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**Question Paper Code: 41743**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Fourth Semester

Mechanical Engineering

01UME403 - MANUFACTURING TECHNOLOGY II

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. List the various metal removal processes.
2. State the assumption made in Merchant Circle.
3. Distinguish between Capstan lathe from Turret lathe.
4. State the various feed mechanism used for obtaining automatic feed.
5. What is the difference between up milling and down milling?
6. Write the differences between hacksaw and circular saw.
7. What is lapping?
8. Give some limitations of gear hobbing process.
9. State the limitation of CNC machine tools.
10. Give some motion statements in APT.

PART - B (5 x 16 = 80 Marks)

11. (a) In an Orthogonal cutting process, the following observations were made. Depth of cut =  $0.25\text{mm}$ , Chip thickness Ratio = 0.45, Width of cut =  $4\text{mm}$ , Cutting velocity =  $40\text{ m/min}$ , Cutting force component parallel to cutting velocity vector = 1150N,

Cutting force component normal to cutting velocity vector = 140N, Rake Angle = 18°. Determine the Resultant cutting force, Power of cutting, Shear plane angle, Friction angle and force component parallel to shear plane? (16)

Or

- (b) (i) What is meant by orthogonal cutting and oblique cutting. (8)  
(ii) Explain the geometry of a single point cutting tool with suitable sketches. (8)

12. (a) Explain in detail the various Taper turning methods in lathe? (16)

Or

- (b) (i) Explain the various parts of a lathe carriage with a neat diagram. (8)  
(ii) Discuss the main parts of a turret lathe. (8)

13. (a) Explain with a neat sketch the Ratchet and Pawl mechanism of a shaper? (16)

Or

- (b) Explain the different types of broaching machines with their specific features. (16)

14. (a) Explain Honing and Super finishing with neat sketch? (16)

Or

- (b) (i) List the advantages and limitations of gear shaping. (8)  
(ii) Explain the manufacture of a spur gear. (8)

15. (a) (i) Define CNC and DNC? With a help of a diagram explain the working of NC machine tool. (8)

(ii) Write short notes on APT language (8)

Or

- (b) Briefly explain with illustrations about the manual part programming? (16)