Name:

Enrolment No:

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

Programme: M.Tech PLE **Semester: I**
Course: GIS Image Processing for Petroleum Industry **Code: (PEGI 7001)**
Time: 03 hrs. **Max. Marks: 100**
Instructions: Attempt any two questions from Section C.

S. No.		Marks	CO
	SECTION A		
Q 1	Define Remote sensing and list four major advantages of it.	**4**	**CO1**
Q 2	Write a short note on density slicing?	**4**	**CO3**
Q 3	Explain i) Atmospheric Window and ii) Spectral Reflectance Curve	**2+2**	**CO1**
Q 4	Draw a sketch of the electromagnetic spectrum of all major wavelength ranges?	**4**	**CO2**
Q 5	Differentiate between a True color composite and a False color composite?	**4**	**CO2**
	SECTION B		
Q6	Differentiate between a) multiple spectral remote sensing and b) hyperspectral remote sensing? Give applications of multispectral and hyperspectral remote sensing?	**8**	**CO3**
Q 7	a) How is NDVI defined and what useful information is derived from NDVI?	**4**	**CO3**
	b) Describe the Dark object subtraction method for Haze reduction?	**4**	**CO4**
Q 8	What is Raster Map Algebra? List different Boolean operators and Draw truth table for each?	**4+4**	**CO3**
Q 9	Explain the various elements of visual image interpretation in remote sensing with examples.	**8**	**CO3**
Q 10	Explain is Band Ratioing? Give importance of Band Ratioing using suitable example?	**8**	**CO4**
	SECTION-C (Attempt any TWO questions)		
Q 11	a) What are the different types of image resolutions during interpretation of remote sensing data? Explain each with examples and specify the units for each type of resolution?	**10**	**CO4**
	b) Differentiate between supervised and unsupervised classification and list down the steps involved in both types of classifications using a flow diagram.	**10**	**CO4**
Q 12	a) In order to obtain information on the general health of vegetation covers for all the Indian states for several months, what type of platform and sensor characteristics (spatial, spectral, and temporal resolution) are useful? Justify your observations?	**5**	**CO2**
	b) Discuss five applications of GIS and Remote sensing in the domain of Pipeline operations and integrity management?	**15**	**CO2**
Q 13	Describe in detail all four image analysis functions involved in digital image processing?	**20**	**CO4**