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**B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV / DEC 2013**

**MANUFACTURING ENGINEERING BRANCH**

**FIFTH SEMESTER**

**MF 9302 – METAL FORMING TECHNOLOGY**

**(REGULATIONS 2000)**

Time: 3 Hrs

Answers All questions

Max. Marks: 100

**PART – A (10 x 2 = 20 Marks)**

1. State any four advantages of forging process.
2. State any four differences between slip and twinning.
3. State the differences between near net shape and net shape manufacturing.
4. Name any four equipment used in forging process.
5. State the differences between drawing, redrawing and reverse drawing.
6. State any two differences between conventional and shear spinning.
7. List any four differences between conventional and high speed forming.
8. What is the need for isothermal forging?
9. State any four applications of powder metallurgy components.
10. Compare any four properties of components prepared by casting, forging and powder metallurgy.

**PART – B (5 x 16 = 80 Marks)**

- 11a(i). Compare rubber pad and hydro forming with simple sketches. (8)
- 11a(ii). Compare cold and hot isostatic pressing (8)
- 12a(i). Classify forming processes. (8)
- 12a(ii). With simple sketches explain ductile, brittle, shear and complete ductile fracture (8)

**(OR)**

12b. Describe the following with neat sketch

- i. Stress strain curves for different materials (8)
- ii. Strain hardening (8)

13a. Write briefly about the following with neat sketches.

- i. Upset forging (8)
- ii. Mannesmann process (8)

(OR)

13b. Write briefly about the following with neat sketches.

- i. Tube drawing (8)
- ii. Hydrostatic and Impact extrusion (8)

14a(i) Explain the various stages involved in the making of beverage can with neat sketch. (12)

14a(ii). State any four differences between blanking and fine blanking with neat sketches. (4)

(OR)

14b(i). Explain electro hydraulic forming process with neat sketches. (12)

14b(ii) State the advantages and limitations of super plastic forming process? (4)

15a. Explain the various stages involved in the preparation of powder metallurgy components with simple sketches. (16)

(OR)

15b. Explain powder forging and powder rolling processes with simple sketches. (16)