Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2019

Programme Name: M. Tech (PLE) Semester : III

Course Name : Equipment & machinery Maintenance Time : 03 hours

Course Code : MECH 7003 Max. Marks : 100

Nos. of page(s) : 2

Instructions:

SECTION A

S. No-		Marks	CO
Q 1	Indicate 10 instruments setting of prime mover in pump station.	4	CO 1
Q 2	Explain the various modes for communication of data & voice in cross-country pipelines	4	CO 3
Q 3	Use of fire proximity & fire entry suit in industry. Illustrate with drawing fire clock and purpose for providing it.	4	CO 4
Q 4	Effects of electric shock on human beings. State four stages of the effect of a current flow through the body.	4	CO 4
Q 5	Replacement of annular plates of storage tanks.	4	CO 2
	SECTION B		
Q 6	What are the various types of Single Point Mooring systems? Mention various navigation facilities used in submarine system.	10	CO 6
Q 7	Elaborate various types of instruments used for enhancing the safety of equipment's. Why ESD system is provided in logic? Mention the safety settings for engine lube oil for turbocharged engine.	10	CO 1
Q 8	Write down the chemistry of fire and theory for extinguishing of petroleum fire. Elaborate on methods used for extinguishing petroleum fire. Explain terms BLEVE and boil over occurring during tank fire. What are the goals of loss control management?	10	CO 5

Q 9	A single-acting reciprocating pump discharge 0.018 m3/s of water per second when running at 60 rpm. Stroke length is 50 cm and the diameter of the piston is 22 cm. If the totals lift is 15 meters. Calculate: a) Theoretical discharge of the pump b) Slip and percentage slip of the pump c) Co-efficient of discharge d) Power required for running the pump	10	CO1
	OR		
	Write short notes on any two of the following:		CO 4/
	a) Write down the yearly maintenance activities of MCC/PCC panels.b) Various clearances of liners and piston assemblies of turbocharged marine	10	CO 1/
	diesel engines. e) Various maintenance activities for large storage tank.		CO 2
	SECTION-C		
Q 10	How can you become an effective Maintenance Engineer? State principals for effectively attacking a maintenance problem. State maintenance strategies &KPA for effectively for effective maintenance planning & scheduling. Detail out concept of cost optimization & health assessment.	20	CO1
Q 11	What is the requirement of inspection in storage tank? What are the types of internal inspection carried out in storage tank? Describe the process for replacement of bottom plate including inspection.		CO 2
	OR		
	Indicate corrective actions against below each problem. Corrective action should be made in tabular form, specifying correction action against each problem.	20	
	a) Centrifugal pump is not able to generate the sufficient head and losses head just after starting the pump. Analyze the reason & indicate corrective steps required.		CO 1
	b) Write down the reason for bearing overheating & wear for the NDE side journal bearing.		