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Question Paper Code : 70149

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2022.

Third Semester

Mechanical Engineering

ME 3393 – MANUFACTURING PROCESSES

(Common to: Automobile Engineering/Industrial Engineering/Industrial Engineering and Management/Mechanical Engineering/Mechanical Engineering(Sandwich)

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. What are the type of materials used for making patterns?
2. Suggest a casting method for making metal components of thin sections with high dimensional accuracy and good surface finish.
3. What are the basic equipment needed for oxy-fuel welding?
4. Mention few ways to reduce weld defects in thermit welding of rails.
5. List few advantages of cold working of metals.
6. Propose a method for a company that aims at mass producing screws and bolts.
7. What is the expected requirements of sheet metal in automobile industries?
8. In producing large parts, discuss how tooling cost is reduced by going for explosive forming.
9. What are the applications of plunger and screw machines?
10. Suggest a process to an industry which best suits for one-step fabrication of plastic components with a decorated or functional surface?

PART B — ($5 \times 13 = 65$ marks)

11. (a) Identify various components of domestic appliances and describe the type of moulding process used for manufacturing them.

Or

- (b) Describe the steps involved in ceramic moulding process and its application in an area of your choice.

12. (a) Explain the gas metal arc welding process with a schematic diagram and elaborate on its industrial applications.

Or

- (b) Explain the process of friction stir welding with a neat diagram and the various applications and performance of such welded components.
13. (a) (i) Explain the stages involved in cold die forging process with illustrative diagram. (10)
- (ii) What are the limitations of flat strip rolling? (3)

Or

- (b) Explain the principle type and advantages of extrusion process with diagrams wherever necessary.
14. (a) Explain any three special forming process mentioning their advantages.

Or

- (b) Discuss elaborately on the principle and applications of super plastic forming with suitable diagrams.
15. (a) Elaborate on various types and characteristics of thermosetting polymers mentioning their advantages and limitations.

Or

- (b) Write detailed notes on:
- (i) Transfer moulding (7)
- (ii) Duff moulding (6)

PART C — (1 × 15 = 15 marks)

16. (a) Enumerate various methods of joining dissimilar materials and elaborate one of the methods having different coefficient of thermal expansion.

Or

- (b) Suggest and explain suitable process for forming Hearing-aide. Also, highlight its capabilities.