

B.E DEGREE EXAMINATIONS: NOV/DEC 2010

Third Semester

MECHANICAL ENGINEERING

U07ME304: Machine Tool Engineering

Time: Three Hours

Maximum Marks: 100

Answer ALL Questions:-

PART A (10 x 1 = 10 Marks)

1. The Cutting Edge of the tool is perpendicular to the direction of tool travel in
 - a) orthogonal cutting of metals
 - b) Oblique cutting of metal
 - c) Both (a) & (b)
 - d) None of these.
2. In metal cutting operations, chips are formed due to
 - a) Linear deformation
 - b) Shear Deformation
 - c) Linear Translation
 - d) None of these.
3. Tool life is most affected by
 - a) Cutting speed
 - b) Tool geometry
 - c) Feed and depth
 - d) Microstructure of material being cut
4. In a Planer the speed of the work table is
 - a) Less during the cutting stroke and high when it returns during the idle stroke.
 - b) High during the cutting stroke and less when it returns during the idle stroke.
 - c) Either (a) or (b)
 - d) None of these.
5. Pillar type Drilling Machine is also called as
 - a) Sensitive Drilling machine
 - b) Miniature Drilling machine
 - c) Upright drilling machine
 - d) None of the above
6. Planetary grinder is
 - a) Rough Grinders
 - b) Cylindrical Grinders
 - c) Surface Grinders.
 - d) Internal Grinders
7. Cam Milling Machine is
 - a) Planer Type Milling Machine
 - b) Special Purpose Milling Machine
 - c) Bed-type Milling Machine.
 - d) Column and Knee type Milling Machine.
8. Gear Hobbing is
 - a) Gear generation process
 - b) Gear finishing process
 - c) Gear milling Process
 - d) None of the above.
9. Ultrasonic machining is used to machine
 - a) Soft and ductile materials
 - b) Hard and brittle materials.
 - c) Both (a) and (b)
 - d) Either (a) or (b)
10. Abrasive Jet Machining is commonly used for cutting
 - a) Heat sensitive
 - b) Thin and intricate shaped materials.
 - c) Brittle and Hard materials
 - d) All the above.

Part B (10 x 2 =20 Marks)

11. Define “Tool life”
12. What are the various types of tool wear that you know?
13. Name any two mass production lathes that you know?
14. What are the feed mechanisms used in shaping machine?
15. What is broaching?
16. What is dressing of a grinding wheel?
17. What are the types of cutters used in milling machine?
18. List out some of the work holding devices used for milling machine.
19. What is Abrasive jet machining?
20. What is EDM?

PART C (15 x 14 =70 Marks)

21. a) Draw and explain Merchant’s circle diagram. **(OR)**
 - b) (i) Explain Tumbler gear mechanism in lathe with the neat diagram. (4)
 - (ii) Explain the various methods of taper turning that can be done in centre lathe. (10)

22. a) Draw and explain the working principle of single spindle and multispindle automatic lathe. **(OR)**
 - b) Short note:
 - (i) Give the specification of a grinding stone (4)
 - (ii) Distinguish between capstan and turret lathe (10)

23. a) Explain the types with diagram
 - (i) Surface grinders (4)
 - (ii) Centerless grinders (10)

(OR)

 - b) (i) Explain the Radial drilling machine with a neat diagram. (10)
 - (ii) List the advantages of Radial drilling machine over sensitive drilling machine. (4)

24. a) Explain gear shaping and gear hobbing process. **(OR)**
 - b) Explain
 - (i) The Nomenclature of Milling cutter (10)
 - (ii) Any one gear finishing methods. (4)

25. a) Explain with a neat sketch, the ultrasonic machining and state it’s advantages and it’s disadvantages **(OR)**
 - b) Explain laser beam machining with a neat sketch.
