

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]
