AC-235618

M.Sc. (Semester-III)
Examination, Dec.-Jan. (2025-26)

COMPUTER SCIENCE

(Artificial Intelligence and Expert System)

Time Allowed : Three Hours

Maximum Marks : 70

Note : This question paper is divided into **four** sections. Attempt questions of **all four** sections as per direction. Distribution of marks is given in each section.

SECTION-A

(Objective Type Questions)

Note : Attempt **any ten** questions. Each question carries **1** mark. [10×1=10]

1.   (A)   Fill in the blanks.

(i) Who is known as the father of Artificial Intelligence _____.

(ii) If a robot is able to change its own trajectory as per the external conditions, then the robot is considered as _____.

(iii) Natural language processing is divided into two sub-fields _____ and ____.

(iv) Automatic Reasoning Tool is designed to be used on _____.

(v) A computer vision technique that relies on image templates is _____.

(vi) LISP was created by _____.

(B) Multiple choice questions :

(vii) The field that investigates the mechanics of human intelligence is _____.

(a) History

(b) Cognitive Science

(c) Psychology

(d) Sociology

(viii) Special programs that assist programmers are called :

(a) Heuristic Processors

(b) Symbolic Programmers

(c) Intelligence Programming Tools

(d) Program Recognizers

(ix) In AI Programming, a list may contain :

(a) Cells

(b) Fields

(c) Pointers

(d) All of the above

(x) What is the name of the computer program that simulates the thought processing of human beings?

(a) Human Logic

(b) Expert Reason

(c) Expert System

(d) Personal Information

(xi) Select the most appropriate situation for that a blind search can be used :

(a) Real life situation

(b) Small search space

(c) Complex game

(d) All of the above

(xii) Among the given options, which search algorithm requires less memory?

(a) Optimal search

(b) Depth first search

(c) Breadth first search

(d) Linear search

SECTION-B

(Very Short Answer Type Questions)

Note: Attempt **any five** questions. Each question carries **2** marks.(Word limit : **25-30** words) [5×2=10]

(i) What is Knowledge?

(ii) What is Data Structure?

(iii) What is Predicate?

(iv) What is Control Knowledge?

(v) What is an Algorithm?

(vi) What is Reasoning in AI?

(vii) What is Psychological Modeling?

SECTION-C

(Short Answer Type Questions)

Note: Attempt **any five** questions. Each question carries **4** marks.(Word limit : **250** words) [5×4=20]

3. (i) What is Prolog? Explain with syntax and example.

(ii) Explain any four AI Techniques with suitable example.

(iii) Discuss Hill climbing algorithm with suitable example.

(iv) What is an Expert System? Explain with suitable example.

(v) Discuss K-NN and K-MEANS with suitable example.

(vi) Explain Forward Reasoning and Backward Reasoning with suitable example.

(vii) Explain Breadth-first search with suitable example.

SECTION-D

(Essay Type Questions)

Note: Attempt **any three** questions. Each question carries **10** marks.(Word limit : **500** words)   [3×10=30]

4.   (i)   What is Artificial Intelligence? Discuss foundations of AI and explain any four applications of AI with example.

    (ii)   What is Knowledge Representation? Explain Representations and Mapping of Knowledge Representation with suitable example.

(iii) What is Heuristic Search? Explain A* Algorithm and AO* Algorithm with suitable example.

(iv) What is Natural Language Processing? Explain syntactic processing and unification grammar with suitable example.

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