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Total Number of Pages : 01

M.TECH

AR-19

M.TECH 1<sup>ST</sup> SEMESTER EXAMINATIONS NOV/DEC 2019

MANUFACTURING, MPCMT1020

CASTING AND WELDING TECHNOLOGY

Time: 3 Hours

Max Marks : 70

The figures in the right hand margin indicate marks.

**PART-A**

**(10 X 2=20 MARKS)**

1. Answer the following questions.

- Write the function of a riser.
- Why the section of a sprue reduces downwards?
- Calculate the permeability number of sand if it takes 1min25sec to pass 2000cm<sup>3</sup> of air at a pressure of 5gm/sec<sup>2</sup> through standard sample.
- Define the term manufacturing.
- For a casting (200 X 100 X 70) mm, solidifies in 10 min. under similar conditions a casting (200 X 100 X 10) mm, calculate the solidification time.
- What is "Arc blow"? How can it be avoided?
- What is the electrode covering in arc welding process?
- What metals may be spot welded? Can dissimilar metals be spot welded?
- Mention at least two common type of liquid used in liquid penetrant test for casting and welding NDT.
- Explain the term weldability.

**PART-B**

**(5 X 10=50 MARKS)**

Answer any five questions from the following.

- What Explain with neat sketch, centrifugal casting process.
- a) With a neat sketch, explain shell mould process.  
b) What is "directional solidification" of casting? Explain it with the help of a diagram.
- Explain the various steps involved in an investment casting process with a neat sketch. What are the main materials used for making the investment pattern?
- What is welding? Classify the welding processes. Explain the Electric Arc welding process with neat sketch and state its applications.
- Why directional solidification is necessary? How it helps in the production of sound castings? What are the factors through which directional solidification of castings can be controlled?
- What is micro-hardness testing? What are the applications of this technique?
- Write the various welding defects. Give their reasons and suggest the remedies.

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