

Reg. No.

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B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2024

Second Semester

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

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO1	Select the best casting process for a component to be manufactured based on the economy of manufacture and its application.	3
CO2	Identify the best joining process involved in the fabrication of components based on the simplicity, application and cost.	3
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.	3
CO4	Select the best sheet metal process for a component to be manufactured based on its application.	3
CO5	Choose the best method of moulding/joining of plastics of a part based on cost and its use.	3

PART- A (20 x 2 = 40 Marks)

(Answer all Questions)

	CO	RBT LEVEL
1. What are the various materials used for making patterns?	1	2
2. Indicate the properties required in a moulding sand to make a casting free from defects.	1	3
3. Identify a suitable casting process to manufacture of type writer, surgical parts precisely and economically.	1	3
4. Identify a suitable casting process to manufacture slabs, blooms or billets directly and brief its principle.	1	3
5. Explore the aspects in which TIG welding process can be compared with that of MIG welding.	2	3
6. Compare carburizing flame with neutral flame.	2	2
7. Outline the different methods of brazing.	2	2
8. Suggest suitable joining process to join rails, components in circuit boards.	2	3

9.	What do you mean by 'No Slip Point' in rolling?	3	2
10.	Compare open die forging and closed die forging.	3	2
11.	Identify suitable materials used for making die in a wire drawing process.	3	3
12.	What are the limitations of a powder metallurgy process?	3	2
13.	Differentiate between blanking and piercing.	4	2
14.	What is the purpose of Pilot pin in a die set?	4	2
15.	What are the limitations of explosive forming process?	4	2
16.	Compare Superplastic forming with that of traditional forming process.	4	3
17.	Discuss any four important properties of plastics which have made them suitable for large number of engineering uses.	5	3
18.	Differentiate between thermoplastics and thermosetting plastics.	5	2
19.	Indicate any two methods of bonding of thermoplastics.	5	2
20.	Brief the principle of of moulding of pet bottles made up of thermoplastics.	5	3

PART- B (5 x 10 = 50 Marks)

		Marks	CO	RBT LEVEL
21. (a)	Identify a suitable casting process used for the manufacture of air cooled two wheeler IC engine cylinder economically. Explain the principle and the steps involved in detail with neat sketches.	(10)	1	3
	(OR)			
(b)	Identify a suitable casting process used for the manufacture of long hollow steel pipes economically. Explain the principle involved and the steps involved in detail with neat sketches.	(10)	1	3
22. (a)	Illustrate with neat sketch a suitable process to join 75 mm thick plates economically in the downward position.	(10)	2	3
	(OR)			
(b)	Discuss with relevant sketches the various weld defects expected during the	(10)	2	3

fabrication of a part by arc welding and suggest suitable remedies for the same.

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| 23. (a) | Identify a suitable process used for the manufacturing of collapsible tubes for containing ointments and pastes out of ductile materials with neat sketches. | (10) | 3 | 3 |
| (OR) | | | | |
| (b) | How clutch facings and brake linings are produced? Explain the steps involved in detail with neat sketches of the above process. | (10) | 3 | 3 |
| 24. (a) | Specify a common problem encountered in the forming of sheet metal parts. Identify and explain a suitable process to eliminate the above problem. | (10) | 4 | 2 |
| (OR) | | | | |
| (b) | Compare the forming-limit diagrams (FLDs) used to assess the formability with that of other tests. | (10) | 4 | 2 |
| 25. (a) | Identify a suitable process used for the manufacturing of plastic candy trays made up of thermoplastics economically in mass production with neat sketches. | (10) | 5 | 3 |
| (OR) | | | | |
| (b) | Identify and explain a suitable process used to make long plastic pipes, channels with constant cross-section made up of thermoplastics with neat sketches. | (10) | 5 | 3 |

PART- C (1 x 10 = 10 Marks)

(Q.No.26 is compulsory)

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LEVEL |
|------------|--|-------------|----------|--------------|
| 26. | Discuss the suitability of various joining processes for engineering applications. | (10) | 2 | 3 |
