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BICSE-018

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

Term-End Examination

00436

June, 2016

BICSE-018 : PATTERN RECOGNITION

Time : 3 hours *Maximum Marks : 70*

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

1. Describe the terms 'pattern' and 'pattern recognition'. What are the various techniques for recognizing the pattern ? Give a brief outline of each technique. What are the applications of pattern recognition techniques in different domains ? *10*

2. Discuss the role of edge detection algorithms in pattern recognition. What are the stages in edge detection mechanism ? Describe each stage. Describe the 'Pattern Fit Approach' for edge detection. *10*

3. Compare and contrast any ***two*** of the following : *5+5=10*

   (a) Supervised learning and Unsupervised learning

   (b) Edge detection and Edge linking

   (c) Regular patterns and Irregular patterns

4. Identify the parameters used to describe the boundary. Discuss each identified parameter in detail. Explain any one boundary detection algorithm. *10*

5. Briefly discuss any ***two*** of the following mechanisms : *5+5=10*

   (a) Boundary matching

   (b) Boundary merging

   (c) Boundary segmentation

6. Discuss any ***two*** of the following classifiers, with their role in pattern recognition : *5+5=10*

   (a) Fuzzy classifier

   (b) Statistical classifier

   (c) Neural classifier

7. What is clustering ? Discuss the role of clustering in pattern recognition. Explain any one category of clustering algorithm. *10*

8. What are neural networks ? Discuss the working of neural networks with a suitable diagram. How do neural networks contribute to recognize any pattern ? Give a suitable example in support of your answer. *10*

9. Explain the traditional snake model in locating object contours. *10*

10. Write short notes on any ***two*** of the following (give suitable example for each) : *5+5=10*

    (a) Statistical pattern recognition

    (b) Syntactic pattern recognition

    (c) Clustering