BRAINWARE UNIVERSITY
Term End Examination 2020 - 21
Programme – Master of Technology in Computer Science & Engineering
Course Name – Pattern Recognition
Course Code - PEC-MCS303B
Semester / Year - Semester III

Time allotted : 75 Minutes   Full Marks : 60

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)   1 x 60=60

1.   *(Answer any Sixty)*

(i) Supervised Learning is

   a) learning with the help of examples   b) learning without teacher

   c) learning with the help of teacher   d) None of these

(ii) Which of the following does not include different learning methods

   a) Memorization   b) Analogy

   c) Deduction   d) Introduction

(iii) Automated vehicle is an example of _____

   a) Supervised learning   b) Unsupervised learning

   c) Active learning   d) Reinforcement learning

(iv) In which of the following learning the teacher returns reward and punishment to learner?

   a) Active learning   b) Reinforcement learning

   c) Supervised learning   d) Unsupervised learning

(v) Which of the following is also called as exploratory learning?

   a) Supervised learning   b) Active learning

   c) Unsupervised learning   d) Reinforcement learning

(vi) Factors which affect the performance of learner system does not include?

a) Representation scheme used

b) Training scenario

c) Type of feedback

d) Good data structures

(vii) In Supervised learning, class labels of the training samples are

a) Known

b) Unknown

c) Doesn't matter

d) Partially known

(viii) How many terms are required for building a bayes model?

a) 1

b) 2

c) 3

d) 4

(ix) Where does the Bayes rule can be used?

a) Solving queries

b) Increasing complexity

c) Decreasing complexity

d) Answering probabilistic query

(x) How the entries in the full joint probability distribution can be calculated?

a) Using variables

b) Using information

c) Both Using variables & information

d) None of these

(xi) To which does the local structure is associated?

a) Hybrid

b) Dependant

c) Linear

d) None of these

(xii) Which condition is used to influence a variable directly by all the others?

a) Partially connected

b) Fully connected

c) Local connected

d) None of these

(xiii) Three components of Bayes decision rule are class prior, likelihood and
_____.

a) Evidence

b) Instance

c) Confidence   d) Salience

(xiv) Which algorithm is used for solving temporal probabilistic reasoning?
    a) Hill-climbing search   b) Hidden markov model
    c) Depth-first search   d) Breadth-first search

(xv) How does the state of the process is described in HMM?
    a) Literal   b) Single random variable
    c) Single discrete random variable   d) None of these

(xvi) Which allows for a simple and matrix implementation of all the basic algorithm?
    a) HMM   b) Restricted structure of HMM
    c) Temporary model   d) Reality model

(xvii) Which algorithm works by first running the standard forward pass to compute?
    a) Smoothing   b) Modified smoothing
    c) HMM   d) Depth-first search algorithm

(xviii) Which suggests the existence of efficient recursive algorithm for online smoothing?
    a) Matrix   b) Constant space
    c) Constant time   d) None of these

(xix) Bayesian classifiers is
    a) A class of learning algorithm that tries to find an optimum classification of a set of examples using the probabilistic theory
    b) Any mechanism employed by a learning system to constrain the search space of a hypothesis
    c) An approach to the design of learning algorithms that is inspired by the fact that when people encounter new situations, they
    d) None of these

often explain them by reference to familiar experiences, adapting the explanations to fit the new situation.

(xx) A statistical technique that develops an equation that relates a dependent variable to one or more independent variables is called

a) Correlation analysis

b) Regression analysis

c) Partial correlation analysis

d) All of these

(xxi) The basic assumption behind regression analysis is:

a) To estimate a line that goes through most values in the observed data set

b) To minimize the sum of the squared residuals

c) Estimate a line that maximizes the difference between the sum of Yi-Yi

d) All of these

(xxii) The difference between regression analysis and correlation analysis is:

a) Regression enables prediction of the dependent variable

b) Regression estimates the line of best fit through the data

c) Regression provides measures of association in units of the variable being measured

d) All of these

(xxiii) Which of the following is a common error measure?

a) Sensitivity

b) Median absolute deviation

c) Specificity

d) All of these

(xxiv) How many possible plans are available in partial-order solution?

a) 3

b) 4

c) 5

d) 6

(xxv) What is the other name of each and every total-order plan?

a) Polarization

b) Linearization

c) Solarization   d) None of these

(xxvi) Which are needed to compute the logical inference algorithm?

a) Logical equivalence   b) Validity

c) Satisfiability   d) All of these

(xxvii) Which form is called as conjunction of disjunction of literals?

a) Conjunctive normal form   b) Disjunctive normal form

c) Normal form   d) All of these

(xxviii) For spiral data the decision boundary will be

a) Linear   b) Non-linear

c) Does not exist   d) None of these

(xxix) Which provides agents with information about the world they inhabit?

a) Sense   b) Perception

c) Reading   d) Hearing

(xxx) Perceptron is used as a classifier for _____

a) Linearly separable data   b) Non-linearly separable data

c) Linearly non-separable data   d) Any data

(xxxi) Is XOR problem solvable using a single perceptron?

a) Yes   b) No

c) Can't say   d) None of these

(xxxii) In perceptron learning, what happens when input vector is correctly classified?

