

Reg. No.

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B. E / B. TECH.DEGREE EXAMINATIONS, MAY 2023

Second Semester

AE22201 - PRODUCTION PROCESSES*(Automobile Engineering)***(Regulation 2022)****TIME: 3 HOURS****MAX. MARKS: 100**

- CO1** Select the best casting process for a component to be manufactured based on the economy of manufacture and its application
- CO2** Identify the best joining process involved in the fabrication of components based on the simplicity, application and cost
- CO3** Choose the best metal forming or powder metallurgy process for a component to be manufactured based the on the economy of manufacture and its application.
- CO4** Select the best sheet metal process for a component to be manufactured based on its application
- CO5** Choose the best method of moulding/joining of plastics of a part based on cost and its use

PART- A (10x2 = 20Marks)

(Answer all Questions)

	CO	RBT LEVEL
1. Identify and state the reasons to select a pattern used to make moulds rapidly for large symmetrical shaped castings.	1	3
2. Summarize the operations involved in finishing of a casting.	1	2
3. Identify the roles played by the coatings in the electrodes of an arc welding process to produce a weld without defects.	2	3
4. Specify a suitable method to join HSS drills to mild steel shank with the principle involved in brief.	2	3
5. Indicate the advantages of forging as a manufacturing process.	3	3
6. Discuss with any two suitable examples the need for presintering in a powder metallurgy process.	3	3
7. Distinguish the major two differences between blanking and piercing.	4	2
8. Compare Superplastic forming with that of traditional forming process.	4	2
9. Identify the materials used for processing of plastics.	5	3
10. Briefly explain the principle of moulding of pet bottles made up of thermoplastics.	5	2

PART- B (5x14 = 70Marks)

	Marks	CO	RBT LEVEL
11. (a) Identify a suitable casting process used for the manufacture of carburetor body made up of low melting temperature alloys on a large scale economically. Explain the principle involved and the steps involved in detail with neat sketches indicating their advantages and limitations.	(14)	1	3
(OR)			
(b) Indicate a suitable method to harden large mould and cores without baking in large volumes economically. Mention the various types of the method in detail with sketches.	(14)	1	3

- 12. (a) (i)** Identify the aspects in which TIG welding process can be compared with that of MIG welding. (7) 2 3
- (ii)** Illustrate with the help of a neat sketch, the three types of flames in oxy-acetylene welding and their suitability to join different materials. (7) 2 3

(OR)

- (b)** It is desired to micro weld small wires to electronic devices through a transparent medium like glass. Suggest a suitable process to fabricate the same with the help of a neat sketch indicating their advantages and limitations. (14) 2 3
- 13. (a)** Identify and explain a suitable process used in the production of a connecting rod. Compare the process with the other related processes of this type. (14) 3 3
- (OR)**
- (b)** How self lubricating bearings are produced? Explain the steps involved in detail with neat sketches of the above process. Discuss the advantages and applications of the process. (14) 3 3

- 14. (a) (i)** Identify and explain with a sketch, a suitable method to eliminate the problem of spring back in a metal forming process. (7) 4 3
- (ii)** Discuss a suitable process to make cup shaped axisymmetrical objects having re-entrant shapes. (7) 4 3

(OR)

- (b)** It is desired to produce dish antenna by adopting a suitable process. Explain the process parameters in detail with a neat sketch with advantages and limitations. (14) 4 3
- 15. (a)** Identify and explain a suitable process used for the manufacturing of thin intricate parts made up of thermosetting plastics with neat sketches. Compare the above process with that of a related process for thermosetting plastics. (14) 5 3
- (OR)**
- (b)** Identify a suitable process used for the manufacturing of plastic candy trays made up of thermoplastics economically in mass production with neat sketches. (14) 5 3

PART- C (1x 10=10Marks)

(Q.No.16 is compulsory)

- | | Marks | CO | RBT LEVEL |
|--|-------------|----------|-----------|
| 16. List out the aspects in which arc welding process differs with that of gas welding process. | (10) | 2 | 3 |
