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Code No. : 31403

VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. (Mech. Engg.) III Year I-Semester (Main) Examinations, Nov./Dec.-2016

Manufacturing processes

Time: 3 hours

Max. Marks: 70

Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

1. What is shrinkage allowance and briefly give the reason for providing lower shrinkage allowance for casting cast iron?
2. Show by means of sketches the bottom and top gating systems.
3. Explain the reasons for rounding of the corners in sand castings.
4. Differentiate between blow holes and hot tear.
5. Which current characteristic do you opt for manual welding process and automatic welding process? Why?
6. Discuss briefly on the types of flames used in oxy-acetylene welding process.
7. Describe the electro-slag welding process.
8. Thermit welding is often used for welding heavy rail sections. Explain how the heat necessary for the joining process is obtained.
9. Distinguish between open and closed die forging process.
10. What is the significance of roll diameter with respect to roll separating force in rolling?

Part-B (5 × 10 = 50 Marks)

11. a) With neat sketch, explain the different types of patterns. [5]
b) Deduce the ideal shape of the sprue mathematically so that the aspiration effects will be minimum. [5]
12. Write short notes with description on the typical situation in which the following casting processes are used in practice.
a) Investment casting [5]
b) Pressure die casting [5]
13. a) With neat sketches explain the SMAW and SAW process. [6]
b) What are the problems faced in SMAW in vertical and horizontal welding positions? [4]
14. Write short note on the following indicating the applications.
a) Laser beam welding [5]
b) Spot welding [5]
15. Compare and contrast the following two forming processes.
a) Electrohydraulic forming [5]
b) Rubber pad forming [5]

- 16. a) Explain the necessity of directional solidification in the casting process. [5]
- b) How will you compare a cold chamber die casting process with that of a hot chamber die casting process? [5]

- 17. Answer any *two* of the following:
 - a) Explain briefly how brazing is carried out. [5]
 - b) Write short notes on seam welding with applications. [5]
 - c) How are collapsible tubes such as those used in toothpaste manufactured? [5]

