

Reg. No.

Question Paper Code

12029

18 JUL 2023

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2023

Third Semester

Mechanical and Automation Engineering

20MUPC301 - BASIC MANUFACTURING PROCESSES

(Regulations 2020)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

- | | <i>Marks,
K-Level, CO</i> |
|---|-------------------------------|
| 1. State the different types of Pattern. | 2,K1,CO1 |
| 2. List the defects in welding. | 2,K1,CO1 |
| 3. Differentiate between hot and cold forging? | 2,K2,CO2 |
| 4. What is meant by recrystallization temperature? | 2,K2,CO2 |
| 5. Mention the differences between Orthogonal cutting and Oblique cutting. | 2,K2,CO3 |
| 6. What are the various methods available for taper turning operation? | 2,K1,CO4 |
| 7. Explain the relative characteristics of Up milling and Down milling process of material removal. | 2,K1,CO5 |
| 8. Make a comparison between gear shaping and gear hobbing. | 2,K2,CO5 |
| 9. How the grinding wheel is designated? | 2,K1,CO6 |
| 10. Write short note on surface integrity. | 2,K1,CO6 |

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11. a) (i) What are pattern allowances? Explain briefly each. 8,K2,CO1
(ii) Discuss the properties of moulding sand. 5,K2,CO1
- OR**
- b) Briefly explain the principle of operation, advantages and limitations of electron beam welding. 13,K2,CO1
12. a) Explain the principle of extrusion process. Compare the hot extrusion and cold extrusion. 13,K2,CO2
- OR**
- b) Sketch and explain the various types of Rolling mill arrangements used in a Rolling process. 13,K2,CO2

13. a) Explain the conditions that promote the formation of the following chip with Sketches. *13,K2,CO3*
(i) Continuous chip without Built up edge,
(ii) Continuous chip with built up edge,
(iii) Discontinuous chips.

OR

- b) Explain the different types of tool wear that occur in metal cutting. *13,K2,CO3*

14. a) Classify the six different types of milling cutter and outline each with illustration. *13,K2,CO5*

OR

- b) State the principle of gear hobbing and explain how a spur gear is machined in a gear hobbing machine with neat sketch. *13,K2,CO5*

15. a) Describe the working principle of Centreless grinding process and the methods of cylindrical centreless grinding in detail. *13,K2,CO6*

OR

- b) (i) Discuss any four abrasives used in grinding wheel. *6,K2,CO6*

- (ii) Explain with neat sketches the four different types of surface grinding machine. *7,K2,CO6*

PART - C (1 × 15 = 15 Marks)

16. a) Discuss and difference between capstan and turret lathe. Build the tool and work holding devices used for taper turning process in capstan lathe with suitable diagrams. *15,K2,CO4*

OR

- b) Enumerate the constructional details and working principle of turret indexing mechanism in capstan and turret lathe. *15,K2,CO4*