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Date: 04/12/2014.

Ganpat University

B.Tech. Sem. VII Mechanical Engineering

CBCS Regular Examination Dec.-2014

Sub.:2ME705/2 Foundry Technology

Time: 3 Hours **Total Marks: 70**

Instructions: i) Answer two sections separately.
ii) Figures to the right indicate full marks.
iii) Assume suitable data if necessary.

Section I

Q-1

(a) Explain role of fluxing in aluminium alloy melting. Also list and explain types of flux used in melting of Al-Si alloys. **04**

(b) Explain importance of degassing operation in Al-Si alloys. **03**

(c) What is mean by grain refinement? Explain various technique used for grain refinement. **04**

OR

Q-1

(a) Enlist and explain important mechanical properties of Al-Si alloy castings. **03**

(b) Draw a neat sketch of Al-Si phase diagram and label the phases therein and also define following terms with figure: **04**
(i) Dendrite arm spacing
(ii) Cell interval
(iii) Cell size

(c) What is mean by modification of Al-Si alloys? Explain effect of modification on mechanical properties of Al-Si alloys. **04**

Q-2

(a) Explain melting practice of aluminium bronze. **04**

(b) Differentiate between steel moulding and cast iron moulding. **04**

(c) Explain T-6 heat treatment of Al-Si alloy. **04**

OR

Q-2

(a) Differentiate between horizontal and vertical centrifugal casting process. Also discuss effects of various process variables on quality of castings. **04**

(b) Differentiate between low pressure & high pressure die castings. **04**

(c) Enlist non destructive testing methods used in castings. Explain any one in detail. **04**

Q-3 Write Short Notes on any three of followings: **12**
(i) Casting defects
(ii) Plants equipment & mechanization
(iii) Fluidity
(iv) Melting Practice of Brass
(v) Vaccum Casting

SECTION - II

Q-4 (a) Define pattern, enlist materials used for patterns. Explain following patterns with neat sketch 04
(i) Split pattern
(ii) Match Plate Pattern
(iii) Sweep Pattern

(b) List and explain moulding characteristics of sand. 04

(c) What is sand testing? Explain moisture test in detail. 04

OR

Q-4 (a) Define gating system. Explain functions of gating system. 04

(b) Differentiate between open riser and blind riser. Also explain riser and directional solidification. 04

(c) What is gating ratio? Differentiate between pressurized and unpressurized gating system. Also explain multiple gating systems. 04

Q-5

(a) Explain vaccum arc melting process in details. 04

(b) Enlist and explain procedural steps of squeeze casting process. Also explain effect of process parameters on quality of squeeze casting. 03

(c) Differentiate between Rheocasting and Thioxoforming processing. 04

OR

Q-5

(a) Define inoculation and explain the role of inoculation in gray cast iron. 03

(b) Define Carbon Equivalent Value (CEV) and also explain effect of CEV in gray cast iron. 04

(c) Differentiate between white cast iron and malleable cast iron. Explain solidification of white cast iron from liquid condition to room temperature. 04

Q-6 Write short notes on any three of following: 12

(i) Core making
(ii) Nodular cast iron melting practice
(iii) Continuous casting
(iv) CO_2 moulding

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