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Question Paper Code : 60844

B.E/B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Third Semester

Mechanical Engineering

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

(Common to Industrial Engineering, Industrial Engineering and Management,
Mechanical and Automation Engineering and Fifth Semester Mechanical
Engineering [Sandwich])

(Regulations 2008/2010)

(Common to 10122 ME 302 — Manufacturing Technology – I for B.E. (Part-Time)
Second Semester — Mechanical Engineering — Regulations 2010)

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 are the functions of flux in welding electrode?
4. What are the types of adhesives used in adhesive bonding?
5. What is ironing?
6. What is meant by fullering?
7. Define spring back effect in sheet forming process.
8. List the advantages of superplastic forming process.
9. Name two important differences between thermoplastics and thermosetting plastics.
10. What is film blowing?

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the allowances given while making pattern? Explain. (8)
(ii) Describe the process of Investment casting. What process controls are needed in this case. (8)

Or

- (b) (i) Briefly explain the principle, operation, advantages disadvantages and application of CO₂ moulding. (8)
(ii) Describe with a neat sketch of cold chamber die casting machine. Give its advantages and limitations. (8)
12. (a) (i) Explain in brief the functions of various coatings on a welding rod. (6)
(ii) Explain in detail the plasma arc welding process and write its applications and demerits. (10)

Or

- (b) (i) Explain with neat sketch the principle of resistance welding. Differentiate between upset welding and flash welding. (8)
(ii) Enumerate the various welding defects with causes of occurrence and describe a method of detecting cracks on a weld surface. (8)
13. (a) (i) Explain the steps involved in the forging operation. (8)
(ii) Explain the precision forging process with neat sketch and also compare with closed die forging process. (8)

Or

- (b) (i) Explain the various defects present on the rolled plate surfaces with suitable sketch. (8)
(ii) Write short notes on impact extrusion and hydro static extrusion. (8)
14. (a) Describe with illustrative sketches, the following sheet metal operations :
(i) Bending edge of a sheet using wiping-die
(ii) Roll bending
(iii) Stretch forming
(iv) Deep drawing. (4 × 4 = 16)

Or

- (b) (i) With a neat sketch, explain the rubber pad forming process How does it differ from rubber hydro forming process? (8)
(ii) Describe the metal spinning process with a neat sketch and state its advantages and specific uses. (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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