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B.E/B.TECH (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL/MAY 2014

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. What is meant by recrystallisation temperature?
2. Differentiate hot working and cold working.
3. What is meant by formability?
4. Differentiate direct and indirect extrusion?
5. What is meant by minimum bend radius?
6. What is meant by spring back effect?
7. Differentiate cold and hot isostatic pressing.
8. Differentiate conventional and high speed forming.
9. State the advantages of powder metallurgy.
10. Compare components prepared by casting, forging and powder metallurgy.

PART – B (5 x 16 = 80 Marks)

11. Explain rubber pad and hydro forming with simple sketches. (16)
- 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. Write briefly about the following with neat sketches.

- i. Forging defects (8)
- ii. Rolling methods (8)

OR

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

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

14a(i). Differentiate shearing and drawing processes with neat sketches. (8)

14a(ii). State the differences between blanking and fine blanking with neat sketches. (8)

OR

14b(i). Explain any one HERF process with neat sketches. (12)

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

15a. With simple sketches briefly explain the various stages involved in the preparation of powder metallurgy components. (16)

OR

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