GNITS-R- 18 – 115BR

G. Narayanamma Institute of Technology & Science

(**Autonomous**) ***(for Women)***

Shaikpet, Hyderabad- 500 104

III-B.Tech I-Semester *Regular Examinations, March* -2021.

ARTIFICIAL INTELLIGENCE

(*Information Technology*)

Max. Marks: 70 **Time: 03 Hours**

*(Answer any **05** full questions. Each question carries **14 marks**)*

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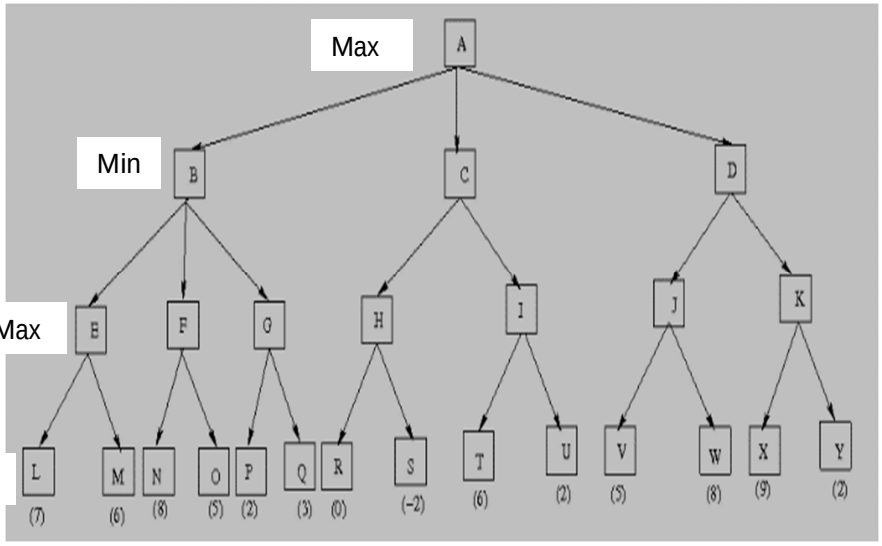
Q.No.	Question	Marks	Bloom's Level
Q.1(a)	Explain in detail about definitions of AI in the following approaches. i) Acting Humanly ii) Thinking Humanly iii) Thinking Rationally iv) Acting Rationally	**[07]**	**[L1]**
(b)	What is an agent. Describe the four basic kinds of agents.	**[07]**	**[L2]**
Q.2(a)	Describe DFS with an example.	**[10]**	**[L3]**
(b)	Find the value of the function "maximum" in hill climbing, assuming the function to be negative of the number of tiles "out of place" in the 8 puzzle problem, give the initial and goal states as shown **Initial State** 2 8 3 1 6 4 7 - 5 **Goal State** 1 2 3 8 - 4 7 6 5	**[04]**	**[L4]**
Q.3(a)	Consider the following set of well formed formulas in predicate logic: (i)Man(Marcus) (ii) Pompeian(Marcus) (iii) ∀x: Pomeian(x) →Roman(x) (iv)Ruler(Caeser) (v) ∀x: Roman(x) → Loyalto (x, Caeser) V hate(x, caeser) (vi) ∀x: y loyalto (x,y) (vii) ∀x: ∀y: Man(x) ∧ Ruler (y) ∧ tryassassinate (x,y) → loyalto (x,y) (viii) tryassassinate (Marcus, Caeser) Convert these into clause form and prove that hate(Marcus, caeser) using resolution proof.	**[07]**	**[L4]**
(b)	Discuss in detail Resolution Refutation in Propositional Logic with suitable examples.	**[07]**	**[L2]**

Q.4(a)	Solve the following using alpha-beta pruning.	**[07]**	**[L4]**



(b)	Explain in detail about constraint satisfaction problem.	**[07]**	**[L2]**
Q.5(a)	Describe knowledge representation using Semantic Net. Give advantages and disadvantages of Semantic Net.	**[07]**	**[L3]**
(b)	Draw and describe the architecture of expert system.	**[07]**	**[L2]**
Q.6(a)	What are the properties of good system for the representation of knowledge? Explain different approaches to knowledge representation.	**[08]**	**[L2]**
(b)	Illustrate the different types of inference mechanisms used in Extended Semantic Network.	**[06]**	**[L3]**
Q.7(a)	What are the types of different clustering methods in ML?. Explain any one of the types in detail.	**[07]**	**[L2]**
(b)	Explain Bayesian belief network with an example.	**[07]**	**[L3]**
Q.8(a)	What are steps involved in natural language processing (NLP) of an English sentence.	**[07]**	**[L2]**
(b)	Explain in detail about Single Layer and Multi-Layer Feed-Forward Networks.	**[07]**	**[L3]**

END OF THE QUESTION PAPER