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Question Paper Code: U4703

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2024

Fourth Semester

Mechanical Engineering

21UME403 - MANUFACTURING TECHNOLOGY

(Regulations 2021)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10 x 1 = 10 Marks)

1. A cutting tool is CO1 U
(a) single point (b) multi point (c) both (A) and (B) (d) pointless
2. The cutting velocity and chip velocity in metal cutting process are 2 m/s and 1.5 m/s respectively. The value of chip reduction coefficient is nearest to (assuming no side flow of chip) CO1 U
(a) 1.5 (b) 2 (c) 0.5 (d) 1.33
3. Lathe bed is usually made of CO1 U
(a) Cast iron (b) Stainless steel (c) Structural steel (d) Mild steel
4. Which of the following cutting tool is cannot be used on a turret lathe CO1 U
(a) Single point cutting tool (b) Reaming tool
(c) Drill bit (d) Broach
5. Point angles of twist drill is used for general purpose work CO1 U
(a) 128° (b) 138° (c) 118° (d) 108°
6. Which of the following part of slotting machine supports all of the other parts of machines? CO1 U
(a) Base (b) Column (c) Ram (d) Table
7. In a milling machine, the time taken to face a workpiece of diameter 80 mm for the spindle speed of 90 rpm and cross feed of 0.3 mm/rev will be CO1 U
(a) 4.12 min (b) 3.24 min (c) 2.36 min (d) 1.48 min

8. Numerical control is CO1 U
 (a) Used only for milling operations (b) used to produce exact number of parts per hour
 (c) control by means of set of instructions (d) only used for lathe operations
9. To remove material from the work surface, the process of surface finishing using an abrasive stick is known as CO1 U
 (a) surface grinding (b) honing (c) lapping (d) burnishing
10. In ultrasonic machining, magnetostictor converts magnetic energy into which type of energy? CO1 U
 (a) Electrical energy (b) Mechanical energy
 (c) Thermal energy (d) None of the mentioned

PART – B (5 x 2= 10 Marks)

11. Explain the function of chip breakers CO1-U
12. Compare parallel action and progressive action multi spindle automatic lathe CO1-U
13. Illustrate the advantage of broaching CO1-U
14. Classify the milling machines CO1-U
15. Explain the main functions of electrolysis in the ECM? CO2-U

PART – C (5 x 16= 80 Marks)

16. (a) Describe the requirements of cutting tool and write briefly about different cutting tool materials used in metal cutting CO1 U (16)
 Or
 (b) (i) Write short note on surface finish. (6 Marks) CO1 U (16)
 (ii) Explain the forms of wears on the cutting tool with neat sketch. (10 Marks)
17. (a) Explain the construction and working of a Centre lathe with neat sketch. CO1 U (16)
 Or
 (b) Explain with neat sketches the working principle of taper turning operation using form tool and by swiveling the compound rest. CO1 U (16)
18. (a) Explain with sketch the construction and working of double housing planer CO1 U (16)
 Or
 (b) Discuss push and pull type broaching machines with neat sketches CO1U (16)

19. (a) Explain how to make 'T' Slot, and spur gear using milling machine with aid of diagram. CO1 U (16)
- Or
- (b) Illustrate the various methods for making gears. Explain the working of gear shaper and advantages and limitations CO1U (16)
20. (a) Explain the with neat sketch of various surface grinding machines CO2 U (16)
- Or
- (b) Explain the working principles, applications of laser beam machining with a neat sketch. CO2 U (16)

