A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 54703

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

Fourth Semester

Mechanical Engineering

15UME403 – MANUFACTURING TECHNOLOGY – II

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The angle between side cutting edge and end cutting edge is called as CO1- R

   (a) Approach angle (b) Nose angle (c) Side relief angle (d) End relief angle

2. In metal cutting operation, maximum heat (i.e. 80-85%) is generated in CO1- R

   (a) The shear zone (b) The chip-tool interface zone

   (c) The tool-work interface zone (d) None of the above

3. A desired speed of _____ can be obtained by selecting the suitable change gears having proper number of teeth. CO2- R

   (a) Lead screw (b) Countershaft (c) Spindle (d) Feed gear box

4. Work piece is hold in CO2- R

   (a) Chuck (b) Tail stock (c) Carriage (d) Head stock

5. The process of removing metal by a cutter which is rotated in the same direction of travel of work piece, is called CO3- R

   (a) Up milling (b) Down milling (c) Face milling (d) End milling

6. The cutting tool in a milling machine is mounted on CO3- R

   (a) Spindle (b) Arbor (c) Column (d) Knee

7. Apart from honing machine, the honing operation can be carried out on CO4- R

(a) Lathe machine (b) Drilling machine (c) Both (A) and (B) (d) None of the above

8. In Super finishing operation CO4- R

(a) The work rotates, the abrasive block reciprocates

(b) The abrasive block rotates, the work reciprocates

(c) Both abrasive block and work rotates

(d) Both abrasive block and work reciprocates

9. Part-programming mistakes can be avoided in CO5- R

(a) NC (Numerical Control) machine tool (c) Both a. and b.

(b) CNC (Computer Numerical Control) machine tool (d) None of the above

10. Which of the following code will give circular interpolation in a clockwise direction? CO5- R

(a) G02 (b) G01 (c) G56 (d) G47

PART – B (5 x 2= 10 Marks)

11. List out the essential characteristics of a cutting fluid. CO1- R

12. List any four methods by which taper turning is done in a center lathe. CO2- R

13. What is the difference between up milling and down milling. CO3- U

14. What are the specifications of grinding wheel? CO4- R

15. What are G-Codes and M-Codes? Give examples. CO5- R

PART – C (5 x 16= 80 Marks)

16. (a) (i) Describe the mechanism of chip formation. CO1- U (8)

(ii) How are the chips classified? Specify the condition under which they are found? CO1- U (8)

Or

(b) (i) What are the three main region of heat generation in metal cutting? CO1- U (8)

(ii) Explain the mechanism associated with progressive tool wear CO1- U (8)

17.	(a)	Explain with neat sketch about turret indexing mechanism and bar feeding mechanism of an automatic lathe.	CO2- U	(16)
		Or		
	(b)	(i) Discuss any four types of operation performed in a lathe	CO2- U	(8)
		(ii) What are the various methods available for supporting long components and fragile components in a lathe? Explain anyone with a simple sketch.	CO2- U	(8)
18.	(a)	What are the different type milling cutters that are used in milling and explain any four types with neat sketch?	CO3- U	(16)
		Or		
	(b)	Sketch a broaching tool and briefly explain the different nomenclature.	CO3- U	(16)
19.	(a)	Explain with a neat sketch about the working of centre less grinding machine and enumerate its advantage and disadvantages.	CO4- U	(16)
		Or		
	(b)	Explain with neat sketch about the following operations 1. Honing, 2. Lapping, 3. Polishing, 4. Buffing	CO4- U	(16)
20.	(a)	Describe the main constructional features of CNC machines, which distinguish them from conventional machine tools?	CO5-U	(16)
		Or		

(b) Write the CNC part program for the component shown below. CO5- U (16)
Mention the assumption made.