Code No: RR222002 **Set No. 1**

II B.Tech II Semester Regular Examinations, Apr/May 2006
MACHINE TOOL ENGINEERING
(Production Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Enumerate the factors on which tool wear and tool life depend. [8]
   (b) What are essential characteristics of cutting fluid? [8]
2. (a) Describe briefly about taper turning methods? [8]
   (b) What are the different types of Lathe attachments? Discuss them briefly. [8]
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) Enumerate the uses and limitations of the following drilling machine [9]
      i. Sensitive drilling machine
      ii. Pillar drilling machine
      iii. Radial drilling machine
   (b) Explain what is meant by spot facing? [7]
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) Explain the role of using cutting fluids during grinding. [8]
   (b) Explain the various precautions to be taken before mounting a grinding wheel. [8]
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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Code No: RR222002 **Set No. 2**

II B.Tech II Semester Regular Examinations, Apr/May 2006
MACHINE TOOL ENGINEERING
(Production Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Discuss various types of cutting fluids. [8]
   (b) Explain about Machineability index. [8]
2. (a) Derive an expression for determining the machining time on lathe. [8]
   (b) Find the time required for one complete cut on a piece of work 350mm long and 50mm in diameter. The cutting speed is 35meters per minute and the feed is 0.5 mm per rev. [8]
3. (a) What are automatic lathes? Where their use is preferred and why? [6]
   (b) Give broad classification of automatic lathes, mentioning their main features. [10]
4. (a) What are various operations performed on shaper? Explain in detail [8]
   (b) Describe constructional features of speed gearbox of slotter? [8]
5. (a) How a drilling machine is specified? [4]
   (b) Define and write the formulae of the following for a drilling machine [12]
      i. Cutting speed
      ii. Feed
      iii. Machining time in drilling
6. (a) What are the various methods by which a cam can be cut? [12]
   (b) Discuss the effect of the helical tooth on the clearance [4]
7. (a) Explain what is meant by internal centreless grinding ? [6]
   (b) Explain with neat sketches various types of internal grinders. [10]
8. (a) Define tools, Jigs and Fixtures in brief. What are their advantages ? [8]
   (b) What are the important principles of Jig design? Explain. [8]

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Code No: RR222002 **Set No. 3**

II B.Tech II Semester Regular Examinations, Apr/May 2006
MACHINE TOOL ENGINEERING
(Production Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Discuss various types of cutting fluids. [8]
   (b) Explain about Machineability index. [8]
2. Write short notes on the following [4x4=16]
   (a) Lathe carriage
   (b) Cross slide
   (c) Tool post
   (d) Compound rest
3. What is Swiss automatic screw machine? How it functions and what are its main applications? [16]
4. (a) How do you classify the different types of shapers? [6]
   (b) Explain with the help of a neat sketch, the working principle of a shaper. [10]
5. (a) Write a brief note on the various work holding devices of a drilling machine [7]
   (b) Describe the following types of drills in brief [9]
      i. Core drill
      ii. Multi diameter drill
      iii. Chip breaker drill
6. (a) What are the differences between bed type and planar type milling machine. [8]
   (b) List the various precautions in use of milling cutters. [8]
7. Write a short note on the following [4x4=16]
   (a) Brazed carbide tools
   (b) Grade of grinding wheel
   (c) Geometry of a single point turning tool
   (d) Surface grinding machines
8. (a) What are the advantages and disadvantages of four locating points in a plane. [8]

(b) Explain clearly how can be determined that the Jigs and fixtures for a particular application will be economical. [8]

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Code No: RR222002 **Set No. 4**

II B.Tech II Semester Regular Examinations, Apr/May 2006
MACHINE TOOL ENGINEERING
(Production Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Derive an expression for optimum value of cutting speed. [8]
   (b) While machining a mild steel bar with H.S.S tool the Cutting speed is 32m/min, tool life is 50 min, If cutting speed is increased by 50%, how tool life is affected. Take n=0.2. [8]
2. Give neat diagram of engine lathe, and describe its main parts and controls. [16]
3. (a) What are primary and secondary motions of turret and capstan lathes? Explain. [6]
   (b) Describe with help of neat sketch, the working of collet chuck. And types of collet chucks? [10]
4. (a) What is planer? Illustrate and describe its working principle. [8]
   (b) Give detailed classification of planer machines. [8]
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. Show with sketches and explain the following milling cutter angles [4x4=16]
   (a) Radial rake angle
   (b) Axial rake angle
   (c) Approach angle
   (d) Side clearance angle
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 Honing tools with neat sketches . [12]
   (b) State the differences between Honing and Lapping. [4]

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