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

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

Course: Geophysical data Acquisition Processing and Interpretation **Semester: VII**
Program: B. Tech GSE **Time 03 hrs.**
Course Code: GSEG 402 **Max. Marks: 100**

Instructions:

SECTION A

S. No.		Marks	CO
Q 1	Define Cyclic and Free Air correction for gravity data.	**4**	**CO1**
Q 2	Derive the equation of gravity anomaly for buried faulted slabs.	**4**	**CO2**
Q 3	Illustrate the magnetic anomaly pattern for subsurface magnetic ore body.	**4**	**CO3**
Q 4	Define the magnetic field of the earth.	**4**	**CO3**
Q 5	Discus the principle of electromagnetic survey.	**4**	**CO4**
	SECTION B		
Q 6	a. Discuss the Schlumberger and Wienner methods for resistivity survey. b. Suppose that the potential difference is measured with an electrode system for which one of the current electrode and one of the potential electrode are at infinity. The current is 5 ampere. Compute the potential difference between the electrodes at d1 distance from the source, and infinity. For d1=50 m, d2=100 m, R1=30ohm-m, R2=350ohm-m.	**5+5**	**CO4**
Q 7	Define static correction for seismic data. What is the relation between reflected waves and direct waves?	**10**	**CO5**
Q 8	Write a short notes on **any two:** i. Demultiplexing ii. Deconvolution iii. Surface waves	**10**	**CO5**
Q 9	Explain the velocity survey methods in wells and three dimensional reflection acquisition. OR Discuss the stacking procedure for seismic data enhancement.	**10**	**CO6**

Section C			
Q 10	a- Discuss the instruments used for seismic survey. b- Suppose that a layer with a velocity of V1=2000m/sec and thickness of 150 m lies above another layer with a velocity V2=3500m/sec. Compute the expected crossover distance and intercept time for the critically refracted waves.	**10+10**	**CO6**
Q 11	Write a short notes on: i. Hydrophone ii. Crossover distance iii. Seismic waves iv. Multifold Reflection v. Vibroseis Correlation OR a. Differentiate the depth section and time section. b. Discuss the stratigraphic boundaries and structural features interpretation from seismic section to set the exploration target for oil & gas.	**20** **20**	**CO6**