



B.E DEGREE EXAMINATIONS: MAY 2018

(Regulation 2015)

Fourth Semester

MECHATRONICS

U15MCT401 : Manufacturing Technology

COURSE OUTCOMES

- CO1:** Define and distinguish various manufacturing processes
CO2: Select and justify appropriate casting methods
CO3: Anticipate general casting defects and explain their remedies
CO4: Summarize various bulk deformation processes and various machining processes
CO5: Describe the working principles of machines and various machining processes
CO6: Choose a suitable metal joining process for a given application

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1.

| List I | List II |
|-----------------|---------------------|
| A. Alligating | i. Sheet metal work |
| B. Blanking | ii. Hard coke |
| C. Cupola | iii. Molding sand |
| D. Adhesiveness | iv. Rolling process |

CO1 [K2]
- | | A | B | C | D |
|----|-----|----|-----|-----|
| a) | iv | i | ii | iii |
| b) | iii | iv | ii | i |
| c) | ii | iv | iii | i |
| d) | iii | i | ii | iv |
2. Out of the following, which is the defect which is not associated with casting process: CO3 [K2]
- | | |
|-----------------|-------------|
| a) Blow holes | b) Scale |
| c) Centre burst | d) Hot tear |

8. A shaper cannot produce _____ CO5 [K2]
 a) a horizontal plane surface b) a vertical plane surface
 c) an inclined vertical surface d) a cylindrical surface
9. Assertion (A): In OAW process oxygen and acetylene gas is used. CO6 [K2]
 Reason (R): acetylene is supplied at low pressure
 a) Both A and R are individually true and R is the correct explanation of A b) Both A and R are individually true but R is not the correct explanation of A
 c) A is true but R is false d) A is false but R is true
10. The most common coolant for grinding operation is _____ CO6 [K1]
 a) water b) commercial cutting fluid
 c) vegetable oil d) ethanol

PART B (10 x 2 = 20 Marks)
(Answer not more than 40 words)

11. Name the various allowances associated with patterns. CO2 [K1]
12. State the properties of molding sand. CO2 [K1]
13. Name some typical parts manufactured by ring rolling process. CO1 [K2]
14. Differentiate between extrusion and drawing processes. CO4 [K2]
15. Mention the various process parameters considered in turning process. CO4 [K1]
16. Make a sketch of a twist drill with a taper shank. CO5 [K2]
17. List the various types of tool materials used for end mill cutter. CO4 [K1]
18. How is the surface quality improved in ball burnishing? CO5 [K3]
19. Sketch the different types of oxyacetylene flames. CO6 [K1]
20. Distinguish between welding, brazing, and soldering. CO6 [K2]

Answer any FIVE Questions:-

PART C (5 x 14 = 70 Marks)
(Answer not more than 300 words)

Q.No. 21 is Compulsory

21. i. Describe stepwise procedure of making a mold with a two-piece split pattern. (7) CO1 [K2]
 ii. Enumerate some common casting defects and explain the reasons which cause these defects. (7) CO3 [K2]

22. i. Describe some common rolling defects. How can they be remedied? (7) CO4 [K2]
ii. Describe the process involved in tube making with neat sketch. (7) CO4 [K2]
23. i. Describe at least three methods of taper-turning on a center lathe. (9) CO5 [K2]
ii. Determine the time that will be required to drill a blind hole of diameter 25 mm (5) CO5 [K3]
and depth 40 mm in a mild steel solid block by an HSS drill of 118° cone angle.
Assume suitable values of VC and So.
24. Discuss the various types of a milling process with neat sketch. CO5 [K2]
25. i. Describe the different types of abrasive materials used for grinding process. (7) CO5 [K2]
ii. Illustrate the process of Electro-polishing. (7) CO5 [K2]
26. Demonstrate the process of arc welding with neat sketch. Also, list the various types of arc welding defects. CO6 [K2]
27. Demonstrate the process of spot welding with neat sketch. CO6 [K2]
