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



**End Semester Examination – Nov/Dec – 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)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | | **Course**  **Outcome** | **Marks** |
| 1. | a. | Discuss the model of game AI and its task with neat diagram. | | CO1 | 10 |
|  | b. | Illustrate the three techniques of the programmer applied to AI game applications with an example. | | CO1 | 10 |
| (OR) | | | | | |
| 2. |  | Write the pseudocode to implement kinematic seek behavior which takes as input the character’s and their target’s static data and calculates the direction from the character to the target and requests a velocity. | | CO1 | 20 |
|  |  |  | |  |  |
| 3. | a. | Demonstrate any five steering behaviors movement of AI game with its suitable example. | | CO1 | 10 |
|  | b. | Schematically explain the three components of flocking behaviors in detail. | | CO1 | 10 |
| (OR) | | | | | |
| 4. | a. | Explain Dijkstra algorithm with an example. | | CO1 | 10 |
|  | b. | Discuss the following movement for the shooter game with a neat diagram:  i. Jumping points ii. Hole filters | | CO1 | 10 |
|  |  |  | |  |  |
| 5. |  | Illustrate overall structure that how the pattern can be constructed using coordinated movement for the dynamic slots and plays using a baseball double play. | | CO2 | 20 |
| (OR) | | | | | |
| 6. |  | Apply the A\* algorithm to find any minimal path from start node Arad and goal node Pitesti using the given heuristics value.     |  |  | | --- | --- | | Arad | 98 | | Bucharest | 242 | | Craiova | 80 | | Dobreta | 77 | | Eforie | 109 | | Fagaras | 178 | | Giurgiu | 61 | | Hirsova | 151 | | Iasi | 212 | | Lugoj | 232 | | Mehadia | 217 | | Neamt | 234 | | Oradea | 278 | | Pitesti | 160 | | Rimnicuvilcea | 198 | | Sibiu | 247 | | Timisoara | 239 | | Urziceni | 324 | | vaslui | 123 | | Zerind | 187 | | | CO2 | 20 |
|  |  |  | |  |  |
| 7. |  | Explain the Quinlan’s ID3 decision tree learning algorithm used in game AI and build the decision tree for the following example by calculating the entropy and information gain.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Day | Outlook | Humidity | Wind | Play Tennis | | 1 | Sunny | High | Weak | No | | 2 | Sunny | High | Strong | No | | 3 | Sunny | Normal | Weak | Yes | | 4 | Rain | High | Strong | No | | 5 | Rain | Normal | Weak | Yes | | 6 | Rain | Normal | Strong | No | | | CO2 | 20 |
| (OR) | | | | | |
| 8. |  | | Generate the strategy for the board games Tic TacToe of two players using the following   1. Minimaxing algorithm 2. Transposition table | CO3 | 20 |
| **Compulsory:** | | | |  |  |
| 9. |  | | Show the AI architecture for a shooter game and explain about decision making, path finding and perception in shooter games. | CO3 | 20 |

ALL THE BEST