Name: **Enrolment No:**	UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2018

Course: GIS Image Processing for Petroleum Industry (PEGI 7001) **Semester: I**
Programme: M.Tech (PLE)
Time: 03 hrs. **Max. Marks: 100**
Instructions:

SECTION A

S. No.		Marks	CO
Q 1	Given the longitude of a place, how would you find out the UTM Zone for that place?	4	CO1
Q 2	What is electromagnetic spectrum, what are the major wavelength ranges used for remote sensing?	4	CO2
Q 3	The color of turbid water appears brownish red in an optical satellite image while clear water appears dark-bluish. Explain this phenomenon of spectral reflectance curve.	4	CO2
Q 4	Differentiate between a True color composite and a False color composite.	4	CO2
Q5	What is Pan-sharpening and its importance?	4	CO3

SECTION B

Q 6	a) Differentiate between supervised and unsupervised classification? b) Summarize the steps involved in both types of classifications using a flow diagram?	4+4	CO3
Q 7	Explain any four Raster Analysis techniques with suitable examples.	8	CO2
Q 8	Define the term resolution. Explain the four types of resolutions in remote sensing.	8	CO2
Q 9	List elements of visual image interpretation? Give suitable examples.	4+4	CO3
Q 10	Discuss the difference between raster and vector data formats for a GIS database. Cite the advantages and disadvantages of each format.	8	CO2

SECTION-C

Q 11	a) Uttarakhand government is planning a new park in Dehradun. You are hired as a GIS consultant to identify possible sites for this future park in an area that is experiencing population growth while also trying to preserve the prime agricultural land of the county. You are given the following guidelines. The park must be: 1) Within 4 kilometers of the highest population density area of the city. 2) On land that is not zoned as Agricultural, Industrial, Commercial or Conservation. 3) On land that is currently Vacant.	5+5	CO4

	4) On land that does not contain an endangered species. 5) On slopes greater than 2.5% (to provide topographic relief for hiking trails as well as scenic beauty). 6) On land that is accessible from an existing road. 7) And finally, the park must be at least 40 hectares (100 acres) in size. List required data sets (data layers, data themes) are likely to be needed for such a project and whether they should be vector or raster. Draw a Flowchart for the methodology indicating on the flowchart the different geo processing tools to be used.		
	b) What are the major analytical tools available for vector data processing? Explain and give examples from real world scenarios of each?	**10**	**CO4**
Q 12	What are the two different types of coordinate systems? Describe each in detail illustrating how location is measured in each system? Draw suitable diagrams.	**20**	**CO1**
	OR		
	Describe the common Image Processing functions with the underlying techniques.	**20**	**CO3**