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**Question Paper Code: 44703**

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

- Purpose of cutting fluid is to reduce \_\_\_\_\_
  - wear
  - friction
  - heat
  - all the above
- Tool wear increases due to \_\_\_\_\_
  - speed
  - feed
  - depth of cut
  - none
- The type of turret indexing mechanism is
  - Ratchet and pawl
  - Geneva
  - Cam mechanism
  - Rack and Pinion
- Tool life is very much affected by
  - Depth of cut
  - Tool geometry
  - Cutting speed
  - Feed

5. The metal is removed in drilling machine by
 

(a) Extrusion	(b) Shearing
(c) Shearing and Extrusion	(d) Shearing and Compression
  
6. Broaching process is a drill hole
 

(a) initiator	(b) finishing
(c) enlarging	(d) none of the above
  
7. Grinding wheel is normally used for
 

(a) bulk removal	(b) minimum removal
(c) surface finishing	(d) none of the above
  
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. Machining accuracy is more in
 

(a) engine lathe	(b) turret lathe
(c) capstan lathe	(d) CNC controlled lathe

PART - B (5 x 2 = 10 Marks)

11. State the difference between orthogonal and oblique cutting.
12. Sketch any four work holding devices.
13. What are the advantages of Up-milling process?
14. Why are speeds so much higher in grinding than in cutting?
15. What are the informations required to create part programme manually?

PART - C (5 x 16 = 80 Marks)

16. (a) (i) Briefly describe the different types of inserts used in metal cutting. (8)  
(ii) Write briefly about tool wear and tool life. (8)

Or

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

17. (a) (i) State the difference between capstan and turret lathes. (8)  
(ii) Describe the differences between screw type and automatics crew type lathes. (8)

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 simple sketch the pull and push broaching machines. (16)

19. (a) (i) Explain about the gear finishing process. (8)  
(ii) Explain the various types of grinding operations. (8)

Or

- (b) Explain the gear hobbing process with neat sketches. (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 briefly about the structural members in CNC such as slide ways, ball screw, linear bearings, speed devices and feed devices with neat sketches. (16)

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