Code No: R05320303 **Set No. 1**

III B.Tech II Semester Regular Examinations, Apr/May 2008
MACHINE TOOLS
(Mechanical Engineering)

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

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What are throw away carbide tips? What are their advantages? What are their basic requirements?
   (b) Discuss important properties of cutting tool. [8+8]
2. (a) Why are engine lathes called by that name?
   (b) Discuss the specifications of lathe.
   (c) What are the basic parts of an engine lathe? Discuss the function of head stock. [5+5+6]
3. (a) Explain with neat sketch various mechanisms for table drive in shaper.
   (b) Explain with neat sketch various work holding devices in planer indicating special features if any. [8+8]
4. (a) Describe a tapping attachment in drilling machine.
   (b) List and explain various drilling operations with sketch. [8+8]
5. (a) Sketch and describe the working of a 'Turret-type milling machine'.
   (b) What are the common milling methods? Compare their relative merits and demerits. [8+8]
6. What are the various types of surface grinding machines? Describe their principle, advantages and limitations. [16]
7. (a) Explain clearly a honing tool with neat sketches.
   (b) State the differences between honing and lapping.
   (c) How a broaching machine is specified? [5+5+6]
8. (a) List the types of drill jigs.
   (b) How are cutters set in relation to the work in a milling fixtures? [8+8]

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Code No: R05320303 **Set No. 2**

III B.Tech II Semester Regular Examinations, Apr/May 2008
MACHINE TOOLS
(Mechanical Engineering)

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

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What do you understand by stepped and stepless drive?
   (b) What are the factors on which limit speeds are fixed? What is the range of ratio of maximum speed with minimum speed for an engine lathe? [8+8]
2. (a) What is a mandrel? Why these are used in lathe?
   (b) List different types of mandrels with sketches. [8+8]
3. Describe the main parts of slotting machine with sketch. [16]
4. (a) What is tap? How the taps are classified? And explain their salient feature.
   (b) How tap nomenclatures is described? Explain. [8+8]
5. (a) With the help of a sketch, explain the working of a universal dividing head.
   (b) Draw neat sketch of horizontal milling machine and label the parts. [8+8]
6. With simple sketches explain:
   (a) Traverse cylindrical grinding machine
   (b) Plunge-Centre type grinding machine
   (c) Profile-Cylindrical grinding. [5+6+5]
7. (a) What are different working motions of a honing tool. Give the kinematic scheme to obtain them.
   (b) Explain the constructional features of speed and feed units of lapping tool. [8+8]
8. (a) What considerations should be kept in mind when selecting a clamp for a job?
   (b) What is a swinging clamp ? Explain its use. [8+8]

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Code No: R05320303 **Set No. 3**

III B.Tech II Semester Regular Examinations, Apr/May 2008
MACHINE TOOLS
(Mechanical Engineering)

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

Answer any FIVE Questions
All Questions carry equal marks

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1. Sketch a three view diagram of 25mm square tool bit having tool signature
   (a) 15^0,15^0,10^0, 10^0,15^0, 10^0, 3mm
   (b) -8^0, 8^0, 10^0, 10^0, 6^0, 6mm
   (c) 10^0, 10^0, 6^0, 6^0, 8^0, 0^0, 0.8mm and make various parts and angles over it. [6+5+5]

2. (a) Why are engine lathes called by that name?
   (b) Discuss the specifications of lathe.
   (c) What are the basic parts of an engine lathe? Discuss the function of head stock. [5+5+6]

3. (a) What are the advantages of hydraulic shaper over crank shaper?
   (b) How the size of a shaper is specified? [10+6]

4. (a) Explain briefly different types of drilling machines and their features.
   (b) How is the size of drilling machine specified? Discuss. [8+8]

5. (a) What are the differences in the geometry and application of the following milling cutters?
      i. peripheral
      ii. face
      iii. side.
   (b) What is the difference among plain, compound and differential indexing?[8+8]

6. (a) What is a centreless internal grinder? Describe the principle of grinding on this type of grinder.
   (b) With the help of a neat sketch describe the construction and working of a crankshaft grinder. [8+8]

7. (a) Explain with neat sketches about the following:
      i. Key way broaching
      ii. Spline broaching.
   (b) What characteristics of the work piece are improved by lapping process? [4×2+8]

8. (a) Explain with a aid of suitable sketch the principles of jig and fixture design.
   (b) What are important points to watch in respect of clamping? How should clamps be disposed of with respect to location points? [8+8]

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Code No: R05320303 **Set No. 4**

III B.Tech II Semester Regular Examinations, Apr/May 2008
MACHINE TOOLS
(Mechanical Engineering)

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

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What are the essential criteria for a cutting tool to give maximum production?
   (b) How do you classify cutting tool? Brief them. [8+8]
2. (a) What is a mandrel? Why these are used in lathe?
   (b) List different types of mandrels with sketches. [8+8]
3. Explain with neat sketch various feed mechanisms in shaper. [16]
4. (a) Explain briefly different types of drilling machines and their features.
   (b) How is the size of drilling machine specified? Discuss. [8+8]
5. (a) Distinguish between simple, compound and differential indexing.
   (b) Distinguish peripheral milling and face milling. [8+8]
6. (a) What are disc grinders? Explain.
   (b) Discuss various variables of grinding process . [6+10]
7. (a) Explain different types of lapping processes.
   (b) Explain the manufacturing process of broaching tool. [8+8]
8. (a) Explain the location methods for the design of fixtures for machining components with flat and cylindrical surfaces.
   (b) What are the functions of jigs and fixtures. [8+8]

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