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**Question Paper Code: 44703**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

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. In any metal cutting, cutting force at job-tool contact point is measured by
  - (a) Wattmeter
  - (b) Dynamometer
  - (c) Pyrometer
  - (d) Hydrometer
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. Trepanning is performed for
- (a) Finishing a drilled hole (b) Producing a large hole without drilling  
(c) Truing a hole for alignment (d) Enlarging a drilled hole
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. What is the influence of cutting speed and feed on tool life?
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 the mechanics of chip formation and also the types of chips produced in metal cutting. (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) (i) Explain the common bonding methods used for bonded abrasives. (8)

- (ii) What are the consequences of allowing the temperature to rise during grinding? (8)

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)