MODEL QUESTION PAPER

MFCO4

I Semester M.TECH Examination, August 2011
PATTERN RECOGNITION AND APPLICATION

Time: 3 Hours Max. Marks: 75

GROUP A : Answer any three questions.

Q.1 Sketch any edge detection operator that will have a positive output at the right edge of an object that is brighter than the background.
Q.2 Write procedure for Breadth First Search?
Q.3 Sketch the path described by the difference crack code RRFFLRRFRFFF.
Q.4 Explain biological neuron with neat block diagram.
Q.5 Write application of pattern Recognization.

GROUP B : Answer any three questions.

Q.6 Explain Beyes Theorem in detail.
Q.7 Write FORTRAN equivalents of the while, repeat – until, loop for ever and for Statements of SPARKS?
Q.8 Show that the Cauchy distribution does not have a finite variance.
Q.9 Feature x is normally distributed for class A with $\mu=0$ and $\sigma=1$. For B it is also normal with $\mu=2$ and $\sigma=2$. P(A)=¼ and P(B)=¾. Find the optimal decision regions?
Q.10 Explain Back propogation Algorithm and its application.

GROUP C : All Questions are Compulsory.

Q.11 Fiil in the blanks

(i) The process of separating objects from background is called as _____.
(ii) A tree is a _____ if each and every node of it can have at the most two branches.
(iii) _____ are among the oldest sources of em radiation used for imaging.
(iv) _____ are a set of techniques for detecting incomplete simple objects in images by finding clusters in a perimeter space.
(v) Mathematical model of neuron was by Mc Culloch and Pitts in _____.

Q.12 Multiple choice question.

(i) DICOM _____.
(a) Stands for Digital Imaging and Communications in Medicine
(b) Stands for Digital Communications
(c) Is a very new standard that is available for only a few pieces of radiological equipment.

(ii) The conditional probabilities of class membership p (Ci | X) are called ____.
   (a) Prior probabilities
   (b) Poster probabilities
   (c) In probabilities
   (d) None

(iii) Which Technique is applicable for classification?
   (a) Agglomerative clustering.
   (b) Decision making tree
   (c) Edge detection
   (d) None of them.

(iv) In building an automatic classification system is to separate the objects from the background is called _____.
   (a) Frequentist method
   (b) Segmentation
   (c) Morphological operation
   (d) None of these

(v) Which of the following characteristics IS NOT reflective view of learning?
   (a) Changes in knowledge lead to changes in behavior.
   (b) The outcome of learning is an observable behavior.
   (c) Reinforcement is seen as information.
   (d) Human are active learners.

Q.13 True or false

(i) The neural network in question 31 could be used for function approximation."

(ii) A member function can be declared static is visible to all classes in the program.

(iii) Interior fill create a black pixel if all four connected neighbor pixels are black.

(iv) A pure shape does not depend on the size of the region.

(v) The roots of radical constructivism reach back to research on artificial intelligence.

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