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**Question Paper Code : 91607**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2014.

Seventh Semester

Mechanical Engineering

ME 2027/ME 701/GE 1452/10122 MEE 21 — PROCESS PLANNING AND COST ESTIMATION

(Common to Production Engineering)

(Regulation 2008/2010)

(Common to PTME 2027 – Process Planning and Cost Estimation for  
B.E. (Part-Time) Sixth Semester – Mechanical Engineering — Regulation 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Write the objectives of Method study.
2. What is Ergonomics?
3. State the Parameters involved in material selection.
4. Define : Break even point.
5. Define : Under Estimate.
6. What is meant by target cost?
7. What is meant by conceptual cost estimating.
8. Define : contingency allowance.
9. List out the material losses in forging.
10. What do you mean by overhead expenditure?

## PART B — (5 × 16 = 80 marks)

11. (a) Write the recording techniques used in method study. Explain with a neat sketch of material type flow process chart. (16)

Or

- (b) What do you understand by Analytical estimating? Give the procedure for conducting work measurement study by analytical estimating. (16)

12. (a) Explain the use of computers in process planning and cost estimation and list out the advantages of CAPP. (16)

Or

- (b) What are factors influencing process selection and write down the process selection parameters. (16)

13. (a) (i) Write the difference between cost accounting and cost estimating. (8)  
(ii) Write basic steps in cost estimation. (8)

Or

- (b) Calculate prime cost, factory cost, production cost, total cost and selling price per item from the data given below for the year 2012-13.

|  |             |
|--|-------------|
| Cost of raw material in stock as on 01.04.2012 | - Rs 25,000 |
| Raw material purchased                         | - Rs 40,000 |
| Direct labour cost                             | -Rs14,000   |
| Direct expenses                                | - Rs 1,000  |
| Factory/work over heads                        | - Rs 9,750  |
| Administrative expenditure                     | - Rs 6,500  |
| Selling and distribution expenses              | - Rs 3,250  |
| Number of items produced                       | - 650       |
| Cost of raw material in stock as on 31.03.2013 | - Rs 15,000 |

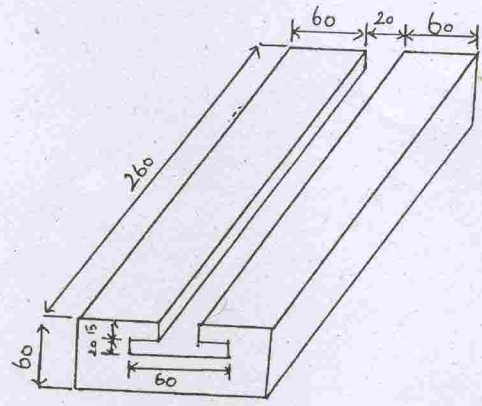
Net Profit of the items is 10 percent of the total cost of the product.

14. (a) (i) What are the three methods used in conceptual Cost estimation? Explain any two methods briefly. (8)  
(ii) Write the data requirements and sources of information for cost estimation. (8)

Or

- (b) (i) In a manual operation, observed time for a cycle of operation is 0.5 minute and the rating factor as observed by the time study engineer is 125%. All allowances put together is 15% of normal time. Estimate the standard time. (8)
- (ii) In a manufacturing process the observed time for one cycle of operation is 0.75 minute. The rating factor is 110%. The following are the various allowances as the percentage of normal time.  
 Personal allowance = 3%  
 Relaxation allowance = 10%  
 Delay allowance = 2%  
 Estimate the standard time. (8)

15. (a) A T-slot is to be cut in a C.I. slab as shown in Fig. given below. Estimate the machining time. Take cutting speed 25 m/min, feed is 0.25 mm/rev. Dia of cutter for channel milling is 80 mm.



Or

- (b) Calculate the machining time required to produce one piece of the component shown in Fig. given below starting from a 25 mm bar. The following data is available.  
 For turning :  
 Cutting speed = 40 m/min.  
 Feed = 0.4 mm/rev.  
 Depth of cut = 2.5 mm/per pass  
 For thread cutting :  
 Cutting speed = 8 m/min.

