Name: **Enrolment No:**	UPES UNIVERSITY WITH A PURPOSE

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

Course: Geophysical Exploration **Semester: III**
Program: B.Tech. GSE **Time 03 hrs.**
Course Code: PEGS 2017 **Max. Marks: 100**

Instructions: All questions are compulsory in all the sections; however, internal choices are given in Q 6 (Section B) and Q 10 (Section C).

SECTION A

S. No.		Marks	CO
Q 1	Briefly describe about interaction of EMR with atmosphere.	**04**	**CO1**
Q 2	Describe the significance of Geochemical surveys in Exploration.	**04**	**CO2**
Q 3	A spherical body of radius 10 m has its centre 45 m below the surface. If the body is full of sediments of density 4.5×10^3 kg/m^3 and is in a rock body of density 2.4×10^3 kg/m^3. What is the maximum value of its gravity anomaly in mGal?	**04**	**CO3**
Q 4	Explain the cause of Geomagnetism.	**04**	**CO4**
Q 5	Explain the significance of Source- reservoir correlation.	**04**	**CO2**

SECTION B

Q 6	Differentiate between working principle of Fluxgate and Cesium Vapor Magnetometers. **OR** Explain magnetism in rocks.	**10**	**CO4**
Q 7	Discuss various methods of Geochemical Prospecting.	**10**	**CO2**
Q 8	Discuss different methods to separate Local & Regional Gravity anomalies.	**10**	**CO3**
Q 9	Describe magnetic data acquisition and processing (data reduction).	**10**	**CO4**

SECTION-C			
Q 10	A Geophysical data acquisition company carried out Electrical measurements over an area. They utilized both Schlumberger and Wenner arrangements for computing resistivities. a) Explain how they would be same or different by computing geometrical factors for each configuration. b) When we may expect Apparent resistivity to be equal to true resistivity of the layer? Differentiate between True and Apparent resistivity. **OR** Describe in detail about: a) Principle of DC Electrical Resistivity Survey. b) Data Acquisition procedures of VES using Schlumberger arrangement. **c)** Differentiate between Electrical profiling, Electrical imaging, and Vertical Electrical Sounding.	**15** **5** **05** **10** **05**	**CO5**
Q 11	Explain various types of Exploratory drilling techniques and their applications.	**20**	**CO6**