QPC : RO20BCA033 AR 20 Reg. No.

GIET UNIVERSITY, GUNUPUR – 765022

B. C. A (Fifth Semester) Examinations, October' 2022

BCA20501 – Artificial Intelligence

Time: 3 hrs Maximum: 70 Marks

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions) **(1 x 10 = 10 Marks)**

Q. 1 Answer ***ALL*** questions CO # PO #

a. What is meant by Artificial Intelligence? 1 2

i. Artificial intelligence is defined as a field aiming to make humans more intelligent.
ii. Artificial intelligence is defined as a field aiming to improve security
iii. Artificial intelligence is defined as a field aiming to mine the data
iv. Artificial intelligence is defined as a field aiming to develop intelligent machines

b. The component of an Expert system is 4 2

i. Knowledge Base
ii. Inference Engine
iii. User Interface
iv. All of the above

c. What is the main aim of Artificial Intelligence? 4 1

i. To solve real-world issues
ii. To explain different sorts of intelligence
iii. To solve artificial problems
iv. To obtain information about scientific causes

d. Input segments of AI programming contain(s)? 2 3

i. Sound
ii. Smell
iii. Touch
iv. None of the Above

e. What is the form of Knowledge representation? 2 4

i. IF-THEN
ii. IF-THEN-ELSE
iii. IF-ELSE
iv. All of the above

f. On which approach the face recognition system is based? 1 3

i. Weak AI Approach
ii. Cognitive AI Approach
iii. Strong AI Approach
iv. Applied AI Approach

g. Which algorithm takes two sentences as input and returns a Unifier? 3 2

i. Inference
ii. Hill-Climbing
iii. Unify algorithm
iv. Depth-first search

h. First order logic Statements contains 3 1

i. Predicate and Preposition
ii. Subject and an Object
iii. Predicate and Subject
iv. None of the above

i. Experts make decisions based on ___ information 4 2

i. Numerical data
ii. Qualitative & quantitative
iii. Experimental information
iv. None of the mentioned above

j. What is the goal of Artificial Intelligence? 1 2

i. To solve artificial problems
ii. To extract scientific causes
iii. To explain various sorts of intelligence
iv. To solve real-world problems

PART – B: (Short Answer Questions) **(2 x 10 = 20 Marks)**

Q.2. Answer ***ALL*** questions		CO #	PO #
a.	What is the state space search for water jug problem?	1	2
b.	What is declarative knowledge?	2	3
c.	What are the limitations of hill climbing problem?	1	3
d.	What is an agent?	1	2
e.	What is the meaning of ISA and instance relationship in artificial intelligence?	3	2
f.	Explain expert system in detail.	4	2
g.	What is the difference between minimax and alpha beta pruning?	3	1
h.	Define game playing in artificial intelligence.	3	3
i.	What is a frame problem?	2	2
j.	Explain learning from observations and discovery.	4	2

PART – C: (Long Answer Questions) **(10 x 4 = 40 Marks)**

Answer ***ALL*** questions		Marks	CO #	PO #
3.*a.*	Explain missionaries and cannibals problem with example.	5	1	3
b.	Explain AO* algorithm. Under what situation it can be used?	5	1	2
	(OR)			
c.	If BASE + BALL = GAMES then G+A+M+E+S=? Solve it using crypt arithmetic problem.	5	1	3
d.	Explain tower of Hanoi problem in detail.	5	1	1
4.*a.*	Explain generate and test & Simple hill climbing in details.	5	2	2
b.	What do you mean by resolution? Consider the following Knowledge Base: (i) John likes all kind of food. (ii) Apple and vegetable are food (iii) Anything anyone eats and not killed is food. (iv) Anil eats peanuts and still alive (v) Harry eats everything that Anil eats. Prove by resolution that: John likes peanuts. Use propositional logic and apply resolution method to prove that the goal is derivable from the given knowledge base.	5	2	3
	(OR)			
c.	Explain different types of knowledge representation techniques.	5	2	3
d.	What are scripts? Explain in detail, with an example. Write down the script for withdrawing money from bank.	5	2	3
5.*a.*	What is mini-max search for game playing? Explain with example.	5	3	2
b.	Explain knowledge based agent in details.	5	3	1
	(OR)			
c.	Explain alpha beta pruning with an example.	5	3	2
d.	Write short notes on : (i) Ensemble learning (ii) Computational Learning Theory	5	3	1
6.*a*	Explain about knowledge acquisition.	5	4	2
b.	Write the characteristic feature of expert system.	5	4	3
	(OR)			
c.	Explain the basic component of an expert system.	5	4	2
d.	Explain any six basic application of an expert system.	5	4	1

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