SRI SAIRAM COLLEGE OF ENGINEERING

CBCS Scheme

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15ME35A

Third Semester B.E. Degree Examination, Dec.2016/Jan.2017
Metal Casting and Welding

Time: 3 hrs. Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONF full question from each module.

Module-1

1 a. Define manufacturing process. With a suitable sketch, explain the classification of manufacturing process. **(08 Marks)**

b. What is a pattern? State the functions of a pattern and classify it. **(08 Marks)**

OR

2 a. What do you mean by the term pattern allowance? With a suitable sketch elaborate different types of pattern allowance. **(08 Marks)**

b. Draw and explain the step followed in moduling using sand slinger. **(08 Marks)**

Module-2

3 a. Define furnace, sketch and explain the working principle, constructional feature of induction furnace (corless type). **(08 Marks)**

b. Draw and explain the basic principle of working of a resistance furnace. **(08 Marks)**

OR

4 a. Explain the principle of squeeze casting process with a suitable figure give the setup details. **(08 Marks)**

b. With a neat sketch, explain thixo casting and slush casting. **(08 Marks)**

Module-3

5 a. How are casting defects classified? List out the factors contributing casting defects. **(08 Marks)**

b. Define the term directional solidification. Explain the methods of achieving directional solidification and state the need for directional solidification. **(08 Marks)**

OR

6 a. With a suitable sketch, explain the following terms :
i) Homogeneous nucleation
ii) Heterogeneous nucleation. **(08 Marks)**

b. Define the term degasification. With suitable sketch explain any two methods of degasification. **(08 Marks)**

Module-4

7 a. Define welding process, classify it, list out the applications, advantages and limitations of it. **(08 Marks)**

b. With a suitable sketch explain the principle of resistance welding and classify it. **(04 Marks)**

c. Describe the process of spot welding with a neat sketch. **(04 Marks)**

OR

8 a. Explain how an arc is generated in arc welding. Classify it. With a neat sketch elaborate flux shielded metal arc welding process (FSMAW). **(08 Marks)**

b. Describe the setup of atomic hydrogen welding process with a neat sketch. **(08 Marks)**

Module-5

9 a. Discuss the formation of different zones during welding process. **(08 Marks)**

b. With a neat sketch, explain how crack or discontinuity are inspected in a component using magnetic particle test. **(08 Marks)**

OR

10 a. Draw and explain the types of flames in oxy-acctylene welding process. **(08 Marks)**

b. State the metallurgical aspects in welding process for carbon and high carbon steel. **(08 Marks)**

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