

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2023****Subject Code:3172118****Date:08-12-2023****Subject Name: Introduction to standards and specifications in Metallurgy****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.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Compare between Code, Standard and Specification	03
	(b) For which type of corrosion testing Salt Spray test is use? Expalin in brief about its apparatus.	04
	(c) Explain ASTM Standard & Test procedure for the IGC corrosion system in Metallurgical Process Industries.	07
Q.2	(a) Write equivalent standard of the following materials in EN/SAE/AISI/BIS. EN-8, EN-24 and EN-31 with their chemical composition.	03
	(b) What is AISI? List out 1XXX to 9XXX series steel.	04
	(c) Enlist the benefit of ISO 9000 & 14000 standards and Total quality management	07
OR		
	(c) Define Fatigue. Which different types of Fatigue failure occur in metallic materials. Expalin stages of fatigue failure.	07
Q.3	(a) Explain Tensile testing specimen preparation with diagram.	03
	(b) List different Scale with Load, Indentator and Application as per ASTM E18.	04
	(c) With neat diagram, write detail of indentation ASTM E92-82.	07
OR		
Q.3	(a) For Hydrogen Embrittlement testing which Standard is use? Explain in brief.	03
	(b) For Optical microscopy, ASTM E 407 standard is use for which process? Explain in brief.	04
	(c) Write and explain procedure of grain size measurement as per E112.	07
Q.4	(a) What information is available from the following ASME BPV Code? ASME Section II A, II B and II C.	03
	(b) Which procedure is use for inclusion rating in steel? Expalin inclusion rating ASTM procedure	04
	(c) Which ASTM standard is use for Micro hardness testing? Compare and explain it with ISO standard.	07
OR		
Q.4	(a) Define WPS, PQR, and WPQ.	03
	(b) What is ASME SEC II Part A, Part B and Part C? Name the ASME code for the rules for the construction of pressure vessels and Boilers?	04
	(c) Expalin ASTM D256 procedure for testing of component by Izod test.	07

- Q.5 (a)** Discuss metallographic steps for optical microscopy. **03**
- (b)** Explain designation of the covered electrode, electrode rod, filler Metal of the following as per AWS Specifications wrt ASME BPV SEC II Part C **04**
1 ER 70S-2 2. F7 A6-EM12K
- (c)** Explain in detail about G 99 standard for wear test. **07**
- OR**
- Q.5 (a)** Which ASTM standard is use for SCC? List out parameters and for which common materials it is applicable. **03**
- (b)** Explain the designation of the covered electrode, electrode rod, filler Metal of the following as per AWS Specifications wrt ASME BPV SEC II Part C **04**
1. E 6010 2. E 7018-H4
- (c)** Which ASTM standard practice is used to test Pitting corrosion? / Explain in brief. **07**