Register No: …….

M.E. DEGREE EXAMINATIONS: JUNE 2011

Second Semester

CAD/CAM

CCM508: Design for Manufacture, Assembly and Environments

Time: Three Hours **Maximum Marks: 100**

Answer ALL Questions:-

PART A (10 x 2 = 20 Marks)

1. What is meant by “Assembly Limit”?
2. Define Geometrical Tolerance.
3. Write the effect of pattern draft on casting design.
4. State any two rules for the form design of welding with suitable sketches.
5. What is meant by “Design for clampability”?
6. Mention the significance of ‘Simplification by Amalgamation’.
7. State the significance of parting line in castings.
8. List any four factors causing uneconomical design.
9. What are the various stages of product life cycle?
10. Define life cycle assessment.

PART B (5 x 16 = 80 Marks)

11. a) (i) Differentiate Dimensional Tolerance and Form Tolerance. (6)

(ii) With a suitable example explain the following: (10)

a. Circularity from tolerance

b. Runout tolerance

(OR)

b) Give the procedural steps involved in determining the Process Capability. Explain how Process Capability helps to achieve tolerance.

12. a) (i) How does production method influences form design? (8)

(ii) List out the rules for form design of welded structures. (8)

(OR)

b) Explain how Properties like hardness, Strength and elasticity affect form design of casting of end cover plate of the electric motor.

13. a) Explicate in detail the design features to facilitate machining process in drills and keyways.

(OR)

b) With suitable sketches, describe the machining considerations for a design based on the following:

i) Reduction in machining Area (8)

ii) Simplification by separation (8)

14. a) A bearing shaft (Fig. 1) is to be produced in quantities. Subject the component to a 'design for manufacture analysis', to identify an unnecessary amount of machining and tooling. Offer a design Modification that will achieve economy without impairing the function of the component.

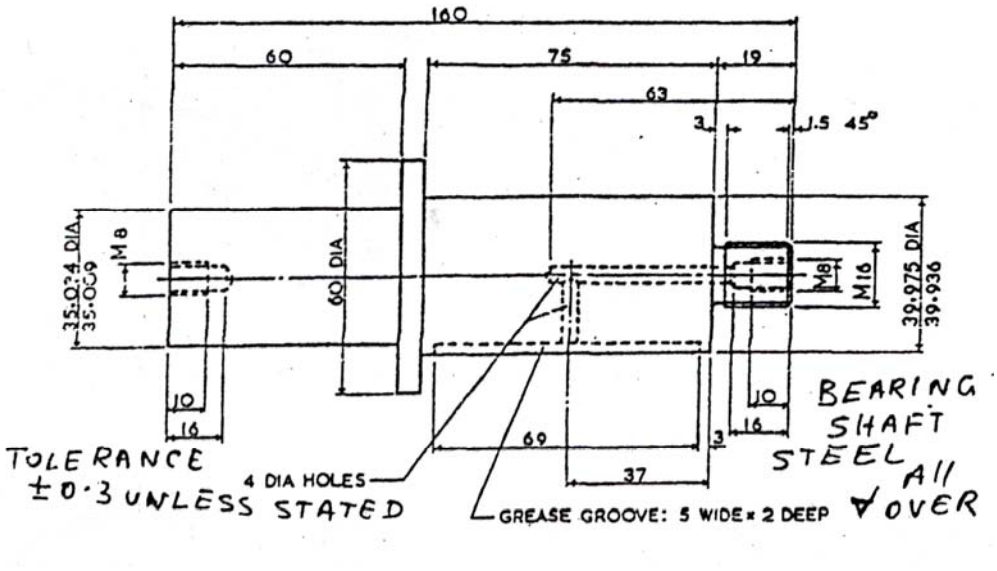

Fig. 1

(OR)

b) (i) Explain how economy in the design of castings produced by Sand moulding is achieved. (8)

(ii) Describe applications of computer in DFMA. (8)

15. a) Write short notes on Design for Energy efficiency and design for disassembly.

(OR)

b) List out the various regional and local issues in the basic design for environments and explain them in detail.

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