

10ME762

Seventh Semester B.E. Degree Examination, Dec.2014/Jan.2015

**Tool Design**

Time: 3 hrs.

Max. Marks:100

**Note:** Answer FIVE full questions, selecting at least TWO questions from each part.

**PART – A**

- 1 a. List the tool design objectives. (04 Marks)
- b. In orthogonal cutting of a mild steel bar on a lathe the feed used is 0.3 mm per revolution and depth of cut is 2 mm. Determine the cross section of a rectangular tool shank if the allowable stress in the shank material is 7 kg/mm<sup>2</sup>. (08 Marks)
- c. What is a chip breaker? Describe its various form with sketch. (08 Marks)
- 2 a. What are common procedures carried out during the design of cutting tool? (04 Marks)
- b. What are the major elements to be considered while designing milling cutter and explain any two. (08 Marks)
- c. Draw the twist drill point. Show the important points on it and explain Dead Centre. (08 Marks)
- 3 a. Explain clearly the difference between a jig and fixture. (04 Marks)
- b. Describe with a neat sketch 3-2-1 principle of locating a rectangular work piece. (08 Marks)
- c. With a neat sketch, explain the power operated clamping device. (08 Marks)
- 4 a. What are the design points should be considered for lathe fixture? (04 Marks)
- b. With the help of a neat sketch, explain surface grinding fixture. (08 Marks)
- c. Explain with the aid of suitable sketch, the indexing device. (08 Marks)

**PART – B**

- 5 a. How presses are classified? (04 Marks)
- b. Explain with a neat sketch, the progressive die. (08 Marks)
- c. Determine centre of pressure of the following blanked shape:

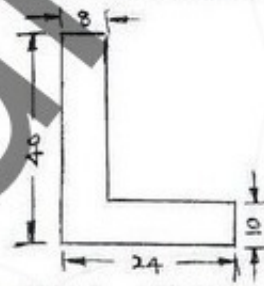


Fig.Q5(c) All dimensions are in mm.

- 6 a. Define spring back. (04 Marks)
- b. What are the factors affecting drawing? And explain any one. (08 Marks)
- c. Explain the edge bending with the help of a suitable sketch. (08 Marks)
- 7 a. Define die casting process. (04 Marks)
- b. Show the cross section of a die casting die used for cold chamber die casting and name the parts. (08 Marks)
- c. What are the advantages, disadvantages and application of die casting process? (08 Marks)
- 8 a. Define injection moulding. (04 Marks)
- b. List the ejection methods and explain any one with a neat sketch. (08 Marks)
- c. Explain with a neat sketch the extrusion moulding process. (08 Marks)

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