# CT-1quest

Btech (Herning HF & VUC)

Paper Code: CO-304 Time Limit: 45mins
Subject: Artificial Intelligence

**Class Test-1**
**Delhi Technological University**

**Name: _____ Roll number: _____**
**Section: _____**

**Attempt all the questions.**
**There is no negative marking.**

**MCQ**

**Q1. Choose different components of AI programs:**
- **a) Knowledge base, search.**
- **b) Production rules, state space, search**
- **c) Production rules, state space, control strategy.**
- **d) Knowledge base, control strategy, Inference Engine.**

**Q2. Find out one similarity and one dissimilarity between problems of playing cards game Bridge and Controlling a Robot arm:**
- **a) Both problems have irrecoverable steps and no other dissimilarity**
- **b) Both problems can be solved by planning process and differ in Universe.**
- **c) Both problems have irrecoverable steps and differ in certainty of outcome.**
- **d) They have nothing in common.**

**Q3. Which of the following is true about Beam search:**
- **I. Beam search is an improvement of Hill climbing search.**
- **II. Beam search does not have problem of plateau.**
- **III.Beam search lowers the problem of local maxima.**
- **a) all**
- **b) I and II**
- **c) I and III**
- **d) only I**

**Q4. which of the following statement is false for Heuristic searches in general:**
- **a) It lacks completeness.**
- **b) It may not find the solution.**
- **c) It always finds the best solution.**
- **d) It improves efficiency of search process.**

**Q.5 In apha- beta pruning _____ is used to cut off the search at maximizing level only and _____ is used to cut off the search at minimizing level only.**
- **a) Beta, Alpha**
- **b) Alpha, Alpha**
- **c) Beta, Beta**
- **d) Alpha, Beta**

**Q6. What is the role of knowledge in in problem of playing chess and predicting the party that will win forthcoming Election:**
- **a) Both problem require considerable knowledge to constraint search.**
- **b) In chess Domain, knowledge is required to constrain search and lot more knowledge is**

**required in Domain of election to make prediction.**

**c) In chess Domain, knowledge is required to constrain search and lot more knowledge is required in Domain of election to even recognise a solution.**

**d) None of above.**

**Q7. Identify the characteristics of production system in domain of theorem Proving:**

**a) Monotonic and partially commutative**

**b) Monotonic and commutative**

**c) Non monotonic and partially commutative**

**d) Non monotonic and not partially commutative**

**Q8. Arrange following in ascending order of performance: hill climbing, best first search, simulated Annealing and a* search**

**a) best first search, hill climbing, A*,simulated annealing.**

**b) hill climbing, simulated annealing, best first search, A*.**

**c) hill climbing, best first search, simulated annealing, A***

**d) Simulated annealing, hill climbing, best first search, A8**

**Q9. In the algorithm of A*search if successor of current node say "cn" being expanded generates a new node say "sn" which match with a node belonging to open list say "mch" then following is performed :**

**a) simply discard this "sn"**

**b) Compute g value of "sn". If g(sn) less than g(mch), then make parent of mch to be cn and change the values of g and f for mch.**

**c) Compute g value of "sn". If g(sn) greater than g(mch), then change the values of g and f for mch and propogate changes to children of mch in closed list.**

**d) none of above.**

**Q10. Consider the procedure to label node as solved and unsolved.**

**I) A terminal node is labelled as solved if it is a goal node.**

**II) A terminal node is labelled as unsolved if it is not a goal node.**

**III) A Non-terminal node is labelled as solved if any of its successors is labelled as solved.**

**IV) A Non terminal node is labelled as solved if all of its sucessors are labelled as solved.**

**a) I, II, III, IV**

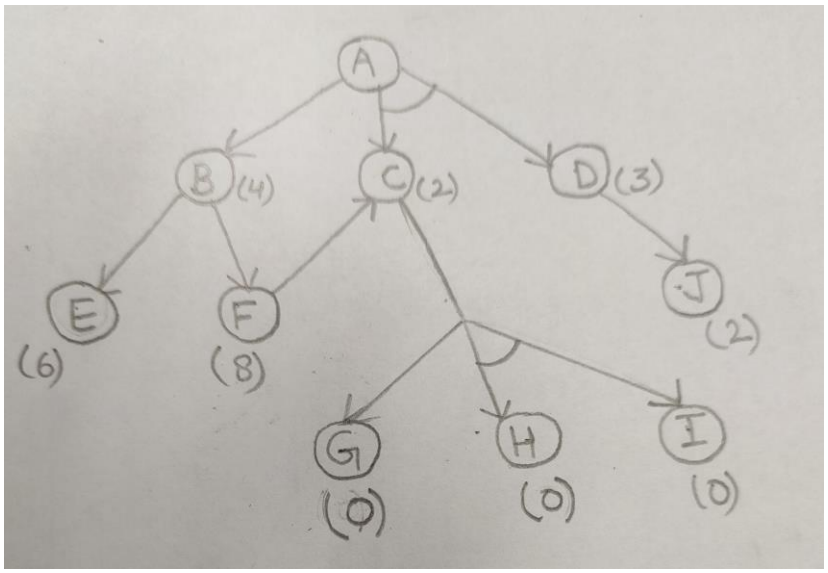
**b) I, II, III**

**c) I, II, IV**

**d) I and II**

**PROBLEM SOLVING:**
**Explain the steps while answering this section. Marks will be deducted for any wrong steps or missing steps.**

**Q.1 Consider the And/or graph given below. Values in bracket represent heuristic values. Work out the steps of AO* procedure on this graph and find out the path from Starting node A to goal state, where heuristic value is zero.**




**Q.2 For the graph below, apply min-max procedure to decide move for Player MAX. What is the max value at the root node by applying mini-max search?**