

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) - EXAMINATION – SUMMER 2017****Subject Code: 2162106****Date: 01/05/2017****Subject Name: Foundry Technology****Time: 10:30 AM to 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

MARKS

Q.1	Short Questions	14
	1 Define foundry	
	2 Give the name of core box which is used for manufacturing L shape Pipe bends.	
	3 Which pattern is used for manufacturing of master pattern?	
	4 What do you mean by “tempering” water?	
	5 What is the function of “feed head”?	
	6 What is core?	
	7 What is the function of chaplet?	
	8 Enlist the name of pattern making materials.	
	9 Give the value of shrinkage allowance for cast steel up to 2 feet.	
	10 Enlist the ingredients of green sand.	
	11 Give the definition of permeability.	
	12 Give the name of gas purging reactants for effective removal of H ₂ , alkalines & flotation of inclusions from Al.	
	13 Give mathematical expression, which shows Relationship between height and cross-sectional area at any point in the sprue.	
	14 Give the statement of Chvorinov’s rule.	
Q.2	(a) What is role of CO ₂ gas in sodium silicate process?	03
	(b) Foundry is a versatile process to shape the material – Comment.	04
	(c) Explain follow board pattern & Sweep pattern with neat sketch.	07
	OR	
	(c) Explain the role of following special additives in moulding sands: Cereals, Ground pitch, Sea coal, Gilsonite, Silica Flour, Iron Oxide.	07
Q.3	(a) Differentiate the terms “pattern” & “casting”	03
	(b) Describe the effects of grain shape & grain size on properties of moulding sand.	04
	(c) Discuss shell moulding process.	07
	OR	
Q.3	(a) What are different types of core boxes.	03

	(b) Discuss Gating in Aluminium castings.	04
	(c) Explain in brief the salient features of centrifugal casting process. What are the advantages & limitations of centrifugal casting process?	07
Q.4	(a) Explain in brief principle of resistance melting furnace.	03
	(b) Give the functions of gating system & enlist the types of it.	04
	(c) What is meant by directional solidification? How does it differ from progressive solidification?	07
	OR	
Q.4	(a) List different sand testing techniques.	03
	(b) Write a short note on blind risers.	04
	(c) Describe investment casting process.	07
Q.5	(a) Differentiate between horizontal gating system & vertical gating system	03
	(b) Explain in brief wedge test for quality control in foundry.	04
	(c) List the defects found in casting practice and give causes and remedies for hot tear and shrinkage cavity.	07
	OR	
Q.5	(a) Riser location depends up on which parameters/factors? Enlist.	03
	(b) What are the effects of temperature on the work piece (cast parts).	04
	(c) Explain casting modification by Friction stir processing.	07
