

Model Question Paper (CBCS) scheme

15ME744

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Seventh Semester B.E. Degree (CBCS) Examination Dec - 2018/ Jan 2019

Design for Manufacturing

Time: 3 hrs.

Max. Marks: 80

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

MODULE – I

- 1 a Explain briefly the guidelines for design for manufacturability. (10Marks)
b List some of the important properties of materials to be considered in the design process. (06Marks)

OR

- 2 a The material of a solid cylindrical tie rod of cross-sectional area “A” and length “L” is to be selected for carrying a tensile load “P” with factor of safety “S”. Explain the process of material selection as per the cost per unit property method. (10Marks)
b Explain the effect of manufacturing processes on design. (06 Marks)

MODULE – II

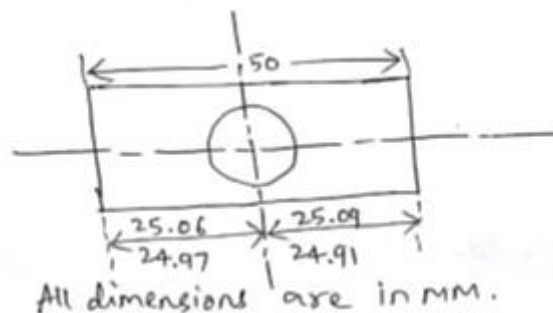
- 3 a Explain with sketch selective assembly of model-I. (08Marks)
b With a neat sketch, explain the “projected tolerance zone”. (08 Marks)

OR

- 4 a What are laminated shims? Explain with sketch, state materials used for shims. (08Marks)
b Explain virtual size concept and the advantages of true position tolerancing. (08 Marks)

MODULE – III

- 5 a Change the datum for the drawing of a pin from axis of hole to end face (see Fig. Q5 (a)).



(10Marks)

Fig. Q5(a)

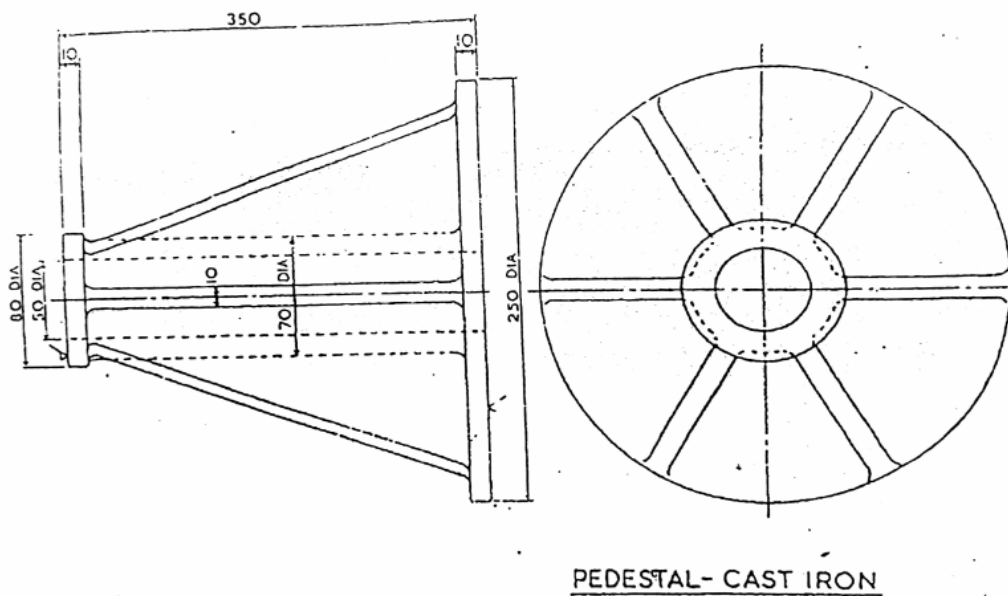
- b Explain “milling cutters” with sketches. (06Marks)

OR

- 6 a Write short notes on simplification by separation and simplification by amalgamation. (10 Marks)
b Explain functional datum and manufacturing datum with an example. (06 Marks)

MODULE – IV

- 7 a Explain the considerations given in the selection of parting lines.
A cast iron pedestal is shown in Fig. Q7 (a). Identify the preferred parting line and the necessary sand cores. Offer a design modification that will reduce or eliminate the need for sand cores.



(09 Marks)

Fig. Q7 (a)

- b Explain the design recommendations to minimize distortion in welding with sketches. (07 Marks)
- OR**
- 8 a Explain the design recommendations for weld strength with sketches. (09 Marks)
- b Explain the various procedures for selecting the parting line for a hollow bush casting. (07 Marks)

MODULE – V

- 9 a Explain the design recommendations for powder metallurgy with suitable sketches. (16 Marks)
- OR**
- 10 a Explain the design recommendations for the following forging variables. (10 Marks)
(i) Parting line (with sketches) (ii) Draft (iii) Radii
- b Explain any three design recommendations for injection molding with suitable sketches. (06 Marks)