

D 42527

(Pages 2)

Name

Reg. No.

**SEVENTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, DECEMBER 2007**

ME 04 704—METAL CASTING AND JOINING

(2004 admissions)

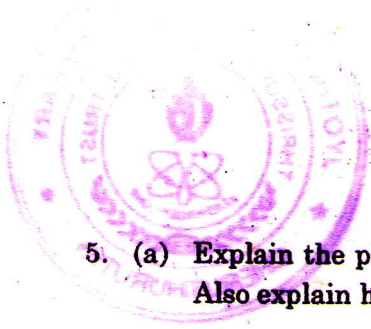
Time : Three Hours

Maximum : 100 Marks

Answer all questions.

1. (a) Explain the processes employing insulating moulds.
(b) State the difference between short and long freezing ranges. How is it determined ?
(c) Explain slush casting.
(d) Describe the methods used for producing single crystal parts.
(e) Classify electrodes and state the functions of coating.
(f) Explain laser beam welding.
(g) Explain the effect of high thermal conductivity of pure copper while welding copper and its alloys.
(h) How do brazing and soldering differ from fusion welding ?
(8 × 5 = 40 marks)
2. (a) Discuss the casting processes in which interface resistance is Dominant.
Or
(b) Explain with neat sketches the different types of melting furnaces used in foundries.
(15 marks)
3. (a) Describe the step by step procedure in (i) shell moulding ; (ii) CO₂ process.
Or
(b) What are the General defects encountered in casting processes ? Which defects are related to use of sand moulds ? Describe what methods are adopted for inspection of castings.
(15 marks)
4. (a) Describe the sequence of steps in (i) Resistance spot welding; (ii) Ultrasonic welding.
Or
(b) List and explain welding defects. Also describe the inspection and testing methods.
(15 marks)

Turn over



5. (a) Explain the phenomena of solidification cracking while welding Aluminium and its Alloys. Also explain how one can avoid the solidification cracking.

Or

- (b) What is Soldering ? What are the different methods of soldering ? List the types of solders and fluxes used and their applications.

(15 marks)

[4 × 15 = 60 marks]