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B.E /B.TECH (FULL TIME) END SEMESTER EXAMINATIONS, APRIL/MAY 2019

MANUFACTURING ENGINEERING

IV Semester

MF 8401 METAL FORMING AND POWDER METALLURGY

(Regulation 2012)

Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART- A (10 x 2 = 20 Marks)

1. State any four differences between elastic and plastic deformations.
2. Differentiate hot and cold working (any four points).
3. Name any four types of rolling process.
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 four differences between rubber pad and water hammer forming.
8. State any four advantages of fine blanking.
9. State any four advantages and applications of powder metallurgy components.
10. What is the need for secondary and finishing operations in powder metallurgy components (any four points)?



PART - B (5 x 16 = 80)

11. With simple sketches briefly explain the various stages involved in the preparation of powder metallurgy components.

(16)

12a. Define engineering stress, engineering strain, true stress and true strain with equations. (16)

OR

12b. Describe the following with neat sketches

(i) Strain hardening (8)

(ii) Points and line defects (8)

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. Explain explosive HERF processes with neat sketches. (16)

15a. Explain orbital and isothermal forging with neat sketches. (16)

OR

15b. Explain the differences between extrusion and high speed extrusion with simple sketches. (16)

