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Question Paper Code : 80836

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

Second/Third/Fifth Semester

Mechanical Engineering

ME 2201/10122 ME 302/080120005/ME 32/PR 1204 – MANUFACTURING
TECHNOLOGY – I

(Common to Industrial Engineering/Industrial Engineering and
Management/Mechanical and Automation Engineering/Mechanical Engineering
(Sandwich))

(Regulations 2008/2010)

(Also common to PTME 2201 for B.E. (Part-Time) Second Semester – Mechanical
Engineering – Regulations 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What factors are to be considered in calculating the shrinkage allowance?
2. What are the essential requirements of a core sand?
3. What is the purpose of flux in welding?
4. Write short notes on thermit welding.
5. Working on the metal lead at room temperature, is considered to be hot working. Why?
6. List two advantages of cold extrusion over hot extrusion.
7. Define spring back.
8. Why is it necessary to provide proper clearance between the punch and die in a shearing operation?
9. What are reinforced plastics and where is it applied?
10. What are the industrial uses of fibres and filaments?

PART B — (5 × 16 = 80 marks)

11. (a) (i) What design considerations are needed to be followed in pattern design and explain how patterns are constructed? (8)
- (ii) With the help of neat sketch, describe in detail, the process of producing components by pressure die casting. (8)

Or

- (b) (i) Describe the procedure of making castings by the true centrifugal casting and write its advantages and disadvantages. (8)
- (ii) List the various mechanical tests carried on castings. Enumerate the tensile test and its importance in testing castings. (8)
12. (a) (i) Differentiate electro gas welding and electro slag welding with its principles and applications. (8)
- (ii) Explain the gas metal arc welding processes with neat sketch and its process capabilities. (8)

Or

- (b) Explain the following welding process with neat sketch
- (i) Resistance seam welding (8)
- (ii) Friction stir welding. (8)
13. (a) (i) Briefly explain about seamless rolled ring forging. (8)
- (ii) Briefly explain flat strip rolling operation. (8)

Or

- (b) (i) Explain Hot working and Cold working with their advantages and limitations. (8)
- (ii) Explain with a neat sketch the process of wire drawing (8)
14. (a) Sketch and explain the following sheet metal bending operations :
- (i) Sheet bending using V-die. (4)
- (ii) Bending edge of a sheet using wiping-die. (4)
- (iii) Roll bending. (4)
- (iv) Bending a sheet to a round shape using four-slide machine. (4)

Or

- (b) (i) With a neat diagram, explain the principle of explosive forming. (8)
- (ii) Explain the hydro forming process with neat sketches. Make a brief comparison of this process with conventional deep drawing. (8)

15. (a) (i) Describe briefly the plunger type injection moulding process for producing plastic components. (8)
- (ii) Explain, with neat diagrams the thermoforming process. State its advantages over other processes. (8)

Or

- (b) With neat sketches, explain the working principle and applications of the following moulding processes for plastics :
- (i) Compression moulding. (8)
- (ii) Transfer moulding. (8)
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