

**2022**  
**B.A./B.Sc.**  
**Sixth Semester**  
CORE – 13  
**COMPUTER SCIENCE**  
*Course Code: CSC 6.11*  
(Artificial Intelligence)

*Total Mark: 70*

*Pass Mark: 28*

*Time: 3 hours*

*Answer five questions, taking one from each unit.*

**UNIT-I**

1. (a) What is artificial intelligence? 2  
(b) What are agents? List down the characteristics of an intelligent agent. 2+4=6  
(c) Define rational agents. 2  
(d) Explain the approaches and applications of AI. 4
2. (a) What is intelligence? Explain the theory of driverless cars. 2+4=6  
(b) List out the application of AI. 3  
(c) Explain the reactive robots in AI with the help of an example. 4  
(d) Define state space. 1

**UNIT-II**

3. (a) What are PEAS descriptors? 2  
(b) Give a PEAS description of the task environment given below: 4×3=12  
(i) Playing soccer  
(ii) Automated car driver  
(iii) Shopping for used AI books on the internet.
4. (a) Explain about informed and uninformed search. 4  
(b) Explain in detail about breadth first search with example. 4  
(c) Explain perfect and imperfect information in game playing. 4  
(d) How would you define game playing in AI? 2

### UNIT-III

5. (a) What is knowledge representation? 3  
(b) What are the kinds of knowledge which need to be represented in AI systems? 6  
(c) Explain the knowledge cycle in AI. 5
6. (a) Explain the different kind of knowledge representation. 4  
(b) Explain the different LISP functions. 5  
(c) Define Prolog. Write a prolog program to find the minimum of two numbers. 2+3=5

### UNIT-IV

7. (a) What is uncertainty? What is reasoning in AI? 1+2=3  
(b) Differentiate between monotonic and non-monotonic reasoning. 6  
(c) Explain with a diagram the truth maintenance system. 5
8. (a) Explain Bayes' theorem in AI. List its applications in AI. 3+2=5  
(b) List the requirements for a good knowledge representation system. 4  
(c) What is probabilistic reasoning? What is the need for probabilistic reasoning in AI? 2+3=5

### UNIT-V

9. (a) What is natural language processing? Explain the two components of NLP. 1+4=5  
(b) Explain the steps in NLP with a diagram. 5  
(c) What are the difficulties in natural language processing? 4
10. (a) Explain context-free grammar with an example. What are the disadvantages of CFG? 4+2=6  
(b) What is a transition network? Explain the types of transition network. 2+6=8