in batches of 100. The direct materials cost for that 100 piece work is Rs. 1600 and the direct labour cost is Rs. 400. Factory on cost is 35% of the total material and labour cost. Overhead charges are 20% of the factory cost. Calculate prime cost and factory cost. If the management wants to make a profit of 10% on the gross cost, determine the selling price of each article.
- b) Explain replacement analysis and its reasons with advantages.
- c) Decide with following particulars a machine must be purchased or not –

Cost of machine = Rs. 4,00,000

Expected return in first year = 2,40,000

Expected return in second year = 1,60,000

Expected return in third year = 1,40,000

Salvage value at the end of third year = 40,000.