

# CBCS SCHEME

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## Third Semester M.Tech. Degree Examination, Dec.2019/Jan.2020 Product Analysis and Cost Optimization

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

### Module-1

- a. What is idea generation? List the source of idea generation. (10 Marks)  
b. Explain briefly new product strategies. (10 Marks)

OR

- a. Explain Standardization? List the types of standardizations? Mention advantages of standardization. (10 Marks)  
b. With neat sketch draw break even chart and explain silent features. (10 Marks)

### Module-2

- a. Define value. Explain steps in value analysis and aims of value analysis. (14 Marks)  
b. Estimate the tool time taken to turn a 30mm diameter mild steel stock 150mm long and a 28mm diameter in a single cut assume the cutting speed to be 20 meter/min and the feed to be 0.2mm per revolution the job is to be mounted in a self-centering 3 Jaw chuck neglect the time taken for setting up of tools time taken for mounting the job in the chuck is 30 sec? (06 Marks)

OR

- a. What is Costing? List aims of costing. Compare between estimating and costing. (10 Marks)  
b. Write steps involved in cost estimation/sequences. (10 Marks)

### Module-3

- a. Estimate the weight of a MS shaft shown in Fig.Q5(a), weight 7.8gm/cm<sup>3</sup>.

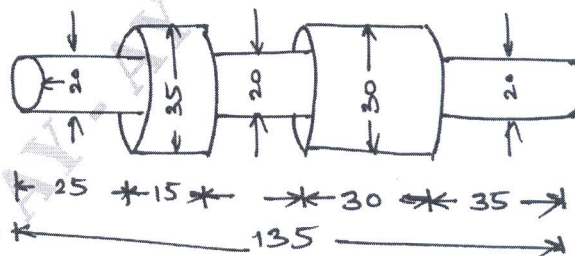


Fig.Q5(a)

- b. List and explain cost of product (ladder of cost). (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.

OR

- 6 a. A certain product is manufactured in batches of 100. The direct material cost is found to be Rs.16/- direct about cost Rs.28 and overheads chargeable to be Rs.21/-. If the selling cost is 50% of the factory cost. What must be the selling price of each product to realize of profit of 15% (i.e. profit is 15% of the selling price)? (08 Marks)
- b. A machine was purchased for Rs.12,000/-. It was assumed that after 15 years, its value will reduce to Rs.4500, machine was assumed working 10 hours a day. Calculate the depreciation per working hours. (07 Marks)
- c. Write a note on machine hour rate. (05 Marks)

Module-4

- 7 a. Define direct material variance. Classify the direct material variance. (10 Marks)
- b. From the data given below calculate :
- Material cost variance
  - Material price variance
  - Material usage variance

Product	Std. Quantity (units)	Std. Price (Rs.)	Actual Quantity (units)	Actual Price (Rs.)
A	1050	2.00	1100	2.25
B	1500	3.25	1400	3.50
C	2100	3.50	2000	3.75

(10 Marks)

OR

- 8 a. In a manufacturing concern the standard time fixed for a month is 8000 hours a standard wage rate of Rs.2.25 per hour has been fixed during one month 50 workers were employed and overage working days in a month are 25. A worker works for 7 hours a day. Total wage bill of the factory for month amount to Rs. 21,875/- there was a stoppage a worker due to power failure (idle time) for 100 hours. Calculate various labour variance. (10 Marks)
- b. Define Labour variance. Write note on following :
- Labour cost variance
  - Idle time variance
  - Labour efficiency/labour time variance. (10 Marks)

Module-5

- 9 a. A lap joint is to be prepared in 9.5mm. M.S sheet using flat welding position and 6mm electrode. Current used is 250 amperes and voltages 30V. Welding speed is 12 meters per hour and 0.3kg of metal is deposited per meter length of joint. Labour cost Rs.1.5 per hour power Rs.0.2 per KWh and electrode Rs.4.0 per kg. Efficiency of machine is 50% and operating factor is 60%. Calculate the cost of labour, power and electrode per meter of weld. (10 Marks)
- b. 200 piece of bolt are to be made by upsetting from 25mm diameter. What is the length of each bolt before upsetting? What length of the rod is required if 3.5% of the length goes as scrap? (10 Marks)

OR

- 10 Write note on :
- Analytical method
  - Graphical method
  - Incremental method. (20 Marks)

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