

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– V (New) EXAMINATION – WINTER 2019****Subject Code: 2152108****Date: 06/12/2019****Subject Name: Steel Making****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	(a) List the integrated and mini steel plants in India.	03
	(b) Illustrate with circuit diagram different routes of steel making.	04
	(c) Give the practice outline from Bessemer Steel Making to present day.	07
Q.2	(a) What is the importance of decarburization in Steel Making?	03
	(b) Explain the Reaction equilibria for Reaction of carbon.	04
	(c) With diagram explain the reaction at slag-metal interface.	07
	OR	
	(c) Briefly explain pretreatment of hot metal.	07
Q.3	(a) What are the types of slag? For each slag write suitable refractory lining in converter.	03
	(b) Draw neatly; the converter/furnace is used for any one Oxygen steel making process other than the LD converter.	04
	(c) Explain the influence of lance height and the number of nozzles in the lance on the decarburization and dephosphorization reactions in the LD Converter.	07
	OR	
Q.3	(a) What is JFN? Give the equation for it.	03
	(b) With figure explain design of oxygen lance.	04
	(c) Discuss modification and further developments in conventional BOF.	07
Q.4	(a) Draw the figure of Electric arc furnace and labeled it.	03
	(b) Enlist the sequential operation of Electric arc furnace.	04
	(c) Illustrate with diagram what are the differences between AC-EAF and DC-EAF.	07
	OR	
Q.4	(a) What is ASEA – SKF process? Explain.	03
	(b) Briefly explain double slag practice in steel making.	04
	(c) Compare and contrast AOD and VOD processes.	07
Q.5	(a) What is tundish metallurgy? Briefly explain.	03
	(b) List the ingot defects and give their remedies.	04
	(c) Write a short note on continuous casting.	07
	OR	
Q.5	(a) Explain with example, types of Inclusion. How it affects the mechanical properties of steel.	03
	(b) With figure briefly explain R-H degasser.	04
	(c) Explain with neat schematic diagram Ladle Injection Metallurgy	07
