Roll No: | | | | | | | | | | | | |

BTECH
(SEM VI) THEORY EXAMINATION 2021-22
ARTIFICIAL INTELLIGENCE

Time: 3 Hours   *Total Marks: 100*
Note: **1.** Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. **Attempt *all* questions in brief.**   **2 x 10 = 20**

Qno.	Question	Marks	CO
a.	Write a short note on Iterative Improvement Algorithm.	2	1
b.	What are the different approaches of AI?	2	1
c.	Describe First Order Logic in AI.	2	2
d.	What is resolution?	2	2
e.	Define Hidden Markov Model (HMM).	2	3
f.	What is Inductive Learning?	2	3
g.	Define Clustering.	2	4
h.	Explain term Maximum a Posteriori (MAP).	2	4
i.	Write some applications of Speech Recognition.	2	5
j.	Define Practical Natural Language Processing.	2	5

SECTION B

2. **Attempt any *three* of the following:**

Qno.	Question	Marks	CO
a.	What is Heuristic search? Give the desirable properties of Heuristic search algorithm.	10	1
b.	What is Propositional Logic? Define the various Inference Rules with the help of examples.	10	2
c.	What is Bayesian Theory? Explain the role of prior probability and posterior probability in Bayesian classification.	10	3
d.	Describe Supervised Learning and Unsupervised Learning.	10	4
e.	Define Intelligent Agents. Define the types of communicating agent.	10	5

SECTION C

3. **Attempt any *one* part of the following:**

Qno.	Question	Marks	CO
a.	Discuss the problem of Hill Climbing Algorithm.	10	1
b.	What is Problem Space? How problem can be defined as state space search?	10	1

4. **Attempt any *one* part of the following:**

Qno.	Question	Marks	CO
a.	Explain Unification Algorithm used for reasoning under Predicate Logic with an example.	10	2
b.	Differentiate between Forward and Backward chaining of Inference with the help of an example.	10	2

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5. **Attempt any *one* part of the following:**

Qno.	Question	Marks	CO
a.	What are Planning graphs? Explain the methods of planning and acting in the real world.	10	3
b.	Explain the method of handling Approximate Inference in Bayesian Network.	10	3

6. **Attempt any *one* part of the following:**

Qno.	Question	Marks	CO
a.	Illustrate Decision Trees Technique using suitable example.	10	4
b.	Define Reinforcement Learning (RL). Write its applications.	10	4

7. **Attempt any *one* part of the following:**

Qno.	Question	Marks	CO
a.	Define the Architecture and Configuration Bases of Robots.	10	5
b.	What are Image- Processing Operations? Define how Vision can be used for navigation and manipulation.	10	5