Sample Question Paper
Scheme – I

Programme Name	: Production Engineering	
Programme code	: PG	**22662**
Semester	: VI Sem	
Course Title	: Estimation and Costing	
Marks	: 70	Time: 3Hrs.

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) Preferably, write the answers in sequential order.

Q.1) Attempt any FIVE of the following. (10 Marks)
 a) Define estimating.
 b) State the advantages of standard cost.
 c) Define price.
 d) Differentiate between fixed cost and variable cost.
 e) Differentiate between depreciation and obsolescence.
 f) State objectives of Value engineering.
 g) State payback period.

Q.2) Attempt any THREE of the following. (12 Marks)
 a) Describe various methods of costing.
 b) List the aim of estimating.
 c) State the assumptions of breakeven analysis.
 d) Fixed cost in a factory is Rs.10, 000.0 per year, the variable cost are Rs.2.0 per unit and the selling price is Rs.4.0 per unit, calculate breakeven point.
 e) "Value engineering is a powerful tool for cost reduction" Justify.

Q.3) Attempt any THREE of the following. (12 Marks)
 a) What do you mean by 'cost control'? Explain the various steps involved in the process of cost control.
 b) State the methods of calculating depreciation and explain any two of them.
 c) Compute total time taken to turn a 100 mm long 25 mm diameter M.S. rod to a diameter of 23 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) In a certain Electro-chemical dissolution process of iron, calculate the MRR for following data: Supply voltage – 18 V DC, Current – 5000 A, Atomic weight – 56, Valency – 2, Density of iron – 7.87 g/cm^3. Assume tool-work gap of 0.5 mm and 100 % current efficiency for given electrolyte.

Q.4) Attempt any Three of the following. (12 Marks)
   a) Explain variance analysis.
   b) State the formula to calculate pouring time and pouring rate for grey cast with meaning of each term.
   c) The casting of 100 mm x 200 mm x 150 mm with central through hole of Ø60 is to be made in steel using wooden pattern. Considering shrinkage into account, calculate pattern dimensions. Shrinkage allowance for steel is 21 mm/m.
   d) State the reasons for replacement and advantages of replacement analysis.

Q.5) Attempt any TWO of the following. (12 Marks)
   a) Differentiate between costing and cost estimating.
   b) Discuss the procedure for calculation of breakeven point.
   c) Two 1 m long M. S. plates of 10 mm thickness are to be welded by a lap joint with a 6 mm electrode. Calculate the cost of welding. Assume the following data.
      i. Current used =250amp
      ii. Voltage =30V
      iii. Welding speed = 10m/hr
      iv. Electrode used =0.1 kg/m of welding
      v. Labour charges =Rs. 2.0 per hr
      vi. Power charges = Re. 0.20/kwh
      vii. Cost of electrode =Rs.35.0/kg
      viii. Efficiency of machine =60%

Q.6) Attempt any TWO of the following. (12 Marks)
   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. 160 and the direct labour cost is Rs. 200. 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 simple interest and compound interest. Compute the compound amount when Rs. 2000 are lent at 9% interest rate for 3 years, being compound semi-annually.
   c) Whether a machine having following particulars must be purchased or not:
      i. Cost of machine = Rs.4000
      ii. Expected return in first year = Rs.2400
      iii. Expected return in second year = Rs.1600
      iv. Expected return in third year = Rs.1400
      v. Salvage value at the end of third year = Rs.400

Programme Name	: Production Engineering	
Programme Code	: PG	**22662**
Semester	: Sixth	
Course	: Estimation and Costing	
Marks	: 20	**Time: 1 hour**

Instructions: All questions are compulsory

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4. Preferably, write the answers in sequential order

Q.1 Attempt any FOUR. (8 Marks)
   a. Define costing.
   b. List the methods of costing.
   c. List the assumptions of breakeven analysis.
   d. State the applications of breakeven analysis.
   e. Define value analysis. What are its advantages?
   f. A machine costing Rs. 24,000 was purchased in year 2018. The installation and erection charges were Rs. 1000 and its useful life is expected to be 10 years. The scrap value of the machine at the end of useful life is Rs. 5000. Calculate the yearly depreciation by straight line method.

Q.2 Attempt any TWO (12 Marks)

   a. Explain standard cost. State its advantages.
   b. The output of an electric bulb factory is 4000 bulbs per month. Its variable cost is Rs. 3 each and the fixed overheads are Rs. 6000 per month. The selling price is Rs. 5 per bulb. Work out the minimum monthly production which may not cause any loss to the owner.
   c. Differentiate between value analysis and value engineering.

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1. Illustrate your answers with neat sketches wherever necessary
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4. Preferably, write the answers in sequential order

Q.1 Attempt any FOUR. **(8 Marks)**
 a. State formula to calculate MRR for ductile material in AJM with meaning of each term.
 b. List factors for replacing equipment Define simple interest.
 c. State the meaning of EMI and DCF.
 d. Define NPV.
 e. State the reasons for replacement of equipments.

Q.2 Attempt any TWO. **(12 Marks)**
 a. Explain present worth method of replacement analysis. What are its advantages?
 b. Calculate the melting efficiency in case of arc welding of steel with a potential of 20 V and current of 200 A. The travel speed is 5 mm/sec and cross sectional area of the joint is 20 mm^2. Heat required to melt steel may be taken as 10 J/mm^3 and the heat transfer efficiency as 0.85.
 c. Calculate the time required for one complete cut on a piece of work 350 mm long and 50 mm in diameter. The cutting speed is 35 m/min and feed is 0.5 mm/rev.