JE – 324

V Semester B.Tech. (CSE) Degree Examination, February 2021
(CBCS Scheme)
18CIPC502 : ARTIFICIAL INTELLIGENCE

Time : 3 Hours

Max. Marks : 100

Instructions : *i) Q. **1** and Q. **2** and Q. **3** is **compulsory**.*
*ii) Answer **any three** Q. **4** or Q. **5**., Q. **6** or Q. **7** and Q. **8** or Q. **9**.*

1. I) Strong Artificial Intelligence is **(1×15=15)**
   a) The embodiment of human intellectual capabilities within a computer
   b) A set of computer programs that produce output that would be considered to reflect intelligence if it were generated by humans
   c) The study of mental faculties through the use of mental models implemented on a computer
   d) All of the mentioned

   II) Which of the following search method takes less memory ?
   a) Depth-First search
   b) Breadth-First search
   c) Optimal search
   d) Linear search

   III) A series of Artificial Intelligence systems developed by Pat Langley to explore the role of heuristics in scientific discovery is
   a) RAMD
   b) BACON
   c) MIT
   d) DU

   IV) Which of the following is being investigated as a means of automating the creation of a knowledge base ?
   a) Automatic knowledge acquisition
   b) Simpler tools
   c) Discovery of new concepts
   d) All of the above

   V) In Bayes theorem, what is meant by P(Hi|E) ?
   a) The probability that hypotheses Hi is true given evidence E
   b) The probability that hypotheses Hi is false given evidence E
   c) The probability that hypotheses Hi is true given false evidence E
   d) The probability that hypotheses Hi is false given false evidence E

P.T.O.

VI) Which term is used for describing the judgemental or common sense part of problem solving ?

a) Heuristic b) Critical

c) Value based d) Analytical

VII) Which stage of the manufacturing process has been described as "the mapping of function onto form" ?

a) Design b) Distribution

c) Project management d) Field service

VIII) In LISP, the function evaluates both and is

a) set b) setq

c) add d) eva

IX) An Artificial Intelligence technique that allows computers to understand associations and relationships between objects and events is called

a) Heuristic processing b) Cognitive science

c) Relative symbolism d) Pattern matching

X) Different learning methods does not include

a) Memorization b) Analogy

c) Deduction d) Introduction

XI) What is meant by agent's percept sequence ?

a) Used to perceive the environment

b) Complete history of actuator

c) Complete history of perceived things

d) None of the above

XII) What is an 'agent' ?

a) Perceives its environment through sensors and acting upon that environment through actuators

b) Takes input from the surroundings and uses its intelligence and performs the desired operations

c) A embedded program controlling line following robot

d) All of these

XIII) An agent is composed of

a) Architecture
b) Agent Function
c) Perception Sequence
d) Architecture and Program

XIV) Which of the following are necessary for an agent to solve an online search problem ?

a) Actions
b) Step-cost function
c) Goal-test
d) All of the above

XV) A model of language consists of the categories which does not include

a) Language units
b) Role structure of units
c) System constraints
d) Structural units

2. a) Describe different types of environments applicable to AI agents. **9**

b) Define blind search and informed search, also discuss the merits and demerits of each. **8**

3. a) Explain planning and acting in nondeterministic domains. **7**

b) What conclusion can you infer from hierarchical planning ? **10**

4. a) Describe Hill climbing search algorithm, what are the problems faced by Hill climbing search ? Suggest method for each problem to overcome. **10**

b) Formulate the four necessary things to solve a problem. **7**

OR

5. a) Show the performance measure of various search algorithms. **10**

b) Formulate the four necessary things to solve a problem. **7**

6. a) Explain the steps involved in converting the propositional logic statement into CNF with a suitable example. **9**

b) Translate the following into First Order Logic. **8**

i) Everyone who saves money earns interest.

ii) If there is no interest, then nobody saves money.

OR

7. a) Relate first order logic with proposition logic and discuss in detail about the same. 10

   b) How would you identify an example for resolution ? 7

8. a) Can you apply the facts to describe Decision tree architecture ? 8

   b) Explain the structure of learning agent. What is the role of critic in learning ? 9

OR

9. a) What are the basic building blocks of learning agent ? Explain each of them with a neat block diagram. 8

   b) What is Nonparametric Machine Learning (NML) ? Explain any one NML algorithm. 9
