B.E. (Information Technology) Eighth Semester (C.B.S.)

Elective-III : Pattern Recognition

P. Pages : 2 **AHK/KW/19/2468**

Time : Three Hours * 1306 * Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Assume suitable data whenever necessary.
9. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) What is the pattern and pattern recognition? Give an example for each. Write and explain the applications of pattern recognition. **7**

b) Explain maximum-likelihood estimation classification in details. **6**

OR

2. a) Explain the concept of classification & post processing in pattern recognition. **7**

b) Differentiate supervised learning and un-supervised learning. **6**

3. a) Write and explain minimum distance classifier with example. **7**

b) Explain uni-variate and multi-variate normal density functions with example. **6**

OR

4. a) Explain Bayesian Analysis in details. **7**

b) Define the term loss, risk, decision rule. **6**

5. a) State and explain various clustering techniques. **7**

b) Explain C means Algorithm in details. **7**

OR

6. a) Write in details about graph theoretic approach to pattern clustering. **7**

b) Explain any two hierarchical clustering algorithm. **7**

7. Write short notes on : **14**

i) Binary selection.
ii) Syntactic description.
iii) Stochastic grammer.
iv) Structural representation.

OR

8.	a)	Define Stochastic grammer. How stochastic grammer is sued in pattern recognition? Give an example.	**7**
	b)	Draw and explain syntactic constructural pattern recognition system. Write the elements of formal grammer. Differentiate between Top-down parsing and Bottom-up parsing with example.	**7**
9.	a)	Explain Recognition task of HMM.	**7**
	b)	Write HMM decoding algorithm with example.	**6**

OR

10.	a)	What is role of feature selection in support vector machine?	**7**
	b)	Discuss the following terms with example. i) Artificial Neuron. ii) Feed Forward Network. iii) Multi layer perceptron.	**6**
11.	a)	Illustrate pattern classification with genetic algorithm.	**7**
	b)	Explain fuzzy classifier as transition function.	**6**

OR

12.	a)	Explain limitation of genetic algorithms.	**7**
	b)	Explain fuzzy pattern classifier or perception in details.	**6**

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