Reg. No. : | | | | | | | | | | |

Question Paper Code: 44703

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

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. The type of turret indexing mechanism is

   (a) Ratchet and pawl (b) Geneva

   (c) Cam mechanism (d) Rack and Pinion

5. The process of removing metal by a milling cutter, which is rotated in the same direction as the feed of the work piece

(a) Face milling (b) Conventional milling
(c) Up milling (d) Climb milling

6. The metal is removed in drilling machine by

(a) Extrusion (b) Shearing
(c) Shearing and Extrusion (d) Shearing and Compression

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. Part-programming mistakes can be avoided in

(a) NC (Numerical Control) machine tool
(b) CNC (Computer Numerical Control) machine tool
(c) Both a and b
(d) None of these

PART - B (5 x 2 = 10 Marks)

11. Compare orthogonal and oblique cutting.

12. What is the main difference between live center and dead center?

13. List the types of sawing machines.

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) What is a chip breaker? Describe the different types of chips produced during metal machining with neat sketches. (16)

Or

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

17. (a) (i) Compare the progressive action and parallel action multi-spindle automats. (8)

(ii) Explain with neat sketch the difference between the capstan and turret automatic lathe. (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) Describe the different types of cutters used in milling operations and give application of each. (8)

(ii) Explain about any two types of milling machines available. (8)

Or

(b) Explain with simple sketch the pull and pull 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 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) (i) List any five motions and control statements of computer assisted NC programming and explain. (8)

(ii) Under what conditions of production the numerically controlled machine tools are employed. (8)