Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem (Even) Examination May-2019

CA5EL07 Artificial Intelligence

Programme: MCA Branch/Specialisation: Computer Application

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. LISP was created by: **1**

(a) Marvin Minsky (b) John McCarthy

(c) Alan Turing (d) Allen Newell and Herbert Simon

ii. What is Artificial Intelligence? **1**

(a) Putting your intelligence into Computer

(b) Programming with your own intelligence

(c) Making a Machine intelligent

(d) Playing a Game

iii. Which of the following algorithm is online search algorithm? **1**

(a) Breadth-first search algorithm

(b) Depth-first search algorithm

(c) Hill-climbing search algorithm

(d) None of these

iv. Though local search algorithms are not systematic, key advantages would include **1**

(a) Less memory

(b) More time

(c) Finds a solution in large infinite space

(d) Less memory & Finds a solution in large infinite space

v. Which is not a property of representation of knowledge? **1**

(a) Representational Verification

(b) Representational Adequacy

(c) Inferential Adequacy

(d) Inferential Efficiency

P.T.O.

vi. Antonymy relation means, **1**
(a) A is part of B (b) B has A as a part of itself
(c) A denotes opposite of B (d) A is superordinate of B

vii. The complexity of Minimax algorithm is **1**
(a) Same as of DFS
(b) Space – bm and time – bm
(c) Time – bm and space – bm
(d) Same as BFS

viii. General algorithm applied on game tree for making decision of win or lose is _____ **1**
(a) MIN/MAX Algorithms
(b) Heuristic Search Algorithms
(c) Greedy Search Algorithms
(d) DFS/BFS Search Algorithms

ix. Which of the following is a component of an expert system? **1**
(a) Inference engine (b) Knowledge base
(c) User interface (d) All of these

x. The explanation facility of an expert system may be used to: **1**
(a) Construct a diagnostic model
(b) Expedite the debugging process
(c) Explain the system's reasoning process
(d) Expedite the debugging process & explain the system's reasoning process

Q.2 i. How data types are categorized in LISP? **2**
ii. What is the programming structure for LISP? **3**
iii. Define AI and What are Applications of AI. **5**
OR iv. What is AI according to the survey results and what are disadvantages of AI? **5**

Q.3 Prove any two statements:
i. Breadth first search is a special case of uniform cost search. **5**
ii. Uniform cost search is a special case of A* search. **5**
iii. Breadth first search and depth first search are special case of best first search. **5**

Q.4 i. What is conceptual dependency? **2**
ii. What is semantics network? **3**
iii. What is Horn's clause? What are its significance? **5**
OR iv. Explain the process of explanation-based learning with example. **5**

Q.5 i. Discuss Min-Max search procedure. **4**
ii. Explain alpha-beta cut-offs algorithm with example. **6**
OR iii. Discuss goal-stack planning with an example. **6**

Q.6 i. Define knowledge acquisition in expert system. **2**
ii. Write the limitations of expert system. **3**
iii. What are the components of expert system, describe them? **5**
OR iv. Explain rote learning in brief. **5**

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Marking Scheme
CA5EL07 Artificial Intelligence

Q.1	i.	LISP was created by: (b) John McCarthy	**1**
	ii.	What is Artificial Intelligence? (c) Making a Machine intelligent	**1**
	iii.	Which of the following algorithm is online search algorithm? (c) Hill-climbing search algorithm	**1**
	iv.	Though local search algorithms are not systematic, key advantages would include (d) Less memory & Finds a solution in large infinite space	**1**
	v.	Which is not a property of representation of knowledge? (a) Representational Verification	**1**
	vi.	Antonymy relation means, (c) A denotes opposite of B	**1**
	vii.	The complexity of Minimax algorithm is (a) Same as of DFS	**1**
	viii.	General algorithm applied on game tree for making decision of win or lose is _____ (a) MIN/MAX Algorithms	**1**
	ix.	Which of the following is a component of an expert system? (d) All of these	**1**
	x.	The explanation facility of an expert system may be used to: (d) Expedite the debugging process & explain the system's reasoning process	**1**

Q.2	i.	Data types are categorized in LISP 1 mark for each category	(1 mark * 2)	**2**
	ii.	Programming structure for LISP 1 mark for each structure	(1 mark * 3)	**3**
	iii.	Definition of AI Applications of AI	1 mark 4 marks	**5**
OR	iv.	AI according to the survey results Disadvantages of AI	2 marks 3 marks	**5**

Q.3		Prove any two statements:	
	i.	Breadth first search is a special case of uniform cost search.	**5**
	ii.	Uniform cost search is a special case of A* search.	**5**
	iii.	Breadth first search and depth first search are special case of best first search.	**5**

Q.4	i.	Conceptual dependency		**2**
	ii.	Semantics network 1 mark for each point	(1 mark * 3)	**3**
	iii.	Horn's clause Its significance	2 marks 3 marks	**5**
OR	iv.	Process of explanation-based learning with example.		**5**

Q.5	i.	Min-Max search procedure.	**4**
	ii.	Alpha-beta cut-offs algorithm with example.	**6**
OR	iii.	Goal-stack planning with an example.	**6**

Q.6	i.	Knowledge acquisition in expert system.		**2**
	ii.	Limitations of expert system 1 mark for each limitation	(1 mark * 3)	**3**
	iii.	Components of expert system		**5**
OR	iv.	Rote learning		**5**

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