

Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2019

Programme Name: M. Tech (PLE)	Semester : III
Course Name : Defect Assessment & Maintenance in Pipelines II	Time : 03 hrs
Course Code : CHPL 8001	Max. Marks : 100
Nos. of page(s) : 3	

Instructions:

SECTION A

S. No.		Marks	CO
Q 1	Mention 10 instruments required for checking coating condition during inspection at site.	4	CO 2
Q 2	Factors that contribute for increase in corrosion allowance.	4	CO3
Q 3	Procedure for determination of maximum allowable longitudinal extent of corrosion	4	CO 5
Q 4	What are the various methods used for mitigation of AC/DC interference? Explain any two methods.	4	CO 3
Q 5	Illustrate 2 types of heat treatments for changing grain structure of alloy and results obtained with each process.	4	CO 1

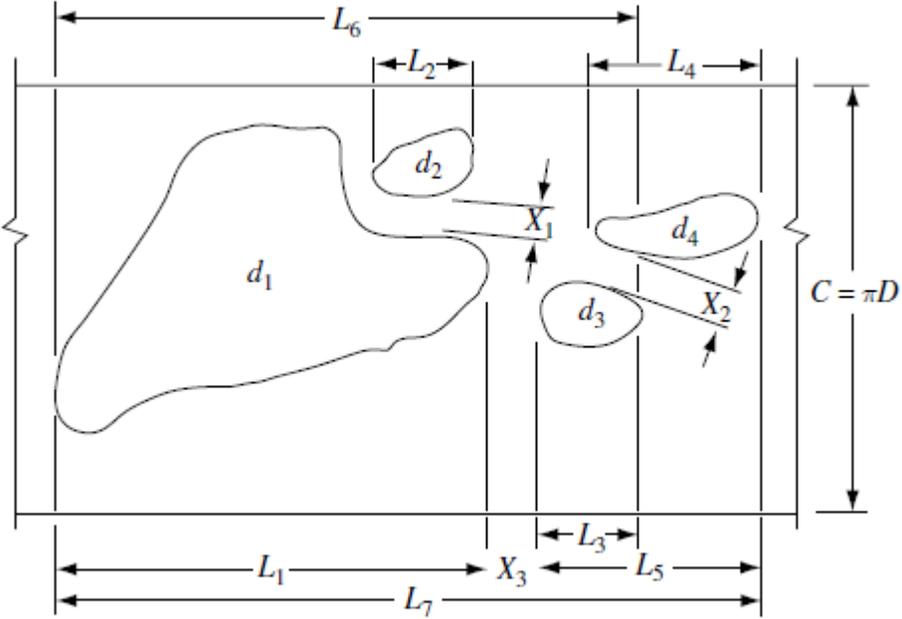
SECTION B

Q 6	Describe the various factors effecting the selection of material for use of industrial piping or for any equipment construction. What is carbon equivalent content& how weld ability is affected?	10	CO 1
Q 7	How do you carry out the design of CP system for boosting station of a cross- country pipeline?	10	CO 3
Q 8	Write short notes on any two of the following: a) Evaluation methods for determining length & depth of a defect as per ASME B 31G-2009. b) What is the need for Cathodic isolation of pipeline? Describe various types of isolation methods used for isolation of pipeline. e) Various steps for ECDA (External corrosion direct assessment)	10	CO 3
Q 9	Write short notes on following: a. How to achieve near metal white surface blasting as per NACE specification No. 2/SSPC-SP 10?	10	CO2

	<p>b. Mention in brief about various surveys carried out identify coating defects.</p> <p>c. Write down eight codes and standards used in repair & maintenance of cross country pipelines.</p> <p style="text-align: center;">OR</p> <p>Write short notes on following:</p> <p>d. Is it possible to protect above ground pipelines / structures by Cathodic Protection, if not, why?</p> <p>e. Classification of various defects as per POF.</p> <p>f. What are the advantages of back fill material in anode beds & steps required in maintenance of anode beds?</p>		<p>CO 2/</p> <p>CO 4</p> <p>CO 3/</p> <p>CO 6/</p> <p>CO 2</p>
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SECTION-C

Q 10	Explain Microbiologically Influenced corrosion, classification of microorganisms, BIO FOULING observed in pipelines & Prevention of MIC.	20	CO 5
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Q 11	<p>Several metal loss profiles of a corroded pipe is shown in the following sketch to examine the corroded pit interaction whether separate or interacting.</p> 	20	CO6
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Complete the following table and show interaction among all the corrosion pits

Overall flaw length	Separate or Interacting	Conditions *	Maximum Depth	Con
	*X =Distance of full wall thickness between metal loss (corroded regions).			