a) small adjustments in weight is done   b) large adjustments in weight is done

c) no adjustments in weight is done   d) weight adjustments doesn't depend on classification of input vector

(xxxiii) The recalled output in pattern association problem depends on?

    a) nature of input-output   b) design of network

    c) both input & design   d) None of these

(xxxiv) How many kinds of reflection are available in image perception?

    a) 1   b) 2

    c) 3   d) 4

(xxxv) How many types of image processing techniques are there in image perception?

    a) 1   b) 2

    c) 3   d) 4

(xxxvi) What is the process of breaking an image into groups?

    a) Edge detection   b) Smoothing

    c) Segmentation   d) None of these

(xxxvii) What is the basis for numerous spatial domain processing techniques?

    a) Transformations   b) Scaling

    c) Histogram   d) None of these

(xxxviii) Classification accuracy is

    a) A subdivision of a set of examples into a   b) Measure of the accuracy, of the
    number of classes   classification of a concept that is given by a
                                             certain theory

    c) The task of assigning a classification to a   d) None of these
    set of examples

(xxxix) Cluster is

    a) Group of similar objects that differ   b) Operations on a database to transform or
    significantly from other objects   simplify data in order to prepare it for a

machine-learning algorithm

c) Symbolic representation of facts or ideas from which information can potentially be extracted

d) None of these

(xl) What is the relation between the distance between clusters and the corresponding class discriminability?

a) proportional

b) inversely-proportional

c) no-relation

d) None of these

(xli) The tool used to obtain a PCA is _____

a) LU Decomposition

b) QR Decomposition

c) SVD

d) Cholesky Decomposition

(xlii) PCA is used for _____

a) Dimensionality Enhancement

b) Dimensionality Reduction

c) Both Dimensionality Enhancement and Dimensionality Reduction

d) None of these

(xliii) Hybrid learning is

a) Machine-learning involving different techniques

b) The learning algorithmic analyzes the examples on a systematic basis 2nd makes incremental adjustments to the theory that is learned

c) Learning by generalizing from examples

d) None of these

(xliv) Inductive learning is

a) Machine-learning involving different techniques

b) The learning algorithmic analyzes the examples on a systematic basis 2nd makes incremental adjustments to the theory that is learned

c) Learning by generalizing from examples

d) None of these

(xlv) Which is more suitable normal form to be used with definite clause?

a) Positive literal

b) Negative literal

c) Generalized modus ponens

d) Neutral literal

(xlvi) How to eliminate the redundant rule matching attempts in the forward chaining?

a) Decremental forward chaining

b) Incremental forward chaining

c) Data complexity

d) None of these

(xlvii) Which will solve the conjuncts of the rule so that the total cost is minimized?

a) Constraint variable

b) Conjunct ordering

c) Data complexity

d) All of these

(xlviii) How many possible sources of complexity are there in forward chaining?

a) 1

b) 2

c) 3

d) 4

(xlix) What will backward chaining algorithm will return?

a) Additional statements

b) Substitutes matching the query

c) Logical statement

d) All of these

(l) Fuzzy logic is a form of

a) Two-valued logic

b) Crisp set logic

c) Many-valued logic

d) Binary set logic

(li) Traditional set theory is also known as Crisp Set theory.

a) is true

b) is false

c) May be

d) Neither is true nor is false is true

(lii) The truth values of traditional set theory is _____ and that of fuzzy set is

    a) Either 0 or 1, between 0 & 1   b) Between 0 & 1, either 0 or 1

    c) Between 0 & 1, between 0 & 1   d) Either 0 or 1, either 0 or 1

(liii) Fuzzy logic is extension of Crisp set with an extension of handling the concept of Partial Truth.

    a) is true   b) is false

    c) Either is true or is false can be true depending upon situation   d) Neither is true nor is false is true

(liv) What is meant by probability density function?

    a) Probability distributions   b) Continuous variable

    c) Discrete variable   d) Probability distributions for Continuous variables

(lv) Euclidean distance measure is

    a) A stage of the KDD process in which new data is added to the existing selection   b) The process of finding a solution for a problem simply by enumerating all possible solutions according to some pre-defined order and then testing them

    c) The distance between two points as calculated using the Pythagoras theorem   d) None of these

(lvi) The process by which the brain incrementally orders actions needed to complete a specific task is referred as,

    a) Planning problem   b) Partial order planning

    c) Total order planning   d) Both Planning problem & Partial order planning

(lvii) In partial order plan a. Relationships between the actions of the behavior are set prior to the actions, b. Relationships between the actions of the behavior are not set until absolutely necessary Choose the correct option.

a) is true   b) is not true

c) Either a. is true or b. is true can be true   d) Neither a. is true nor b. is true is true
depending upon situation

(lviii) Which cannot be taken as advantage for totally ordered plan search?

a) Composition   b) State search

c) Problem decomposition   d) None of these

(lix) What is the advantage of totally ordered plan in constructing the plan?

a) Reliability   b) Flexibility

c) Easy to use   d) All of these

(lx) Suppose you are using RBF kernel in SVM with high Gamma value. What does this signify?

a) The model would consider even far away   b) The model would consider only the
points from hyperplane for modeling   points close to the hyperplane for modeling

c) The model would not be affected by   d) None of these
distance of points from hyperplane for
modeling