

**UNIVERSITY OF PETROLEUM
AND ENERGY STUDIES**



End Semester Examination –May, 2018

Program/course: B.TECH/ GIE
Subject: Remote Sensing
Code : ELEG 431
No. of page/s: 03

Semester – IV
Max. Marks : 100
Duration : 3 Hrs

All questions are compulsory.

SECTION –A [20 marks]

Ques1. a) How do you differentiate between a DEM and a DSM? Give one practical use of each. **4 marks**

b) Describe the common classifiers in Supervised classification? **6 marks**

Ques2. a) Describe Principal component analysis and the reasons of performing a PCA? **5 marks**

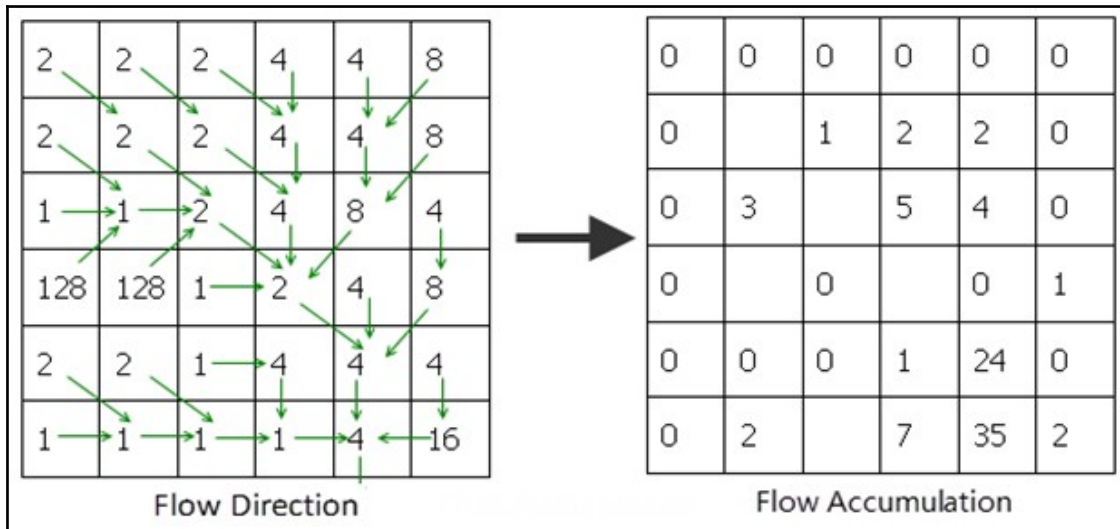
b) Given below is a Contingency table for different classes. **5 marks**

- i. Calculate the Producers Accuracy for Forest.
- ii. Calculate the User's Accuracy for Corn.
- iii. Calculate the Overall Accuracy.

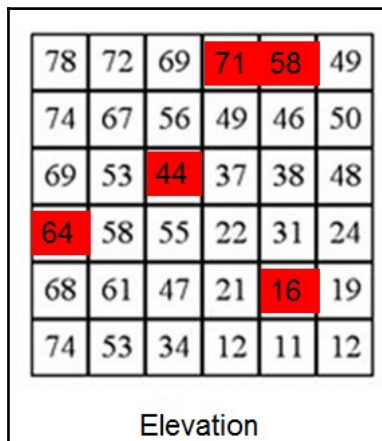
Classified Data	Reference Data						Row Total
	Water	Sand	Forest	Urban	Corn	Hay	
Water	480	0	5	0	0	0	485
Sand	0	52	0	20	0	0	72
Forest	0	0	313	40	0	0	353
Urban	0	16	0	126	0	0	142
Corn	0	0	0	38	342	79	459
Hay	0	0	38	24	60	359	481
Col Total	480	68	356	248	402	438	1992

SECTION -B [10 X 4 = 40 marks]

Ques3. a) Fill in the Flow accumulation values in the five blank cells in the picture below. **5 marks**



b) Write the elevation value of the cell the shaded cells will flow to: **5 marks**



- i) 71 will flow to _____
- ii) 58 will flow to _____
- iii) 44 will flow to _____
- iv) 64 will flow to _____
- v) 16 will flow to _____

Ques4. Distinguish between a low pass, high pass and a directional filter with suitable figures? **10 marks**

Ques5. 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 8 grey values. **10 marks**

Ques6. Explain the process of Convolution Filtering with diagrams. **10 marks**

SECTION –C [20 X 2 = 40 marks]

Ques7. a) What is resampling and why would it be used? Discuss the different types of Resampling?

10 marks

b) What is Edge Enhancement? With the help of a diagram containing input image pixel values and suitable filter values, show how you would distinguish between areas with no variation in gray level values and areas with variation. **10 marks.**

Ques8. Discuss the steps involved in hydrological modelling in ArcGIS? **20 marks**