

Seat No. : \_\_\_\_\_

**NC-139**

**December-2015**

**4<sup>th</sup> Year M.Sc. (M.Sc. & IT)**

**Artificial Intelligence**

**Time : 3 Hours]**

**[Max. Marks : 100**

1. Answer the following :
  - (A) Define AI. Explain different properties of knowledge. **5**
  - (B) Write an algorithm for depth first search. Also discuss its advantages and disadvantages. **5**
  - (C) Explain any five problem characteristics. **5**
  - (D) Explain four categories of production system. **5**
  
2. Answer the following questions :
  - (A) Write an algorithm for steepest-Ascent Hill Climbing. Also discuss the problems with this algorithm. **7**
  - (B) Write an AO\* algorithm. **7**
  - (C) Explain simulated annealing. **6**
  
3. Answer the following :
  - (A) A good system for the representation of knowledge in a particular domain should possess which four properties ? **2**
  - (B) Explain forward v/s backward reasoning. **8**
  - (C) Explain expert system architecture with a block diagram. **10**
  
4.
  - (A) Explain different standard logic symbols used in predicate logic. **3**
  - (B) Explain the role of *instance* and *isa* relationships in a property inheritance. Explain with example. **5**
  - (C) Translate following sentences into predicate logic : **12**
    - (1) If Children get good result, parents are happy.
    - (2) Mitthu is a parrot.
    - (3) Some students are obedient, and some are naughty.
    - (4) All fighters are strong.
    - (5) Every bird has wings.
    - (6) Avoid unhealthy foods.

5. (A) Construct semantic net representations for the following : **6**
- (1) Geeta is a good singer.
  - (2) Raju gave a cotton Kurta to his great father.
  - (3) Smit is shorter than Mit.
- (B) Construct partitioned semantic net representations for the following : **6**
- (1) All the participants like the event.
  - (2) Every person manages a work.
  - (3) The teacher helped the poor student.
- (C) Explain minimax search procedure with example. **8**
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