Name:

**Enrollment No:** 



## UNIVERSITY OF PETROLEUM AND ENERGY STUDIES Online End Semester Examination, May 2021

Programme: B. TECH GIE Course: Remote Sensing Course Code: ECEG 2005 Semester: IV Time: 3 hrs. Max. Marks: 100

## **SECTION A**

## All Questions are Compulsory.

S. No.		Marks	CO	
Q 1.	a) Describe the x, y, and z parameters of a dig	2	CO1	
	b) Why do most remote sensing systems avoithe ultraviolet portions of the spectrum?	3		
Q 2.	a) How does a Landsat satellite differentiate b	2		
	b) In the figure below, point out where the following Microwave, Radio, Ultraviolet, Visible, X-waveband, and which has the shortest wave Figure: Electromagnetic Spectrum: Waveleng		CO2	
	Shortest waveband Longest waveband	10-8 10-10 10-12	2+1	
Q 3.	a) What effect does increase in soil moisture curve?	2	CO2	
	b) Differentiate between an analog and a digi	3		
Q 4.	a) Give reasons for low contrast in raw satelli	2	CO3	
	b) Differentiate between point operations and	3		
Q 5.	What is the principal reason of performing an simple example.	5	CO4	
Q 6.	b) Landsat 8 In C World View 3 O d) AWIFS C	le answer. lartoSAT ndia .35m spatial resolution Canada CIRS	5	CO1
	2	Active Sensor 2.5m spatial resolution DSM		

					SEC	CTION B				
Q 7.	Show, with the aid of a diagram and relevant calculations, how histogram equalization changes the distribution of pixel values in a histogram. You may choose any arbitrary values for frequencies limited to just 6 grey values.								10	CO3
Q 8.	a) What would be the advantage of displaying various wavelength ranges or channels, in combination as color images as opposed to examining each of the images individually? Give a suitable example.								5	CO1
b) What are Atmospheric windows and their imporatnce in remote sensing? Give wavelength range for any one atmospheric window.								4+1		
Q 9.	Below is an Error Matrix resulting from a Data Analysis. Calculate the Omission error, Producer's Accuracy, Commission error, User's Accuracy and Overall Accuracy for Water, Cultivated Land and Barren Land.									
	Classification Data	Water	Sand	Forest	Urban	Cultivated land	Barren land	Row Total	10	CO4
	Water	150	12	0	0	0	0	162		
	Sand	0	56	0	10	0	0	66		
	Forest	0	0	130	0	17	0	147		
	Urban	0	0	0	126	0	15	141		
	Cultivated land	0	0	20	0	78	12	110		
	Barren land	0	0	5	24	15	115	159		
	Column Total	150	68	155	160	110	142	785		
Q 10.	List the advantages of supervised classification over unsupervised classification.  Illustrate the common classifiers in supervised classification with suitable diagrams.								4+6	CO4
Q 11.	Describe the imag	ge convo	lution p	process w	vith suita	ble diagrams	S.		10	CO3
				A		TION C PT any ON	E.	1		
Q12.	Enumerate the various elements of Visual image interpretation with suitable examples.  And discuss the importance of Digital image interpretation and its major functions in remote sensing.							20	CO2	
	OR  Describe the radiometric errors present in a raw satellite image. Also, explain how the satellite images can be rectified of such errors.								302	