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UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
END Semester Examination, JUNE-JULY 2020

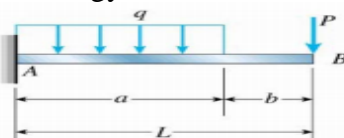
Course: Structural Engineering & vibration in pipeline
Program: M. Tech (PLE)
Course Code: CIVL 7011
Instructions: Attempt all the questions

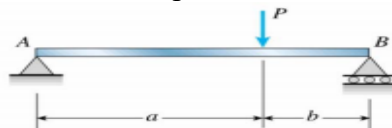
Semester: II
Time: 3Hrs
Max. Marks: 100
Paper -I

SECTION A

S. No.		Marks	CO
Q.1	Explain the difference between statically determinate & Indeterminate structures	4	CO2
Q.2	How moment area method differs from energy method for analyzing beams.	4	CO2
Q.3	How the presence of aggregates influence the strength of Concrete mix	4	CO3
Q.4	Explain the difference between propped cantilever & fixed beams	4	CO1
Q.5	Explain the role of reinforcing steel in R.C structures	4	CO4

SECTION B

Q.6	Determine the slope & maximum deflection for cantilever beam subjected to loading as shown in figure below. Use Energy method 	10	CO1
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Q.7	Determine the slope & maximum deflection for simply supported beam subjected to eccentric loading of magnitude "P". Adopt Moment area method 	10	CO2
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Q.8	Calculate the area of steel required for short R.C column 450mm X 450mm in cross section to carry axial load of 1300kN. Assume the grade of Concrete M30 & fe500 . Also, draw the ductile reinforcement connections	10	CO3
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Q.9	Draw the different types of connections & joints in the design of steel structures. OR Design the bolt value of 20mm diameter bolt connected to a plate by shop bolting & by field bolting	10	CO4
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SECTION-C

Q.10	A Concrete pipeline proposed to construct under the sea. The pipeline was subjected to side forces of 20kN possibly lifting off its dead weight supports due to extremely transient loads. What precautions you will propose such that change in Bending moments, axial forces, displacements & deformations along the pipeline is minimum. Give your suggestion with critical explanation. A Pipeline joint has to carry a load of 310kN. Thickness of main plate is 16mm. Thickness of cover plate is 10mm. design the Pipeline Joint.	20	CO4
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Q.11	<p style="text-align: center;">OR</p> Design the length of welding required transmitting the load of 50kN acting on the flat 100 X 8mm acting on pipeline joint. The flat is connected to a gusset plate by fillet welding	20	CO3
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