



MAKEUP EXAMINATIONS – FEBRUARY 2018

Course & Branch	: B.E. : Computer Science & Engineering	Semester	: V
Subject	: Artificial Intelligence	Max. Marks	: 100
Subject Code	: CSE02	Duration	: 3 Hrs

Instructions to the Candidates:

- Answer one full question from each unit.
- Draw diagrams wherever necessary

UNIT- I

- To what extent in terms of (Limited, borderline, Not AI , complete AI) are the following computer systems instances of artificial intelligence: Justify with reasons. CO1 (08)
 - Supermarket bar code scanners.
 - Web search engines.
 - Voice-activated telephone menus.
 - Internet routing algorithms that respond dynamically to the state of the network.
 - Compare any four uninformed search strategies in terms of the four evaluation criteria. Present the answer in a tabular form and explain its notations. CO1 (12)
- For each of the following assertions, say whether it is true or false and support your answer with examples or counter examples where appropriate. CO1 (08)
 - An agent that senses only partial information about the state cannot be perfectly rational.
 - There exist task environments in which no pure reflex agent can behave rationally.
 - There exists a task environment in which every agent is rational.
 - The input to an agent program is the same as the input to the agent function.
 - Every agent function is implementable by some program/machine combination.
 - Suppose an agent selects its action uniformly at random from the set of possible actions. There exists a deterministic task environment in which this agent is rational.
 - It is possible for a given agent to be perfectly rational in two distinct task environments.
 - List and explain with suitable examples the properties of task environments. CO1 (12)

UNIT- II

- With neat diagram explain typical Wumpus world. CO2 (06)
 - Discuss all the 7 steps used in knowledge engineering process with example. CO2 (08)
 - Write an algorithm for forward chaining for inference in first order logic. CO2 (06)

4. a) Write five simple knowledge base sentences. CO2 (06)
b) Define Conjunctive normal form. Explain CNF PROCEDURE FOR CO2 (07)
converting sentence into CNF with suitable example.
c) Discuss various inference rules used for quantifiers. Explain unification CO2 (07)
and lifting.

UNIT- III

5. a) Define Ensemble learning. Write the ADABOOST variant algorithm and CO3 (12)
explain its boosting on the restaurant data.
b) Describe K nearest neighbor classification models with suitable CO3 (08)
examples.
6. a) Explain with example how linear classification with logistic regression is CO3 (10)
superior to classification with hard thresholds.
b) Draw and explain the components of a perceptron network and a CO3 (10)
neural network with different number of input and output units.
Compare the performance of perceptrons and decision trees.

UNIT- IV

7. Write a note on the following: CO4 (20)
i. Learning with complete data
ii. Speech recognition
iii. Information retrieval.
8. Write a note on the following: CO4 (20)
i Natural language processing
ii. Syntactic Analysis
ii. Machine translation.

UNIT- V

9. a) List the image processing operations and explain how we detect edges. CO5 (12)
b) Explain image formation with a pinhole camera with a neat diagram. CO5 (08)
10. a) Explain how robots are used in Industry, transportation, hazardous CO5 (05)
environments, healthcare and human augmentation.
b) Explain how robot plans to move when the environment is with CO5 (05)
uncertainties.
c) Categorize Robots based on their types, Manipulation, environment and CO5 (10)
the device its made of. Give examples for each type.
