KUMARAGURU
college of technology
character is life

Register Number: …….

B.E DEGREE EXAMINATIONS: MAY 2015

(Regulation 2013)

Fourth Semester

MECHANICAL ENGINEERING

U13MET403: Manufacturing Technology – II

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. In metal cutting operation discontinuous chips are produced while machining
   a) Brittle material b) Ductile Material
   c) Hard Material d) Soft Material
2. The angle between the face and the flank of the single point cutting tool is known as ……..
3. The process in which work piece is fed opposite to the cutter's direction of rotation is
   a) Boring b) Down milling
   c) Up milling d) Drilling
4. The quick return mechanism used in shaper is ……..
5. Disc grinding is a form of …… grinding
   a) Surface b) Centre
   c) Creep feed d) Centreless
6. …….. is called as a vertical shaping machine.
7. Dimensional accuracy of the components will not be affected by
   a) Polishing b) Burnishing
   c) Super finishing d) Lapping
8. The difference between the actual tooth thickness and the width of space, with which it meshes is known as…….
9. A parameter associated with the economics of machining is
   a) Tooling cost b) Machining cost
   c) Loading cost d) Minimum cost/ part
10. The time taken to drill hole through a 25 mm thick plate with the drill rotating at 300 rpm and moving at a feed rate of 0.25 mm/rev is ……..

PART B (10 x 2 = 20 Marks)

(Not more than 40 words)

11. Classify the types of cutting fluids.
12. Compare orthogonal and oblique cutting.
13. Name the work holding devices used for shaping operation.
14. Distinguish up milling and down milling.
15. Define metal spinning.
16. List the processes used for producing prismatic components.
17. Name any one gear generating process and gear forming process.
18. What are the specifications of grinding wheel?
19. How will you estimate the cost of a component?
20. Define Taylor's tool life equation.

PART C (5 x 14 = 70 Marks)

(Not more than 400 words)

Q.No. 21 is Compulsory

21. Demonstrate different types of chip formation and chip breakers with their uses.

22. a) Explain the working principle and construction of milling machine with neat sketch

(OR)

b) Summarize the operation of shaping and slotting machines with neat sketch.

23. a) Illustrate production of axi-symmetrical components with any two processes.

(OR)

b) Demonstrate the processes of hole making in components with suitable examples.

24. a) Show various methods of gear finishing with neat sketch.

(OR)

b) (i) Compare and contrast the super finishing processes with conventional machining processes. (7)

(ii) Outline lapping and honing process. (7)

25. a) (i) Determine the time required for one complete cut on a piece of work 350 mm length and 50 mm in diameter. The cutting speed is 35 m/min and the feed is 0.5 mm per revolution. (7)

(ii) Find the time required for taking a complete cut on a plate 600 x 900 mm, if the cutting speed is 9 m/min. The return time to cutting time ratio is 1:4 and the feed is 3 mm. The clearance at each end is 75 mm. (7)

(OR)

b) (i) A part of 25 cm in diameter and 50 cm length is to be turned down to 23.5 cm for the entire length. The suggested feed is 1mm/rev and the cutting speed is 135 m/min. The maximum allowable depth of cut is 5mm. What are the feed speed, spindle rpm, material removal rate and cutting time. Assume the over travel as 12.5 mm. (10)

(ii) State the important factors affecting the tool life and list the parameters considered for the improvement of the tool life. (4)

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