

J.C. BOSE UNIVERSITY OF SCIENCE & TECHNOLOGY YMCA, FARIDABAD

B. TECH. 3RD SEMESTER MECHANICAL ENGINEERING (UNDER CBS)

MANUFACTURING PROCESSES (ME-209C)

Time: 3 Hours

Max. Marks: 75

- Note: 1. It is compulsory to answer the questions of Part -1.
2. Answer any four questions from Part -2 in detail.
3. Different parts of the same question are to be attempted adjacent to each other.
4. Support your answer with neat sketches, wherever necessary.

PART -1

- Q1 (a) What are the situations in which a single piece pattern is advantageously used? (1.5)
(b) State the essential ingredients of a moulding sand. (1.5)
(c) What does normally constitute the charge in a cupola furnace? (1.5)
(d) What are specific merits of cold working over hot working process? (1.5)
(e) What is metal spinning? (1.5)
(f) Why is the neutral flame extensively used in oxy-acetylene welding? (1.5)
(g) What filler metals are generally used in brazing? (1.5)
(h) Why an AC power supply is not normally used in TIG welding process? (1.5)
(i) What are the advantages claimed of friction welding? (1.5)
(j) What are the various methods available for making the metal powder? (1.5)

PART-2

- Q2 (a) Briefly enumerate the steps in sequence for producing castings from precision investment casting. (10)
(b) Describe the objectives of gating systems in any casting. (5)
- Q3 (a) Differentiate between drop forging and press forging processes. (10)
(b) What are the differences in roll-pass sequences for billets and rounds? (5)
- Q4 (a) Briefly describe the method of swaging giving the main applications for the process. (10)
(b) Differentiate between embossing and coining. (5)
- Q5 (a) Explain the resistance welding process giving the equipment, parameters controlled and the applications. (10)
(b) What are the problems encountered with the use of coated electrodes? Explain how these can be taken care of. (5)
- Q6 (a) Describe the electron-beam welding process. (10)
(b) What are the differences between TIG and MIG welding processes? (5)
- Q7 (a) Briefly explain the powder metallurgy process with a block diagram. (10)
(b) What do you understand by mixing and blending with reference to powder metallurgy? (5)
