GANDHI INSTITUTE OF ENGINEERING AND TECHNOLOGY, ODISHA, GUNUPUR
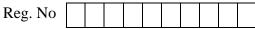# (GIET UNIVERSITY)
M.C.A (Fifth Semester) Examinations, November – 2024
BCA20501 – Artificial Intelligence
(BCA)

Time: 3 hrs   Maximum: 60 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. Which of the following is not a composition of Intelligence? — CO1, PO1
  i.   Reasoning   ii. Learning
  iii. Terminating   iv. Perception

b. The Turing Test was proposed by whom? — CO1, PO1
  i.   Graham Turing   ii. Alan Turing
  iii. Christopher Turing   iv. Andrew NG Turing

c. A proposition formula which is always false is called- — CO2, PO1
  i.   Contradiction   ii. None of these
  iii. Tautology   iv. Paradox

d. Inheritance relations are used in- — CO2, PO1
  i.   Production Rules   ii. Semantic Network
  iii. Frames   iv. Logical

e. Which of the following is a type of Ensemble Learning? — CO3, PO1
  i.   Decision Trees   ii. Linear Regression
  iii. Support Vector Machines   iv. Random Forest

f. Specific attributes "Instance" and "ISA" play an import role in which form of reasoning? — CO3, PO1
  i.   Property Inheritance   ii. Class Inheritance
  iii. Hierarchical Inheritance   iv. Multi-level Inheritance

g. MYCIN was designed to- — CO4, PO1
  i.   Detect cancer at early stages   ii. Find bacteria causing infections
  iii. Chemical analysis   iv. Determine the type and level of lung cancer

h. ES was first developed in the year - — CO4, PO1
  i.   1950   ii. 1980
  iii. 1970   iv. 1990

i. Deep learning is the subset of- — CO1, PO1
  i.   Data Science   ii. Ensemble learning
  iii. Machine Learning   iv. Data Mining

j. Which of the following is Knowledge about knowledge — CO2, PO1
  i.   Procedural Knowledge   ii. Heuristic Knowledge
  iii. Structural Knowledge   iv. Meta-Knowledge

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

Q.2. Answer **ALL** questions

	CO#	PO#
a. Explain PEAS in terms of an Ideal Rational Agent.	CO1	PO1
b. What is the structure of an Agent?	CO1	PO1
c. What is Payoff function? What will be the Payoff function values in the game of chess?	CO2	PO1
d. Define the two parameters of Alpha-Beta Pruning.	CO2	PO1

		CO#	PO#
e.	What do you mean by Pruning?	CO3	PO1
f.	Describe Quantifiers? Give an example.	CO3	PO1
g.	Define Reinforcement Learning.	CO4	PO1
h.	What does a Knowledge Engineer do in ES?	CO4	PO1
i.	What is the role of PXDES?	CO1	PO1
j.	What is DENDRAL?	CO2	PO1

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

Answer *ALL* questions

		Marks	CO#	PO#
3.*a.*	What is an Environment in terms of AI? Describe any six types of Environments with an example.	5	CO1	PO1
b.	What is GPS? Given a situation that the weather is Cloudy, Explain the step-by-step approach how an Agent would avoid getting wet	5	CO1	PO2
	(OR)			
c.	Write a short note on (i) UCS (ii) IDDFS	10	CO1	PO2
4.*a.*	What do you mean by Optimal Decision Making in games? What are the challenges in a Multiplayer game?	5	CO1	PO1
b.	What is KRR? Explain the different techniques of Knowledge Representation with examples.	5	CO2	PO2
	(OR)			
c.	Write a short note on: (i) KBA (ii) Frame Representation	10	CO2	PO2
5.*a.*	What are Quantifiers? Explain the types of Quantifiers with examples	5	CO3	PO1
b.	What are Decision Trees? Explain the decision-making process in Decision Trees with a neat Diagram.	5	CO3	PO2
	(OR)			
c.	Given below are some statements, represent them using Instance and ISA relationships. Explain the initial steps or representation. 1. Marcus was a man 2. Marcus was a Pompeian 3. All Pompeians were Romans 4. Caesar was a ruler 5. All Pompeians were either loyal to Caesar or hated him	10	CO3	PO2
6.*a*	Describe Expert System Shells with a neat diagram. What are the applications of ES?	5	CO4	PO1
b.	Explain the Expert System shell components.	5	CO4	PO2
	(OR)			
c.	What is an ES? Describe the development of MYCIN.	5	CO4	PO1
d.	What do you mean by forward chaining and backward chaining? What are the limitations of ES?	5	CO4	PO2

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