B.Tech. – VIEP – COMPUTER SCIENCE AND ENGINEERING (BTCSVI)

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December, 2017

BICSE-018 : PATTERN RECOGNITION

Time : 3 hours   *Maximum Marks : 70*

Note : *Answer any seven questions. All questions carry equal marks.*

1. What do you understand by the term Pattern in a dataset ? What are the data structures for the pattern representation ? Discuss each data structure of pattern representation with a suitable example.   *10*

2. What is Pattern Classification ? Discuss the Bayesian classifier with suitable example. What is the role of the Bayesian classifier in pattern classification ? List pattern classification algorithms.   *10*

3. Describe the term Feature Selection in pattern recognition. Explain how artificial neural networks are used for feature selection. Give suitable example and diagram in support of your explanation.   *10*

4. What is a Data Cluster ? What is the importance of clustering in pattern recognition ? List clustering algorithms for pattern recognition. Briefly discuss the divide and conquer approach for clustering of large datasets. *10*

5. (a) What are Regular Patterns ? How can you identify whether a pattern is regular or irregular ? *4*

    (b) What do you understand by the term Feature in pattern recognition ? Compare and contrast the term feature detection with feature selection, giving a suitable example for each. *6*

6. What is the relevance of pattern recognition in the analysis of an image ? List different types of images and write the salient features of each type of image. *10*

7. What are the major assumptions in edge linking ? Explain edge linking by graph theoretic algorithms. Support your explanation with suitable diagram and examples. *10*

8. Write short notes on the following : *10*

    (a) Edge Detection Algorithms

    (b) Boundary Detection Algorithms

9. What are Fuzzy Approaches for pattern recognition ? How can fuzzy approach be applied to pattern recognition ? *10*

10. (a) Discuss the term Gradient in pattern recognition. What is the importance of determining the gradient of any dataset in pattern recognition ? *6*

(b) Compare and contrast Supervised and Unsupervised learning. *4*