

#### Department of Computer Science and Engineering Unit Test-I, Odd Semester 2024 Introduction to GIS and Remote Sensing (OEC-CS702C)

FM: 15 Time Allotted: 45 Minutes Answer any three questions:  $5 \times 3 = 15$ Explain in detail about different types of sensors. Elaborate the differences between spatial resolution and spectral resolution. 4+1

What are the different types of electromagnetic waves used in remote sensing? What are the applications of the microwave electromagnetic spectrum in remote sensing?

What are the applications of Re:note Sensing in Earthquake Studies? Explain the different types of platforms used in the remote sensing. Explain the different components of remote sensing with details. What are the challenges in remote sensing? 4+1

3+22+3

# CSE / Internal-1 / 2024/ SUBJECT- SIGNAL & SYSTEM (ESC-CS701)

Full Marks- 15 Time: 45 min Answer any four of the following question  $(2.5\times4)$ 

Justify your answer with examples if necessary

- Even. Even = Even
- ii)
- Odd. Odd =Even
- All the Non causal signals are not anti-causal but all the Anti-Causal signal are Non Casual iii) All the Periodic signals are always power signals. But the entire power signal is not periodic signals. iv) V)
- vi)  $2 + \cos 2\pi t$  is a periodic signal.
- Draw the following signals  $(2.5\times2)$
- $X(t) = e^{-|t|}$

i) 
$$X(t) = e^{-|t|}$$
 ii)  $X(t) = 2u(t+2) - 2u(t-3)$ 

#### Department of Computer Science and Engineering Unit Test-I, Odd Semester 2024 Machine Learning (PEC-CS702D)

4+1

	Machine Learning (PEC-CS702D)	
FM: 15		
Answer any three questions:		T
1 77		

Answer any three questions:	Time Allotted: 45 Minutes 5×3=15
Use the k-means algorithm and Euclidean distance to cluster the following 8 examples into 3 clusters: A1=(2,10), A2=(2,5), A3=(8,0), C2=(4,9). Suppose that the initial centres of each cluster are A1, B1 and C1 respectively. Run the k-means algorithm for 2	8,4), B1=(5,8), B2=(7,5), B3=(6,4), enochs only

		$5 \times 3 = 15$
,	Use the k-means algorithm and Euclidean distance to cluster the following 8 examples into 3 clusters: A1=(2,10), A2=(2,5), A3=(8,4), B1=(5,8), B2=(7,2), C2=(4,9). Suppose that the initial centres of each cluster are A1, B1 and C1 respectively. Run the k-means algorithm for 2 epochs only.	7,5), B3=(6,4),
2.	Explain the steps of the K-NN algorithm. Why K-NN is called a lazy learner? Give some applications of the K-NN algorithm.	
3.	Explain the PCA algorithm with agorithm. Why Kerki is called a lazy learner? Give some applications of the K-NN algorithm.	3+1+1

		5×3=15
>	Use the k-means algorithm and Euclidean distance to cluster the following 8 examples into 3 clusters: A1=(2,10), A2=(2,5), A3=(8,4), B1=(5,8), B2=(7,5), C2=(4,9). Suppose that the initial centres of each cluster are A1, B1 and C1 respectively. Run the k-means algorithm for 2 epochs only. Explain the steps of the K-NN algorithm. Why K-NN is called a lazy learner? Give some applications of the K-NN algorithm.	5
	Explain the DCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also a larger than the PCA all will be also also also all the PCA all will be also also also also also all the PCA all will be also also also also also also also also	3+1+1
•	Explain the PCA algorithm with an example. Give some applications of PCA algorithm.	411

		3×3=13
	Use the k-means algorithm and Euclidean distance to cluster the following 8 examples into 3 clusters: A1=(2,10), A2=(2,5), A3=(8,4), B1=(5,8), B2=(7,5), B1=(1,2), C2=(4,9), Suppose that the initial contract of such distance to cluster the following 8 examples into 3 clusters: A1=(2,10), A2=(2,5), A3=(8,4), B1=(5,8), B2=(7,5), B1=(5,8), B2=(7,5), B1=(5,8), B1=(5,8)	), B3=(6,4),
•	(1,5). Suppose that the little centres of each cluster are Al. Bl and Cl respectively. But the k means elegithm for 2 enough and	5
	Explain the steps of the K-NN algorithm. Why K-NN is called a lazy learner? Give some applications of the K-NN algorithm	3+1+1
3.	Explain the PCA algorithm with an example. Give some applications of PCA algorithm.	3,1,1
	2 and the state productions of 1 CA algorithm.	4+1

	3,3 13
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Explain the steps of the K-NN algorithm. Why K-NN is called a lazy learner? Give some applications of the K-NN algorithm.	3+1+1
Explain the PCA algorithm with an example. Give some applications of DCA 1. 11	3+1+1
Total distriction with all example. Give some applications of PCA algorithm.	4+1
How the SVM algorithm works-explain? Why the kernel trick is used in SVM?	4.1
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### JALPAIGURI GOVERNMENT ENGINEERING COLLEGE JGEC/B.TECH./CSE /OEC-CS 701A/2024-25/ClassTest I

HUMAN RESOURCE DEVELOPMENT AND ORGANIZATIONAL BEHAVIOR Full Marks: 15

Time: 45 min

Answer the question What is organizational behavior? Write its importance .What is personality? Write determinants of personality.

## 1st INTERNAL/ NEURAL NETWORK & DEEP LEARNING/ CS702A/ 7TH SEM-CSE/28.09.2024/ FM: 15

- What is activation function? Discuss about, Sigmoid function and Hyperbolic Tangent Function. 1+4=5
  What is Perceptron learning rule? Form a Perceptron model and train it to realize the logical AND function.
  Initialize the weight W<sub>0</sub>= W<sub>1</sub>= W<sub>2</sub>=0 and learning rate h=1
- 3. What is generalized delta rule?