Name: **Enrolment No:**	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2022

Course: Professional Electives III- Foundation Engineering **Semester: VI**
Program: B Tech Civil Engineering **Time 03 hrs.**
Course Code: CIVL 3005 **Max. Marks: 100**
Instructions: Use of IS codes allowed, Assume any necessary data

S. No.		Marks	CO
	SECTION A		
Q 1	Define safe bearing capacity of soil.	**4**	**CO1**
Q 2	Define negative skin friction.	**4**	**CO2**
Q 3	Describe kentledge in well foundation.	**4**	**CO3**
Q 4	Draw the diagram of concrete frame machine foundation.	**4**	**CO4**
Q 5	Describe the importance of cohesion in determining the bearing capacity of soil	**4**	**CO1**
	SECTION B		
Q 6	A circular footing of dia 2 m. is laid at a depth of 2 m below the ground surface. Determine the net ultimate bearing capacity both in general shear failure, using BIS formula. Take γ =19 kN/m^3, ϕ =30˚ and c= 0. For ϕ =30˚, take Nc =30.1, Nq =18.4 and Nγ = 22.4.	**10**	**CO1**
Q 7	Differentiate the procedure of determining the ultimate load capacity in granular soils and cohesive soils.	**10**	**CO2**
Q 8	Differentiate between steining and topping along with their applicability.	**10**	**CO3**
Q 9	Explain the procedure of cross hole test with a neat diagram (OR) Describe the advancements in foundation engineering,	**10**	**CO4**
	SECTION C		
Q10	Draw the diagrams of different types of well foundation based on shape. Also discuss on their mutual advantages and disadvantages of their use in cohesive and non-cohesive soils	**20**	**CO3**
Q11	Explain the principles of the design of counterfeit and gravity retaining walls with diagrams. (OR) Determine the net ultimate bearing capacity both in general and local shear failure and compare the results, using BIS formula for a rectangular footing of size 2 m x 4 m. is to be laid at a depth of 2 m below the ground surface there is a an effective surcharge load of 2000 kg per sq. mt. Take γ =19 kN/m^3, ϕ =30˚ and c= 0. For ϕ =30˚, take Nc =30.1, Nq =18.4 and Nγ = 22.4.	**20**	**CO1, CO4**