

Reg. No. :

--	--	--	--	--	--	--	--	--	--

Question Paper Code: 31777

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Elective

Mechanical Engineering

01UME910 - PROCESS PLANNING AND COST ESTIMATION

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. State the objectives of method study.
2. Define the term Ergonomics.
3. Calculate the net machine-hours available in a factory from the following data for month of June:
 - (1) Number of milling machines = 8
 - (2) Number of working days = 25
 - (3) Number of shifts per day = 2
 - (4) Time lost due to maintenance and repairs, etc. = 3 hrs. per day
 - (5) Number of hours/shift = 8
4. Mention the factors influencing in process selection.
5. Differentiate between costing and cost estimation.
6. State the objectives of cost estimation.
7. If the engine thrust is 7,500 kg, and the no. of engines to be produced is 100, what is the development cost?

8. State the different types of allowances.
9. A batch of 500 components is produced on a capstan lathe. The work rate/piece is Rs. 2.50 and the indirect material cost/piece is Rs. 4.00. Overheads are 450% of direct labour cost. What is the total cost of the batch of component?
10. State the different methods of on-cost allocation.

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the recording techniques used in method study. (16)

Or

- (b) Describe the ergonomics principles applied to instrument design and control with example. (16)

12. (a) Discuss about the material selection parameters in detail. (16)

Or

- (b) Describe about the steps involved (procedure) in process planning. (16)

13. (a) Explain the components of cost estimation or job estimation. (16)

Or

- (b) From the following data for a sewing machine manufacturer, prepare a statement showing prime cost, Works/factory cost, production cost, total cost and profit.

Value of stock of material as on 1-04-2003 Rs. 26,000

Material purchased Rs. 2,74,000

Wages to labour Rs. 1,20,000

Depreciation of plant and machinery Rs 8,000

Depreciation of office equipment Rs 2,000

Rent, taxes and insurance of factory Rs16,000

General administrative expenses Rs 3,400

Water, power and telephone bills of factory Rs 9,600

Water, lighting and telephone bills of office Rs 2,500

Material transportation in factory Rs 2,000

Insurance and rent of office building Rs 2,000

Direct expenses Rs 5,000

Commission and pay of salesman Rs 10,500

Repair and maintenance of plant Rs 1,000

Works manager salary Rs 30,000
Salary of office staff Rs 60,000
Value of stock of material as on 31-03-2004 Rs 36,000
Sale of products Rs 6,36,000 (16)

14. (a) Describe the data requirements and sources of information for cost estimation. (16)

Or

(b) In a manufacturing process, the observed time for 1 cycle of operation is 0.75 *min.* The rating factor is 110%. The following are the various allowances as % of normal time:

Personal allowance = 3%

Relaxation allowance = 10%

Delay allowance = 2%

Estimate the standard time (16)

15. (a) Explain the cost of the product with ladder diagram. (16)

Or

(b) Segregate the fixed cost and the variable cost of running a motor car for one year. (16)
