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10AE35

Third Semester B.E. Degree Examination, June/July 2017

Manufacturing Processes

Time: 3 hrs.

Max. Marks: 100

Note: Answer FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. Explain briefly the steps involved in casting process. (10 Marks)
b. Define pattern? Explain the different pattern materials used in practice. (10 Marks)
- 2 a. List the different types of base sands used and explain any two of them. (08 Marks)
b. Draw a neat sketch of gating system. Label all the components or elements. (06 Marks)
c. Explain briefly the following casting defects. Also mention causes and remedies:
(i) Hot tears (ii) Blow holes (06 Marks)
- 3 a. With a neat sketch, explain Jolting machine. (10 Marks)
b. Explain the CO₂ moulding process with a neat sketch. (06 Marks)
c. What are the advantages of centrifugal casting? (04 Marks)
- 4 a. Define welding. List out the advantages and disadvantages of welding process over other manufacturing process. (10 Marks)
b. Explain with a neat sketch Flux Shielded Metal Arc Welding (FSMAW). (10 Marks)

PART – B

- 5 a. Define soldering. Explain the parameters affecting soldering process. (10 Marks)
b. List the different NDT techniques used in practice. Explain with a neat sketch Holography Inspection. (10 Marks)
- 6 a. Draw a neat sketch showing nomenclature of single point cutting tool. (06 Marks)
b. Write short notes on tool wear and tool failure. (06 Marks)
c. During a tool life test, the following data is obtained:

Cutting speed	Tool life
60 m/min	10 min
40 m/min	25 min

Establish the tool equation and estimate the tool life at cutting speed 50 m/min. (08 Marks)
- 7 a. Explain the desirable properties of a cutting tool materials. (08 Marks)
b. List the various methods of measuring chip-tool interface temperature. Explain briefly tool-work thermo couple method of measuring it. (12 Marks)
- 8 a. Explain with a neat sketch the working principle of laser beam machining. (10 Marks)
b. Enumerate the advantages, limitations and applications of abrasive jet machining. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.