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Question Paper Code : 71084

M.E. DEGREE EXAMINATION, JUNE/JULY 2013.

Second Semester

Computer Aided Design

CC 9221/CC 921/ED 972/UED 9172/10222 EDE 61 — DESIGN FOR
MANUFACTURE, ASSEMBLY AND ENVIRONMENTS

(Common to M.E. CAD/CAM, M.E. Engineering Design and
M.E. Product Design and Development)

(Regulation 2009/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are modifiers with respect to geometric tolerances? How is it represented in drawings?
2. What is critical process capability ratio? Mention its uses.
3. List down the four important group foci points influencing design.
4. Mention any four general rules in form design of welded members.
5. How is reduction in machined area achieved in component design? Give an example.
6. What is design for machinability?
7. Write down the general guidelines for selection of parting surfaces in sand casting process.
8. What points are to be borne in mind by the designer while redesign of cast members or modify the design of castings?
9. Why DFE is important?
10. What is design for recycling? Give one example.

PART B — (5 × 16 = 80 marks)

11. (a) Distinguish between functional datum and manufacturing datum. Discuss the steps involved in changing the datum with a suitable example.

Or

- (b) Discuss the steps involved in the attainment of assembly limits with a suitable example.

12. (a) How is the various possible solutions found for design problems to be solved? How is the best solution found? Illustrate with a suitable example.

Or

- (b) Discuss in detail on the influence of materials on form design with suitable examples.
13. (a) Discuss at least four design features to facilitate machining with suitable sketches.

Or

- (b) (i) Explain how component design facilitates machining with suitable sketches. (8)
- (ii) Explain how component design facilitates economy, clampability, accessibility and assembly with suitable examples. (8)
14. (a) Indicate the probable parting line for the fulcrum lever in Figure 1 and briefly state the reasons for the choice. Show two design modifications which, whilst maintaining as a similar weight and stability of casting, will reduce or eliminate the need for sand cores.

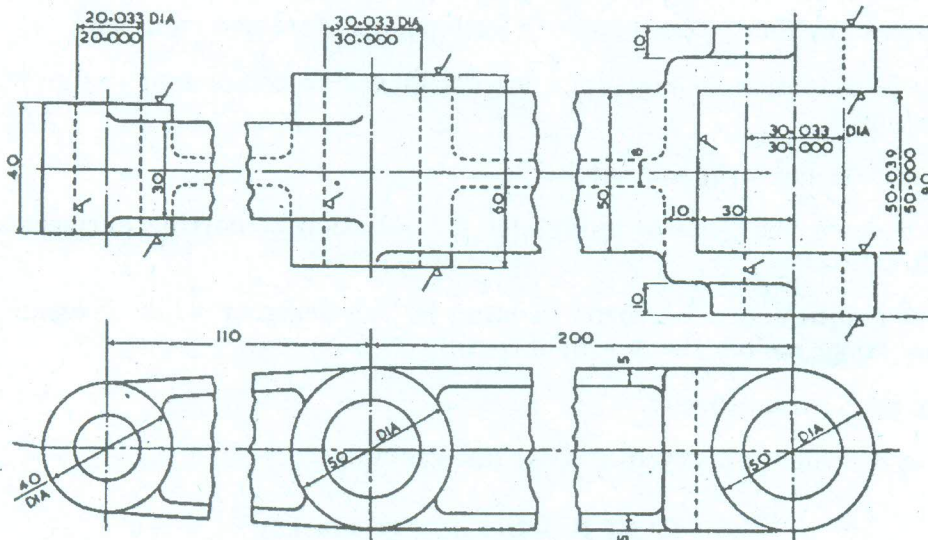


Fig. 1 FULCRUM LEVER – CI

Or

(b) Write a note on the following.

(i) Group technology (8)

(ii) Computer applications for DFMA. (8)

15. (a) Explain the basic method of life cycle assessment for a product.

Or

(b) Write a note on the following :

(i) Design of minimize material usage (8)

(ii) Design for energy efficiency. (8)