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B.E/B.TECH (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL/MAY 2012

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 and cold working.
3. Differentiate open and closed die forging.
4. Define formability?
5. What is meant by minimum bend radius?
6. What is meant by spring back effect?
7. Differentiate conventional and high speed extrusion.
8. State the advantages and disadvantages of orbital forging.
9. Compare the components prepared by casting, forging and powder metallurgy.
10. Mention some of the applications and advantages of powder metallurgy.

PART – B (5 x 16 = 80 Marks)

11. Write briefly about the following with neat sketches.
    i. Forging defects (6)
    ii. Direct and Indirect extrusion (6)
    iii. Economics of bulk forming (4)

12a(i). Define engineering stress, engineering strain, true stress and true strain. (8)

12a(ii). Classify forming processes. (8)

OR

12b. Describe the following with neat sketches

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

13a(i). State the general characteristics of sheet metal forming processes. (8)

13a(ii). Differentiate blanking and fine blanking. (8)

OR

13b(i). Explain explosive forming process with neat sketches. (8)

13b(ii) What is super plastic forming process? State its advantages and limitations. (8)

14a. Differentiate hot and cold isostatic pressing with sketches. (16)

OR

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

15a With simple sketch explain

i. Powder forging (8)

ii. Sintering in powder metallurgy (8)

OR

15b(i). Write briefly about secondary and finishing operations in powder metallurgy. (8)

15b(ii). Write briefly about the design consideration in powder metallurgy. (8)