

B.TECH. DEGREE EXAMINATION, MAY 2014**Seventh Semester**

Branch : Mechanical Engineering

FOUNDRY TECHNOLOGY (Elective I) (M)

(Old Scheme – Prior to 2010 Admissions)

[Supplementary]



Time : Three Hours

Maximum : 100 Marks

Part A*Answer all questions.**Each question carries 4 marks.*

1. What is the purpose of adding additives in moulding sand?
2. What are the ingredients of core sand? What is the function of each ingredient?
3. What is meant by gating ratio? Give normal range of gating ratio for Grey Cast Iron.
4. Explain different types of Gates.
5. What are low and high alloy cast irons?
6. How does inoculants work in the process of casting?
7. What is meant by degassing? How is it done?
8. Explain about induction furnace and its working.
9. Explain the concept of Fettling.
10. What is meant by knock out in foundry practice?

(10 × 4 = 40 marks)

Part B*Answer all questions.**Each full question carries 12 marks.*

11. (a) With the help of figures, explain the following types of patterns :
 - (i) Sweep pattern.
 - (ii) Follow board pattern.
 - (iii) Cope and drag pattern.

Or

- (b) Explain the various sand tests conducted and the effects of its ingredients and additives on properties of the moulding sand.

Turn over

12. (a) Explain the mechanism of solidification and the concept of directional solidification.

Or

- (b) (i) Describe the functions and requirements of risers.
(ii) Explain the use of chills, exothermic compounds and insulators.

(6 + 6 = 12 marks)

13. (a) (i) Explain the types of graphite present in grey CI.
(ii) What is S.G. Iron? Explain its composition and properties.

(5 + 7 = 12 marks)

Or

- (b) (i) What is grey cast iron? Explain its composition and properties.
(ii) What is malleable iron? What is meant by white heart and black heart types of malleable iron?

(6 + 6 = 12 marks)

14. (a) Explain the working of a cupola furnace with the help of a neat sketch.

Or

- (b) Describe the foundry characteristics of copper and aluminium based alloys.

15. (a) How can the moulding and core making activities be mechanised?

Or

- (b) Describe the past pouring activities in a foundry and explain atleast three non-destructive tests which can be performed on castings.

[5 × 12 = 60 marks]

