

Roll No.

3312

**B. Tech. 6th Semester (ME)
Examination – May, 2023**

MANUFACTURING TECHNOLOGY - II

Paper : PCC-ME-302-G

Time : Three Hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt five questions in all, selecting one question from each Unit. Question No. 1 is compulsory. All questions carry equal marks.

1. Explain the following :

- (a) Name the essential features of a milling fixture. 2.5
- (b) Explain the nomenclature of single point cutting tool. 2.5
- (c) What are the limitations of ECM process ? 2.5
- (d) State the advantages of NC machines. 2.5
- (e) Define built-up edge in metal cutting. 2.5
- (f) What is part family ? 2.5

3312-1000(P-3)(Q-9)(23)

P. T. O.



UNIT - I

2. Compare orthogonal cutting and oblique cutting with neat sketches. Explain Shear zone in metal cutting. 15

3. In an orthogonal cutting operation, the following data have been observed :

Uncut chip thickness $t_1 = 0.127$ mm, Width of cut $b = 6.35$ mm, Cutting speed $V = 2$ m/s, Rake angle $\alpha = 10^\circ$, Cutting force $F_c = 567$ N, Thrust force $F_t = 227$ N, Chip thickness $t_2 = 0.228$ mm.

Calculate shear angle, the friction angle, shear stress along the shear plane and the power for cutting operation and chip velocity. 15

UNIT - II

4. Explain working Principle of EDM process with neat sketch. Also discuss the required characteristics of tool material for EDM process. 15

5. Discuss advantages of 3-2-1 locating principle. Classify the various locating devices. 15

UNIT - III

5. Explain the components of CNC system with neat sketch. Compare the NC and CNC machine. 15

7. Explain manual part programming. Develop and explain a part program, using G and M code, for turning operation. 15

UNIT - IV

8. Explain in detail production flow analysis method. What are the advantages and hurdles in implementation of group technology ? 15

9. Explain part family in Group Technology. Discuss all the methods of grouping parts into part families. 15

2. (P-3)/(Q-9)/(23) (2)

3312- (P-3)/(Q-9)/(23) (3)