

B.E. DEGREE EXAMINATIONS: NOV/DEC 2010

Third Semester

MECHANICAL ENGINEERING

MEC 107: Manufacturing Technology- II

Time: Three Hours

Maximum Marks: 100

Answer ALL Questions:-

PART A (10 x 1 = 10 Marks)

1. Machining is a
A) shaping process B) removal process C) regenerative process D) joining process
2. Feed rate is expressed in turning operation by
A) mm/revolution B) mm/stroke C) mm per min D)N/mm
3. Orthogonal clearance and side clearance of a turning tool will be same if its perpendicular cutting edge angle is
A) $\phi = 30^\circ$ B) $\phi = 45^\circ$ C) $\phi = 60^\circ$ D) $\phi = 90^\circ$
4. Reciprocation of the cutting tool in shaping machines is accomplished by
A) Rack pinion mechanism B) Crank and connecting rod mechanism
C) Cam and cam follower mechanism D) Oscillating lever mechanism
5. Grinding is the most common form of
A) Abrasive machining B) shaping process C) Additive process D) Milling process
6. The corner formed by the intersection of the flank and face is called
A) Shank B) Outer Corner C) Tang D) Recess
7. Index crank movement required to mill 30teeth on a spur wheel blank is
A) $1(7/21)$ B) $2(1/21)$ C) $2(2/21)$ D) $4(1/21)$
8. The operation of production of irregular contour is called
A) End Milling B) Honing C) Form milling D) Lapping
9. Tool in USM is generally made of
A) Glass B) Ceramic C) Carbides D) Steel
10. Material removal takes place in AJM due to
A. Electrochemical action B. Mechanical impact
C. Fatigue failure of the material D. Sparking on impact

PART B (10 x 2 =20 Marks)

11. What is clearance angle? And mention its types?
12. Write Taylor's tool life equation.

13. Write the specification of a typical lathe.
14. Write the difference between shaping machine and planing machine.
15. What are the types of grinding machines?
16. Define honing process?
17. What are the differences between up milling and down milling?
18. Write the rule for compound indexing.
19. What are the advantages of Abrasive jet machining?
20. Write the typical of applications of EDM.

PART C (5 x14 = 70 Marks)

21. a) (i) Explain orthogonal cutting and oblique cutting with its neat sketches.
(ii) Write short notes on Merchant's circle diagram. **(OR)**
- b) (i) Write short notes on cutting fluids used in machining process?
(ii) Write short notes on tool wear.
22. a) List various types of feed mechanisms and explain briefly about tumbler gear reversing mechanism with a sketch. **(OR)**
- b) Explain the working of the crank and slotted lever quick return mechanism and Whitworth quick return motion mechanism with a neat sketch.
23. a) Explain the twist drill nomenclature with neat sketch and define various elements of twist drill. **(OR)**
- b) (i) Explain the operations of horizontal broaching machine with neat sketch.
(ii) Explain the Plain centre type cylindrical grinder with neat sketch.
24. a) (i) Explain the elements of a plain milling cutter with a simple sketch.
(ii) Explain the working mechanism of universal dividing head with neat sketch. **(OR)**
- b) (i) Explain the gearing hobbing process with neat sketch.
(ii) What are the gear finishing methods?
25. a) Write short notes on
(i) Ultrasonic Machining
(ii) Abrasive jet Machining **(OR)**
- b) Write short notes on Classification of Non Traditional Machining Processes and EDM.
