

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

B. TECH. 4TH SEMESTER MECHANICAL ENGINEERING (UNDER CBS)

MANUFACTURING SCIENCE-II (MU-212)

Time: 3 Hours

Max. Marks: 60

- 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 is the most generally used method for measuring average chip-tool interface temperature? (2)
(b) What are the disadvantages of ceramics as cutting tool materials? (2)
(c) What are the main applications of cutting fluids? (2)
(d) What is meant by machinability? (2)
(e) What is gear burnishing? (2)
(f) What are the characteristics required for a good electrode material in EDM? (2)
(g) What are the different types of clamps used in jigs and fixtures? (2)
(h) What are the typical electrode materials used in tungsten inert gas welding? (2)
(i) Why is foolproofing done in fixtures? (2)
(j) Define the terms 'tolerance' and 'limits' with reference to the dimensional measurement. (2)

PART -2

- Q2 What is meant by built-up-edge (BUE)? With a neat sketch, explain the formation of a BUE. Explain the conditions which promote the growth of BUE along with its consequences. (10)
- Q3 (a) Explain the basis for the selection of a specific cutting fluid for a given application. (6)
(b) What are the desirable characteristics of a cutting tool material? (4)
- Q4 (a) Compare gear shaping and gear hobbing giving the process and product requirements. (6)
(b) Define tool life? Discuss the various factors which govern the tool life. (4)
- Q5 Discuss the working principle, process parameters and advantages of Ultrasonic Machining (USM). (10)
- Q6 (a) Discuss the different parts of a milling fixture. (6)
(b) What are the differences in the vernier and micrometer as used for linear measurements? (4)
- Q7 (a) Explain the process of diffusion welding. (6)
(b) Is it possible to use a centre lathe for friction welding? Support your answer with reasons. (4)
