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Question Paper Code: 44073

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Fourth Semester

Mechanical Engineering

14UME403 - MANUFACTURING TECHNOLOGY - II

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Tool life of 10 hours is obtained when cutting with single point tool at 63 m/min . If Taylor's constant $C = 257.35$, tool life on doubling the velocity will be
(a) 5 hours (b) 25.7 min (c) 38.3 min (d) unchanged
2. Continuous chips are formed during the cutting of
(a) Ductile material (b) Brittle material
(c) Non-metallic material (d) Metals with low thermal conductivity
3. The type of turret indexing mechanism is
(a) Ratchet and pawl (b) Geneva
(c) Cam mechanism (d) Rack and Pinion
4. Tool life is very much affected by
(a) Depth of cut (b) Tool geometry
(c) Cutting speed (d) Feed

5. The metal is removed in drilling machine by
- (a) Extrusion (b) Shearing
(c) Shearing and Extrusion (d) Shearing and Compression
6. Plain milling of mild steel plate produces
- (a) Irregular shaped discontinuous chips (b) regular shaped discontinuous chips
(c) Continuous chips with built up edge (d) jointed chips
7. Which of the following is not an abrasive material?
- (a) Al_2O_3 (b) SiC (c) Diamond (d) WC
8. Honing is an operation primarily used for finishing
- (a) Flat surface (b) Cylindrical surface
(c) Hole (d) Irregular surface
9. In a point-to-point type Numerical Control system
- (a) Control of position and velocity of the tool is essential
(b) Control of only position of the tool is sufficient
(c) Control of only velocity of the tool is sufficient
(d) Neither position nor velocity need to be controlled
10. In an NC machining operation the G code for the tool movement along a circular path is
- (a) G03 (b) G02 (c) G01 (d) G00

PART - B (5 x 2 = 10 Marks)

11. List out the commonly used coating materials for tool life enhancement.
12. What are the functions of feed rod and lead screw in a lathe?
13. What are the advantages of Up-milling process?
14. Why are speeds so much higher in grinding than in cutting?
15. Mention the various forms to input a part program to a CNC machine.

PART - C (5 x 16 = 80 Marks)

16. (a) Explain in detail about the types of cutting fluids used in machining and the methods of applying the cutting fluids. (16)

Or

- (b) Explain the mechanics of chip formation and also the types of chips produced in metal cutting. (16)

17. (a) Describe the types of machining operations that can be performed on a lathe with suitable sketches. (16)

Or

- (b) Write short notes on
- (i) Tool geometry (4)
 - (ii) Material removal rate (8)
 - (iii) Forces in turning operation (4)

18. (a) (i) Differentiate between planing and shaping operations and their applications. (8)

- (ii) Explain about the broaching operation. (8)

Or

- (b) Explain with neat sketch the Quick return mechanisms of a shaper. (16)

19. (a) (i) Explain about the gear finishing process. (8)

- (ii) Explain the various types of grinding operations. (8)

Or

- (b) Explain with neat sketch the gear manufacturing methods. (16)

20. (a) (i) What are the advantages of CNC machines over conventional methods. (6)
(ii) Explain the principles of CNC machines. (10)

Or

- (b) Explain the various components of numerical control machine tools. (16)
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