**National College of Computer** **Studies**

**(NCCS-College of IT & Management)**

**Final Examination (2013)**

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| **BSc.CSIT/ Fourth Semester/ CSC 255: Introduction to Cognitive Science** |

***Candidates are required to answer the questions in their own words as far as practicable.***

**Full Marks: 60**

**Pass Marks: 30**

**Time:3 Hours**



**Set A**

**Attempt all questions [10×6=60]**

1. What is rational agent? How can you say that searching technique used for an agent decides its performance? If you have to design an agent which searching technique will you prefer? Why?  **[1+2+3]**
2. What is knowledge? Differentiate between rule-based and Object-Oriented approach of knowledge representation. **[1+5]**
3. Explain about Human Information Processing.  **[6]**
4. Define logic, propositional logic and predicate logic. Differentiate forward and backward chaining with proper example.  **[1+1+1+3]**

**OR**

Define the term computation. Explain different models of Computation.  **[1+5]**

1. Explain different levels in Chomsky hierarchy.  **[6]**
2. Discuss Simon’s description about Physical Symbol System(PSS). **[6]**
3. What is learning in neural network? Explain about Hebbian learning. **[1+5]**
4. Describe Gelernter response to Descartes.  **[6]**
5. Write short note on: (Any two) [2x3=6]
6. DFA
7. Descartes Mind Body Problem
8. Morphology
9. Define delta rule. What is back propagation? Discuss.  **[2+4]**

**OR**

Define NLP. And also describe basic parsing technique with suitable example. **[2+4]**

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**Set B**

**Attempt all questions [10×6=60]**

1. Explain AI as acting humanly.  **[6]**
2. Why study of AI is necessary for computer science students? Discuss various sectors where AI can be used?  **[2+4]**
3. What is intelligent agent? Illustrate PEAS description of the environment for automated football playing agent.  **[2+4]**
4. Define knowledge representation. Explain different properties of knowledge representation system. **[1+5]**

**OR**

Why searching is needed in AI? Explain about Hill Climbing Algorithm. **[2+4]**

1. Describe about Turing Machine in brief. Is Turing Machine a real machine? Justify your answer with proper logic.  **[3+3]**
2. What is PDA? Differentiate between Type-0 and Type-1 grammar of Chomsky hierarchy. **[2+4]**
3. What is Physical Symbol System (PSS)? Describe Newell’s hypothesis about Symbol in PSS. **[1+5]**
4. Define the term connectionism. Differentiate between supervised and unsupervised learning. **[1+5]**
5. Write short note on: (Any two)  **[2×3=6]**
6. NFA
7. Marr’s three level of information processing
8. Stages of Expert System Development
9. What is the meaning of qualia in John Searle’s point of view? Discuss about Searle response

to Descartes.  **[6]**

**OR**

Differentiate between natural language generation and natural language understanding. What are the parameters in NLP? Discuss. **[3+3]**