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B.E/B.TECH (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV/DEC 2011

MANUFACTURING ENGINEERING BRANCH

FIFTH SEMESTER

**MF 9302 – METAL FORMING TECHNOLOGY**

(REGULATIONS 2008)

Time: 3 Hrs

Max. Marks: 100

Answer All Questions

**PART – A (10 x 2 = 20 Marks)**

1. Name the different types of sheet metal forming process.
2. State the differences between slip and twinning.
3. State the differences between open and closed die forging.
4. What is meant by die failure?
5. What the differences between drawing and deep drawing process?
6. What are the characteristic of superplastic material?
7. State the differences between conventional and high speed forming.
8. State the advantages and disadvantages of isothermal forming.
9. How powder materials are characterised?
10. Compare components prepared by casting, forging and powder metallurgy.

**PART – B (5 x 16 = 80 Marks)**

11. With simple sketches briefly explain the various stages involved in the preparation of powder metallurgy components. (16)
- 12a. (i) State the differences between hot working and cold working. (10)
- 12a. (ii) Define engineering stress, engineering strain, true stress and true strain with equations. (6)

OR

12b. Describe the following with neat sketches

- i. Elastic and Plastic deformations (6)
- ii. Strain hardening (6)
- iii. Points and line defects (4)

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

- i. Forging defects (8)
- ii. Economics of bulk forming (8)

OR

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

- i. Mannesmann process (8)
- ii. Extrusion defects (8)

14a (i). Write briefly about formability of sheet metals. (10)

(ii). State the differences between blanking and fine blanking. (6)

OR

14b. (i) Explain explosive HERF processes with neat sketches. (12)

(ii) Explain economics of sheet metal forming processes. (4)

15a. State the differences between hot and cold isostatic pressing with neat sketches. (16)

OR

15b. Explain rubber pad forming and hydro forming with simple sketches. (16)