

R09

Code No: D3306, D5206**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****M.Tech II - Semester Examinations, March/April 2011****TOOL DESIGN****(COMMON TO ADVANCED MANUFACTURING SYSTEMS, DESIGN FOR MANUFACTURING)****Time: 3hours****Max. Marks: 60**

Answer any five questions
All questions carry equal marks

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1.
 - a) What are the various properties to be considered in the selection of cutting tool materials?
 - b) What is the effect of cobalt in HSS and mention the composition of HSS and its heat treatment? [12]

2.
 - a) What are the advantages of using grey cast iron as material for one main body of Jigs & fixtures.
 - b) Select the proper tool – steel and various treatments to be done for the following tools
 - i) Shear blade
 - ii) Reamer
 - iii) Ring-gauge. [12]

3.
 - a) What is the effect of rake and angel and clearance angle on cutting tools and Mention the effect of negative rake angle on tools?
 - b) How the cross –section of the shark of the single point cutting tool is designed? [12]

4.
 - a) What is the need of chip – breakers on the single point cutting tool and sketch various chip – breakers used in practice?
 - b) How are the Gun – drills are designed & manufactured? [12]

5.
 - a) Describe 3-2-1 method of location and mention its importance in the design of Jigs & fixtures.
 - b) Sketch and explain fixed and adjustable locators used in the design of Jigs & Fixtures. [12]

6.
 - a) What are the various Jigs used in practice and sketch box Jig?
 - b) Sketch a Slab – milling fixture used in practices & mention its location and clamping. [12]

7.
 - a) What are the various methods used to reduce cutting forces in piercing operation?
 - b) Sketch & explain the construction and working of compound die. [12]

8.
 - a) Sketch and explain in various bending and forming dies used to obtain various shapes.
 - b) What are the various factors to be considered in finding the bending pressure? [12]
