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Question Paper Code : 40826

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Third/Fourth Semester

Aeronautical Engineering

ME 8392 — MANUFACTURING TECHNOLOGY

(Common to : Aerospace Engineering/Automobile Engineering/Mechatronics Engineering)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Why are chaplets used in sand moulding process?
2. What is meant by CO₂ moulding process?
3. Differentiate between direct current straight polarity and direct current reverse polarity in electric arc welding.
4. State the principle of resistance welding process.
5. List any four operations performed in lathe machine.
6. State any two functions of dielectric fluid in EDM process.
7. List any two causes and remedies for warping defect in injection moulding process.
8. What are thermosetting plastics? Give any two examples.
9. What is meant by sintering process?
10. Define spring-back effect.

PART B — (5 × 13 = 65 marks)

11. (a) (i) Describe with neat sketches the steps in involved shell mould casting process. (6)
(ii) Enumerate the steps involved in sand moulding process. (7)

Or

- (b) (i) Explain with neat sketch the true centrifugal casting process. (6)
(ii) Explain the various defects in casting process. (7)
12. (a) (i) Identify and mention the characteristics of three types of flame in oxy acetylene welding process. (6)
(ii) Explain with neat sketch the gas metal arc welding process. (7)

Or

- (b) (i) Explain the construction and working of electron beam welding process. (6)
(ii) Enumerate the working principle of thermit welding process. (7)
13. (a) (i) Compare shaper and planer. (6)
(ii) Describe with neat schematic diagram, the important components of horizontal milling machine. (7)

Or

- (b) (i) Explain the construction and working of abrasive jet machining process. (7)
(ii) Enumerate the working principle of laser beam machining process with its applications. (6)
14. (a) Write short notes on :
- (i) Compression moulding (4)
(ii) Rotational moulding (5)
(iii) Film blowing. (4)

Or

- (b) (i) Describe vacuum thermoforming process. (7)
(ii) Write short notes on bonding of thermoplastics. (6)

15. (a) (i) Compile various forging defects and their causes and remedies in detail. (7)
(ii) Explain direct and indirect extrusion process. (6)

Or

- (b) (i) Describe wire drawing process. (6)
(ii) With neat schematic explain metal spinning process. (7)

PART C — (1 × 15 = 15 marks)

16. (a) Identify and explain the various torch systems used in plasma arc machining process with neat sketches. (15)

Or

- (b) (i) Analyze the differences between capstan and turret lathe. (5)
(ii) Select a suitable unconventional machining process for machining glass material and justify your answer. (5)
(iii) Identify suitable manufacturing process for plastic PET bottles indicating various steps. (5)