Q. Code: 652443

Reg. No. | | | | | | | | | | | | | |

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

Third Semester

AE18305 - PRODUCTION PROCESSES

(Automobile Engineering)

(Regulation 2018A)

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.	Summarize the operations involved in finishing of a casting.	**1**	**2**
2.	Differentiate between a pattern and a casting.	**1**	**3**
3.	Compare carburizing flame with oxidizing flame	**2**	**3**
4.	Identify a suitable method to join HSS drills to mild steel shank with the principle involved in brief.	**2**	**2**
5.	Indicate the advantages of forging as a manufacturing process.	**3**	**2**
6.	How the self-lubricated bearings are produced?	**3**	**2**
7.	Why clearance is provided in a punch or die?	**4**	**2**
8.	Identify the need for high energy rate forming of metals?	**4**	**3**
9.	Identify in what ways the thermoplastics and thermosetting plastics can be compared.	**5**	**3**
10.	Indicate and explain briefly a suitable process to make long plastic pipes, channels with constant cross-section.	**5**	**2**

PART- B (5x 14=70Marks)

		Marks	CO	RBT LEVEL
11. (a)	Identify a suitable casting process used for the manufacture of air cooled two wheeler IC engines economically. Explain the principle and the steps involved in detail with neat sketches indicating their advantages and limitations.	**(14)**	**1**	**3**

(OR)

	(b)	Identify a suitable casting process used for the production of engine blocks made up of grey cast iron economically. Explain the principle involved and the steps involved in detail with neat sketches.	**(14)**	**1**	**3**
12.	**(a)**	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**
		(OR)			
	(b)	**(i)** Identify the aspects in which TIG welding process can be compared with that of MIG welding.	**(07)**	**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.	**(07)**	**2**	**3**
13.	**(a)**	Identify a suitable process used for the manufacturing of nuclear reactor fuel rods with neat sketches. Compare the above process with that of other metal forming processes.	**(14)**	**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. Point out the limitations and applications of the process.	**(14)**	**3**	**3**
14.	**(a)**	Specify a common problem encountered in the forming of sheet metal parts. Identify and explain a suitable process to eliminate the above problem along with its advantages and limitations.	**(14)**	**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 intricate shaped thermoplastic parts accurately and economically in mass production with neat sketches.	**(14)**	**5**	**3**
		(OR)			
	(b)	**(i)** Identify and explain a suitable method to manufacture overhead storage plastic tanks with neat sketches.	**(07)**	**5**	**3**
		(ii) Identify and explain a suitable method to manufacture plastic bags with neat sketches.	**(07)**	**5**	**3**

PART- C (1x 10=10Marks)

(Q.No.16 is compulsory)

			Marks	CO	RBT LEVEL
16.		Discuss with relevant sketches the various weld defects expected during the fabrication of a part by arc welding and suggest suitable remedies for the same. (Minimum 5 defects).	**(10)**	**2**	**2**