Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**Supplementary Examination – June – 2017**

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| **Code :** | **14CS3063** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ARTIFICIAL INTELLIGENCE FOR GAMES** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. | a. | Discuss the model of game AI and its task with the neat diagram. | CO1 | 15 |
|  | b. | Explain the complexity of fallacy in game AI. | CO1 | 5 |
| (OR) | | | | |
| 2. |  | Write the Pseudo code for the kinematics movement algorithm with its movement diagram   1. Flee 2. Arriving | CO1 | 20 |
| 3. |  | Explain the following Steering behavior with its pseudo code and diagram for a 2D vehicle.   1. Collision avoidance 2. Separation 3. Pursuit and evade | CO1 | 20 |
| (OR) | | | | |
| 4. | a. | Design the flocking and swarming movement of an object by blending two or three the steering behavior. | CO1 | 5 |
|  | b. | Discuss the following movement for the shooter game with a neat diagram:   1. Jumping points 2. Hole filters | CO1 | 15 |
| 5. |  | Illustrate the coordinated movement for the following with its neat diagram   1. Formation of squad and platoon more than two levels 2. Dynamic slots and plays of baseball double play and a corner kick in soccer | CO2 | 20 |
| (OR) | | | | |
| 6. |  | Apply the A\* algorithm to find any minimal path from start node is Oradea and goal node is Bucharest using the given heuristics value.     |  |  | | --- | --- | | Arad | 366 | | Bucharest | 0 | | Craiova | 160 | | Dobreta | 242 | | Eforie | 161 | | Fagaras | 178 | | Giurgiu | 77 | | Hirsova | 151 | | Iasi | 226 | | Lugoj | 244 | | Mehadia | 241 | | Neamt | 234 | | Oradea | 380 | | Pitesti | 98 | | Rimnicuvilcea | 193 | | Sibiu | 253 | | Timisoara | 329 | | Urziceni | 80 | | vaslui | 199 | | Zerind | 374 | | CO2 | 20 |
| 7. |  | Consider the following example and tabulate the possible action and goals and grade them with the five point scale based on the goal oriented decision making behavior to satisfy the below mentioned condition :  Let’s say that Alma is hungry. Alma could call Domino’s and order a pizza, but only if she has the phone number for Domino’s. Pizza is not her only option, however; she could also bake a pie, but only she has a recipe. So, Alma’s goal is to get to a state of the world where she is not hungry. She has two actions she can take to satisfy that goal: calling Domino’s or baking a pie.   1. If she is currently in a state of the world where she has the phone number for Domino’s, then she can formulate the plan of calling Domino’s to satisfy her hunger 2. If she is in the state of the world where she has a recipe, she can bake a pie. 3. If Alma is in the fortunate situation where she has both a phone number and a recipe, either plan is valid to satisfy the goal. 4. If Alma has neither a phone number nor a recipe, she is out of luck; there is no possible plan that can be formulated to satisfy her hunger. | CO2 | 20 |
| (OR) | | | | |
| 8. |  | Generate the statergyfor the board games Tic TacToe of three players using the following   1. Minimaxing algorithm 2. Transposition table 3. Zobrist keys | CO3 | 20 |
|  | | **Compulsory**: |  |  |
| 9. |  | Create the driving game for an AI model architecture for the following.  A vehicle in urban traffic only has control over its own actions, and cannot influence other cars, pedestrians, traffic lights, or other potentially hazardous factors. While sometimes the likelihood of certain events can be predicted, a controller has to be able to appropriately handle all emergent situations. It is acting as if playing a game it wants to win against the environment, where the objective is to obtain an optimised trade-off between objectives. | CO3 | 20 |
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ALL THE BEST