**20CS/IT505**

**Hall Ticket Number:**

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| **III/IV B.Tech (Regular) DEGREE EXAMINATION** | | | | | | | |
| **February, 2023** | | | **Common to CSE & IT Branches** | | | | |
| **Fifth Semester** | | | **Artificial Intelligence** | | | | |
| **Time:** Three Hours | | | | **Maximum:** 70 Marks | | | |
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|  |  |  | | | | CO | BL | M |
| 1 | a) | Define artificial intelligence. | | | | CO1 | L1 | 1M |
|  | b) | What are the Advantages of DFS? | | | | CO1 | L1 | 1M |
|  | c) | What is Bidirectional Search? | | | | CO1 | L1 | 1M |
|  | d) | Define agent in AI? | | | | CO1 | L2 | 1M |
|  | e) | What is Horn clause? | | | | CO2 | L1 | 1M |
|  | f) | Define knowledge based agent? | | | | CO2 | L1 | 1M |
|  | g) | Define First Order Logic in AI? | | | | CO2 | L1 | 1M |
|  | h) | Define Semantic Nets? | | | | CO3 | L1 | 1M |
|  | i) | What is PTRANS in CD? | | | | CO3 | L1 | 1M |
|  | j) | What are the components of Planning system? | | | | CO3 | L1 | 1M |
|  | k) | Differentiate Forward and Backward chaining systems in prepositional logic? | | | | CO3 | L2 | 1M |
|  | l) | List out applications of expert systems? | | | | CO4 | L1 | 1M |
|  | m) | Define rote learning? | | | | CO4 | L1 | 1M |
|  | n) | Define Expert System? | | | | CO4 | L1 | 1M |
| **Unit-I** | | | | | | | | |
| 2 | a) | Explain in detail about nature of environment and its properties? | | | | CO1 | L1 | 7M |
|  | b) | List the different types of Agents. Explain those agents with their structure? | | | | CO1 | L3 | 7M |
|  |  | **(OR)** | | | |  |  |  |
| 3 | a) | Explain in detail about A\* algorithm with example | | | | CO1 | L3 | 7M |
|  | b) | Trace the constraint satisfaction Procedure to find the solution for the following Cryptarithmetic Problem  D O N A L D + G E R A L D = R O B E R T | | | | CO1 | L4 | 7M |
| **Unit-II** | | | | | | | | |
| 4 | a) | Explain in detail about forward chaining and backward chaining in predicate logic? | | | | CO2 | L2 | 7M |
|  | b) | Explain in detail about **wumpus** world problem? | | | | CO2 | L2 | 7M |
| **(OR)** | | | | | | | | |
| 5 | a) | Explain in detail about knowledge based engineering? | | | | CO2 | L2 | 7M |
|  | b) | What is basis of Resolution? Explain about Unification Algorithm. | | | | CO2 | L2 | 7M |
| **Unit-III** | | | | | | | | |
| 6 | a) | Explain Script,Components of script and restaurant Script example. | | | | CO3 | L2 | 7M |
|  | b) | What are primitives for Conceptual dependencies? Construct the CD Relationship for the sentence ‘Since Smoking can kill you, I stopped’. | | | | CO3 | L1 | 7M |
| **(OR)** | | | | | | | | |
| 7 | a) | Explain about goal stack planning with example? | | | | CO3 | L1 | 7M |
|  | b) | Describe Hierarchical Planning with an Example? | | | | CO3 | L1 | 7M |
| **Unit-IV** | | | | | | | | |
| 8 | a) | Discuss the MYCIN Expert system focusing on the certainty factor used. | | | | CO4 | L1 | 7M |
|  | b) | Describe learning in problem solving with example?. | | | | CO4 | L1 | 7M |
| **(OR)** | | | | | | | | |
| 9 | a) | Explain about knowledge acquisition in building expert systems? | | | | CO4 | L2 | 7M |
|  | b) | Explain each Component of Expert System and how Explanation is provided by it? | | | | CO4 | L2 | 7M |

