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B.E/B.TECH (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL/MAY 2013

MANUFACTURING ENGINEERING BRANCH

FIFTH SEMESTER

15

**MF 9302 – METAL FORMING TECHNOLOGY**

(REGULATIONS 2008)

Time: 3 Hrs

Max. Marks: 100

Answer All Questions

**PART – A (10 x 2 = 20 Marks)**

1. Broadly classify metal forming processes.
2. State any four important differences between hot working and cold working.
3. State any two disadvantages of open-die forging.
4. State any four differences between direct and indirect extrusion?
5. What is meant by minimum bend radius?
6. What is meant by spring back effect?
7. State any two differences between conventional and high speed extrusion.
8. State any two advantages and disadvantages of isothermal forming.
9. State the advantages of powder metallurgy.
10. Name the different methods used to identify particle size of metal powders.

**PART – B (5 x 16 = 80 Marks)**

11. Write briefly about the following with neat sketches.
  - i. Different forging methods (8)
  - ii. Different rolling methods (8)
- 12a(i). Define engineering stress, engineering strain, true stress and true strain. (8)
- 12a(ii). State the differences between slip and twinning? (8)

OR

12b. Describe the following with neat sketch

- i. Elastic and Plastic deformations (8)
- ii. Point and line defects (8)

13a(i). State the general characteristics of sheet metal forming processes. (10)

13a(ii). State the differences between blanking and fine blanking. (6)

OR

13b(i). Explain any one of the HERF processes with neat sketches. (10)

13b(ii) State the advantages and limitations of super plastic forming process? (6)

14a(i). Briefly describe high speed extrusion process. (16)

OR

14b(i). Explain rubber pad and hydro forming with simple sketches. (16)

15a With simple sketch explain

- (i) Powder rolling (8)
- (ii) Powder forging (8)

OR

15b(i). Write briefly about various stages involved in powder metallurgy. (16)