

II B.Tech II Semester Supplementary Examinations, Apr/May 2008
MACHINE TOOL ENGINEERING
(Production Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Describe basic elements of machining. [8]
(b) Explain briefly mechanics of chip formation. [8]
2. (a) Explain briefly about thread cutting methods. [8]
(b) Why back gear is used in lathe? Describe in detail the method of using them. [8]
3. What are the main parts of capstan and turret lathes? Describe in brief with help of suitable illustrations? [16]
4. (a) What is planer? Illustrate and describe its working principle. [8]
(b) Give detailed classification of planer machines. [8]
5. (a) Explain the different types of holes and the processes used for manufacturing them. [8]
(b) Show with sketches the principal features of any three hole making operations you are familiar with, along with the tools used. [8]
6. (a) Briefly explain some of the problems caused in milling. Give their causes and remedies. [8]
(b) What are the motions of the arbor mounted milling cutter has with respect to the work piece? Discuss [8]
7. Explain with a neat sketch the chip formation during surface grinding. Describe the expression for the various forces generated. [16]
8. (a) Explain clearly how work pieces are located . [8]
(b) Write a short note on Clamps and clamping devices. [8]

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1. (a) Describe basic elements of machining. [8]
(b) Explain briefly mechanics of chip formation. [8]
2. (a) What are machining operations that can be performed on a center lathe? [8]
(b) What are thread chasers? Sketch and describe the use of threading tool chaser? [8]
3. (a) What is the significance of capstan, turret and automatic lathes in production shop? [8]
(b) Compare the merits and demerits of turret and capstan lathe with engine lathe. [8]
4. (a) With help of neat sketch describe main parts of slotter. [10]
(b) How is slotter machine is specified? Explain [6]
5. (a) Explain with neat sketches the constructional features of a twist drill and label the important features [10]
(b) What is the function of a drill Jig?What provisions it must include? [6]
6. (a) What factors influence the cutting speed and feeds? Under what conditions higher cutting speeds can be used? When it is necessary to reduce milling cutter feeds? [6]
(b) How a vise is set on the milling machine table? [5]
(c) Explain the operation of milling a square block [5]
7. (a) How is grinding different from other machining operations? Explain its applications in view of its capabilities. [8]
(b) Why is it undesirable to continue running coolant on to a grinding wheel after the wheel has stopped? [8]
8. (a) What is the purpose of clamping? [6]
(b) What factors govern the choice of a clamping device to achieve the purpose of clamping? Discuss them in detail [10]

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1. (a) Which are two popular metal cutting theories? Describe them. [8]
(b) With suitable diagram, derive expression for finding shear velocity and chip flow velocity if cutting velocity, shear angle and rake angle are known. [8]
2. (a) What are the different types of taper turning attachments attached to lathe? Discuss them briefly. [8]
(b) Classify the Lathe machines and explain their important advantages. [8]
3. (a) Differentiate between parallel action and progressive action multiple spindle automatics. [8]
(b) What are relative advantages and disadvantages of single spindle and multi spindle automatics. [8]
4. (a) With help of neat sketch describe main parts of slotter. [10]
(b) How is slotter machine is specified? Explain [6]
5. (a) Why are straight flute drills used for non-ferrous materials and sheet metal? [8]
(b) What are the fields of application and the operating advantages of a radial drill press? [8]
6. (a) Briefly explain some of the problems caused in milling. Give their causes and remedies. [8]
(b) What are the motions of the arbor mounted milling cutter has with respect to the work piece? Discuss [8]
7. (a) Explain what is meant by internal centreless grinding ? [6]
(b) Explain with neat sketches various types of internal grinders. [10]
8. (a) Explain clearly with a neat sketch the construction and working of a pull broach. [10]
(b) What is broaching? What are its advantages? [6]

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1. (a) When the use of positive rake angles and negative rake angles is recommended ? [6]
(b) Give significance of providing nose radius. [4]
(c) Describe the tool represented by 10,10,6,6,8,8,1. [6]
2. (a) Explain, with the help of neat sketch, the working principle of Lathe machine. [12]
(b) How is size of lathe specified? [4]
3. (a) What is meant by tool layout of a turret lathe? Discuss [8]
(b) Enumerate various rules, which must be followed while laying out sequence of operations for a turret lathe. [8]
4. (a) What is planer? Illustrate and describe its working principle. [8]
(b) Give detailed classification of planer machines. [8]
5. (a) Define the process drilling. Give classification of various drilling machines [8]
(b) Explain with a neat sketch the construction and working principle of a radial drilling machine [8]
6. Explain with a neat sketch what do you understand by the words “ helix angle” and “direction of cut” in the case of milling. What is their importance with respect to machining performance? Explain the basis on which these are selected. [16]
7. (a) Mention the various types of bonds used in the making of grinding wheels. Also mention their applications. [8]
(b) Write a short note on the following [8]
 - i. Lapping process
 - ii. Structure of a grinding wheel
8. (a) Explain clearly with a neat sketch the construction and working of a pull broach. [10]
(b) What is broaching? What are its advantages? [6]
