Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 41048

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Seventh Semester

Mechanical Engineering

080120043 — DESIGN OF JIGS, FIXTURES, PRESS TOOLS AND MOULDS

(Regulation 2008)

Time : Three hours Maximum : 100 marks

(Use of Approved Design Data Book is permitted)

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are basic elements of Jigs and fixtures?
2. Mention the advantages of Jigs and fixtures.
3. What for a fixture is used?
4. What is the use of indexing Jigs?
5. What are compound and progressive dies?
6. Mention the purpose of strippers in blanking operation.
7. What do you mean by forming?
8. State the concept of spring back in bending.
9. What is mould venting?
10. What is mould shrinkage?

PART B — (5 × 16 = 80 marks)

11. (a) Explain about the different materials used for the design of Jigs and fixtures. (16)

Or

(b) Explain :

(i) Principles of location (4)

(ii) Different locating methods (12)

12. (a) (i) What are the important considerations while designing a Jig and fixture? (8)

(ii) Give brief note on modular fixturing system. (8)

Or

(b) Explain the following with neat sketches :

(i) Milling fixture (8)

(ii) Grinding fixture. (8)

13. (a) Write short notes on :

(i) Types of die sets (4)

(ii) Punch Holder (4)

(iii) Press accessories (4)

(iv) Die block. (4)

Or

(b) (i) How press tools are selected? (8)

(ii) Determine the proper die clearance for a 19 mm round punch and die that is used on a universal iron worker that will pierce all types and thicknesses of a metal. (8)

14. (a) (i) What is drawing operation? What is meant by ironing when discussing drawing operation? (6)

(ii) What are the variables affecting metal flow in drawing operation? (6)

(iii) Bring out the set of operations involved in the blank development for forming operation. (4)

Or

(b) (i) Calculate the bending force for a 45° bend in 24ST3 aluminum, 1.58 mm thick and 122 cm long, with a die opening which is 8 times the metal thickness. The bend is to be made by air-bending methods. (8)

(ii) What are single and double action dies? (8)

15. (a) Explain injection mould design.

Or

(b) (i) How are moulds classified? (8)

(ii) Write a short note on split cavity moulds. (8)
