

Name:

Enrolment No:



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

Course: Engineering Geology
Programme: B Tech Civil Engineering
Max. Marks: 100

Semester: III
Time: 03 hrs.
Course Code: CIVL 2014

Instructions: Write your assumptions carefully and attempt all the questions

SECTION A

S. No.		Marks	CO
Q1.	Define the following: i. Toughness ii. Fracture iii. Tenacity iv. Ore	4	CO1
Q2.	What are the major differences between inner and outer core of the earth?	4	CO2
Q3.	What is RIS?	4	CO3
Q4.	Explain the factors on which groundwater existence depend.	4	CO3
Q5.	What is denudation? What are its phases?	4	CO4

SECTION B

Q6.	A bed of sand consists of three horizontal layers of equal thickness having coefficient of permeability 4×10^{-4} mm/s, 6×10^{-4} mm/s, 4×10^{-4} mm/s respectively. What is the ratio of average permeability in x and y direction? Also find the equivalent permeability.	10	CO4
Q7.	What are the faults? Give their classification with the help of detailed diagram for each type.	10	CO3
Q8.	Why does the Mid-Oceanic-Ridge experience frequent tectonic plate disturbances?	10	CO4
	OR		
Q8.	With the help of P wave shadow zone, comment on the nature of earthquake waves.	10	CO4
Q9.	What are the geological considerations in the selection of a tunnel site?	10	CO3

SECTION-C

Q10.	Explain the Darcy's law for the motion of water through media. What is an infiltration well? Sketch its diagram clearly mentioning its location. Can it be utilized as a potent source of water supply? Also explain the use of jack well with the help of diagram.	5+10+ 5	CO1
	OR		
Q10.	What is the difference between radiometric methods and electrical methods? Explain each in detail clearly outlining the physics behind the two. Also list the advantage of geothermal methods.	5+10+ 5	CO1
Q11.	As a civil engineer, how will you make use of the seismic zone map in the design of a residential area? If the region lies in zone V, what are the changes you will consider? Out of magnitude and intensity, which will be given more priority in the town planning? Why or why not? b) What are the various types of extrusive volcanic landforms?	15+5	CO2