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

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

Course: Photogrammetry: Remote Sensing, GIS and GPS. **Semester: VII**
Program: B.Tech CSE spl in OGI **Time : 03 hrs.**
Course Code: GSEG 304 **Max. Marks: 100**

Instructions:

SECTION A

S. No.		Marks	CO
Q 1	Describe various paths followed by EM radiations in the earth atmosphere. Sketch a diagram stating the different components of EM radiation at the satellite.	**4**	**CO1**
Q 2	State the importance of scattering in remote sensing. Describe different types of scattering encountered in the atmosphere.	**4**	**CO1**
Q 3	Define Geoid. Compute the height of the object with the help of geoid.	**4**	**CO3**
Q 4	Define Image histogram and its role in interpreting remote sensed image	**4**	**CO5**
Q 5	State the concept of Urban Heat Island	**4**	**CO4**
	SECTION B		
Q 6	Demonstrate different element of visual image interpretation. Prepare the investigation report of the following image.	**10**	**CO1**

			
Q 7	Calculate the scale of the image using the geometry of vertical image.	**10**	**CO2**
Q 8	Infer the role of trilateration in any navigation system. Define various segment of navigation system **Or** Summarize various steps undertake to calculate the position of any object using GPS.	**10**	**CO3**
Q 9	Illustrate different type of geometric and radiometric error encountered while capturing remote sensing image and way to rectify them	**10**	**CO4**
	SECTION-C		
Q 10	When reservoirs leak, varying quantities of oil and gas migrate to the surface as macroseeps, which are visible, and microseeps, which are invisible. Different mechanisms of seepage results in surface manifestations in relation to optical high-resolution remote sensing data. Oil pools and tar deposits (macroseeps) often can be detected directly by remote sensing. Microseeps are more difficult to study using remote sensing, but they give rise to vegetation stress, and cause geochemical alterations in soil and rocks, which can be studied indirectly using hyperspectral sensors. The remote sensing tools are important for petroleum exploration, as seeps emit greenhouse gases. These seeps alter the electromagnetic signature of the surface as a result sensor need to be re-calibrated. Based on the above-mentioned case study. a) Derive the Hapke's equation for understanding the EM signature of soil.	**10+10**	**CO5**

	b) Analyze different spatial filter use for enhancing remote sensing image.		
Q 11	Explain the following concepts: a) Projection **Or** DEM b) Rock Folding **Or** Rock Faulting c) Types of Parallax **Or** Mathematical equation for calculating differential parallax	**6+6+8**	**CO2, CO3,CO4**