



CBCS SCHEME

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17MA742

Seventh Semester B.E. Degree Examination, Jan./Feb.2021 Process Planning

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Assume missing data suitably if any.

Module-1

- 1 a. Define process planning. Discuss various process planning methods. (08 Marks)
b. Explain various types of drawing. (06 Marks)
c. List out commonly used symbols for geometric tolerance with necessary sketches. (06 Marks)

OR

- 2 a. List out various mechanical and physical properties of a material. (06 Marks)
b. Elaborate on the factors involved in process selection. (06 Marks)
c. Discuss the factors involved in equipment selection. (08 Marks)

Module-2

- 3 a. List out various types of jigs and fixtures. (06 Marks)
b. Explain the reasons for the use of jigs and fixtures. (06 Marks)
c. Discuss the general factors involved in work holder design and selection. (08 Marks)

OR

- 4 a. Discuss briefly any four QC tools. (08 Marks)
b. Explain the use of financial information for a manufacturing organization. (04 Marks)
c. Elaborate an eight quality management principles used for continuous improvement for an organization. (08 Marks)

Module-3

- 5 a. Explain various methods of costing. (06 Marks)
b. Discuss the elements of a cost. (06 Marks)
c. The marked price of a lathe is Rs.5000 and the discount allowed to the distributor is 20% of marked price. It is found that the selling expense is one fourth of the factory cost and if the material cost, labour cost, factory overhead are in the ratio of 1 : 4 : 2. What is profit made by factory on each lathe if the material cost is Rs.400. Neglect other overhead. (08 Marks)

OR

- 6 a. Explain various causes of depreciation. (06 Marks)
b. Gabrid India Ltd., Pune employ 50 workers during month April 2017 the detail of expenditures are given below :

Material cost = Rs.30,000/-

Rate of wages for each worker = Rs.1.5/hr

Duration of work = 8 hours/day

Number of holidays in the month = 5 days

Total overhead expenses = Rs.15000

If worker were paid overtime of 400 hour at the rate of Rs.3/hour. Calculate total cost and man hour rate of overheads. (06 Marks)

- c. The cost of a machine is Rs.16000 and its scrap value is Rs.4,000. Determine depreciation charges for each year if the estimated life of machine is 4 years (08 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.

Module-4

- 7 a. 200 pieces of a component as shown in the Fig. Q7 (a) are to be drop forged from a 4 cm diameter bar. Calculate the cost of manufacture if material cost = Rs.100 per metre. Forging charges Re. 0.01 per cm^2 of surface area to be forged. On cost is 10% of material cost. Assume all possible losses during operation. (12 Marks)

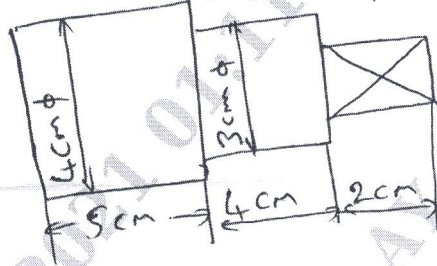


Fig. Q7 (a)

- b. Discuss various loss of forging. (08 Marks)

OR

- 8 a. 1000 M.S pins of 4 cm diameter and 10 cm length are to be drop forged from a bar stock of 5 cm diameter. Calculate the material cost if bar is available at Rs.50 per metre length. Assume all possible loss. (10 Marks)
- b. Estimate the total cost of 50 CI, flanged pipe casting and assume following data:
 Cost of CI = Re 1.00 per kg
 Cost of process scrap = 50 paise/kg
 Process scrap = 2 % of net weight of casting
 Moulding and pouring charges = Re 1.0/piece
 Casting removal and cleaning = 70 paise/piece
 Administration overhead = 50% of factory cost
 Selling overhead = 70% of administration overhead.
 Density of CI = 7.2 gm/C.C (10 Marks)

Module-5

- 9 a. Find the time required for doing rough grinding of a 15 cm long steel shaft to reduce its diameter from 4 to 3.8 cm with the grinding wheel to 2 cm face width. Assume cutting speed as 15 m/min and depth of cut as 0.25 mm. (08 Marks)
- b. A 20×5 cm CI surface is to be faced on a milling machine with a cutter having a diameter of 10 cm and 16 teeth. If the cutting speed and feed are 50 m/min and 5 cm/min respectively, determine milling time, rpm of the cutter and feed per tooth. (12 Marks)

OR

- 10 a. Find out the time required for shaping a block of 30 cm \times 15 cm size in two cut. Assume feed as 0.6 m/stroke and cutting speed as 15 m/min. (07 Marks)
- b. Estimate the planning time for a work surface of size 1000 mm long \times 200 mm wide of a casting. The cutting speed is 10 m/min feed 0.20 m/stroke and cutting ratio $\frac{3}{4}$. (07 Marks)
- c. Estimate the machining time for finishing a surface of 1 m and 20 cm size on a planning machine. If the cutting speed is 10 m/min and feed is 10 mm/stroke (06 Marks)

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