Sixth Semester B.C.A Degree Examinations

MAY/JUNE 2026

(NEP Scheme)

PAPER NBF 0210: ARTIFICIAL INTELLIGENCE AND APPLICATION

Time: 2 hrs] [Max. Marks: 60

Instructions:

1. *The Students should legibly write Section number along with question numbers within the margin ONLY.*
2. *The answer without Section number and question numbers will not be valued.*
3. *Draw neat and labelled diagram wherever necessary.*
4. *Section – I multiple Choice Questions should be answered in the first page of main answer book and same questions shall not be answered repeatedly.*
5. *Any identifications like marking, ticking, dots etc., in the options of MCQ (Section – I) on the question paper is strictly prohibited. Do not write anything (except register number) on the question paper.*

SECTION – I

I. Select the most appropriate answer from the options provided: 10 × 1 = 10

I - 1) Theoretical AI that surpasses human intelligence is called as
a) T-AI b) super AI c) Surpas AI d) human AI

I - 2) Which type of agent can handle partially observable environments?
a) Model-Based b) Simple c) Goal-Based d) Dynamic

I - 3) A search strategy explores problem spaces,no additional knowledge is available beyond the problem definition is called.
a) Informed b) Partial c) Uninformed d) Known

I - 4) Which search algorithm is capable of avoiding infinite loops in cases of too large search space.
a) Uniform-Cost Search b) DFS c) BFS d) DLS & IDDFS

I - 5) Which unit applies logical rules to the knowledge base to deduce new information, derive conclusions, and solve complex problems?

Contd..... 2

a) Inference Engine b) Knowledge Base
c) Logic-Base d) Complex Engine

I - 6) The Game Wumpus world is a cave with _____ number of rooms.
a) 4 b) 16 c) 8 d) 24

I - 7) Which learning method is trained on a "Labelled Dataset".
a) Unsupervised Learning b) Basic Learning
c) Supervised Learning d) Natural Learning

I - 8) A function that maps data points into a higher-dimensional space is called as
a) Kernel function b) Main function
c) space function d) points function

I - 9) Which type of speech recognition represents the relationship between linguistic units of speech and audio signals.
a) Language models b) Basic models
c) Acoustic models d) Binary models

I - 10) The Medical Imaging such as Enhancing the clarity of X-rays, CT scans, and MRI diagnosis are application of
a) NLP b) Robotics c) Text Classification d) Image Processing

SECTION – II

II. Answer any FIVE of the following: $5 \times 3 = 15$

II - 1) Write a note on Foundations of AI.

II - 2) Define Problem-Solving Agents.

II - 3) Write a note on Propositional Logic in AI.

II - 4) Explain knowledge Based Agents in AI.

II - 5) Write a note of different Forms of Learning.

II - 6) Write a note on Support Vector Machines (SVM)

II - 7) Explain Breadth-first search with example.

II - 8) Explain Speech Recognition applications of AI.

Contd..... 3

SECTION – III

III. Answer any THREE questions from the following: 3 × 5 = 15

III - 1) Define Artificial Intelligence. Explain PEAS representation with any two example Agents.

III - 2) Explain the representation of a well-defined problem.

III - 3) Discuss Forward Chaining and Backward Chaining methods.

III - 4) Write a note on Clustering and Association.

III - 5) Explain AI application for Natural Language Processing.

SECTION – IV

IV. Answer the following: 2 × 10 = 20

IV - 1) a) List and explain all the four types of Agents in AI. (10)

OR

a) Demonstrate Depth-limited search with an example.

b) Briefly explain Depth-first search method with respect to well define problem (search node in graph). (5 + 5)

IV - 2) a) Explain Unification and Lifting process.

b) Briefly explain The Wumpus World game in knowledge representation. (5 + 5)

OR

a) Explain Advantages and disadvantages of Unsupervised Learning.

b) Explain AI application in Image processing in detail. (5 + 5)

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