

M.C.A. SEM – V
MCA – 52: Artificial Intelligence

TEACHING SCHEME (per week)		Examination Scheme					
		INT		EXT		TOTAL	
Th. (hours)	Pr. (hours)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)
4	3	30	20	70	30	100	50

UNIT I

(25%)

Introduction and applications of artificial intelligence, **Problem solving:** Defining the problem as state space search, Production system, Problem characteristics, Problem system characteristics, **Search techniques:** Generate and test, Hill climbing, Best first search, A* algorithm, Problem reduction, Expert system: Definition, Role of knowledge in expert system, Architecture of expert system.

UNIT II

(25%)

Expert system development life cycle: Problem selection, Prototype construction, Formalization, Implementation, Evaluation, **Knowledge acquisition:** Knowledge engineer, Cognitive behavior, Acquisition techniques, **Knowledge representation:** Level of representation, Knowledge representation schemes, Formal logic, Inference Engine, Semantic net, Frame, Scripts.

UNIT III

(25%)

Perception: Sensing, Speech recognition, Vision, Action, **Neural networks :** Introduction, Comparison of artificial neural networks with biological neural networks, Learning in neural networks, Perceptrons, Back propagation networks, application of neural networks, **Fuzzy logic :** Definition, Difference between Boolean and Fuzzy logic, fuzzy subset, fuzzy membership function, fuzzy expert system, Inference process for fuzzy expert system, fuzzy controller.

UNIT IV

(25%)

Programming in Logic (PROLOG): Introduction, Prolog variables, Using rules, Input and Output predicates, Fail and cut predicates, Recursion, Arithmetic operation, Compound object, Dynamic database, Lists, String, File operations.

Reference Books:

- Principles of Artificial Intelligence and Expert System Development.
Author : David W. Rolston. Pub: McGraw Hill Book Company.
- Artificial Intelligence
Author : Elaine rich, Kevin Knight Pub: Tata McGraw Hill
- Introduction to Turbo Prolog.
Author : Carl Townsend Pub: BPB
- Understanding Neural Networks and fuzzy logic
Author : Stamations V. Kartalopoulos. Pub: PHI

Question Paper Scheme:

Section – I

- Q.1 - Objective Type Unit I & II (11) Marks
Q.2 - Unit-I OR Q.2 Unit-I (12) Marks
Q.3 - Unit-II OR Q.3 Unit-II (12) Marks

Section – II

- Q.4 - Objective Type Unit III & IV (11) Marks
Q.5 - Unit-III OR Q.5 Unit-III (12) Marks
Q.6 - Unit-IV OR Q.6 Unit-IV (12) Marks

Practical Program List: (PROLOG)

1. Write a program to find out sum of N natural numbers.
2. Write a program to find out sum of first N odd numbers.
3. Write a program to find out sum of first even numbers.
4. Write a program to find out factorial of any given number.
5. Write a program to find out length of any given string.
6. Write a program to find out total digits of any given numbers.
7. Write a program to check whether the given number is prime or not.
8. Write a program to check whether the given number is palindrome or not.
9. Write a program to check whether the given string is palindrome or not.
10. Write a program to check whether the given list is palindrome or not.
11. Write a program to insert element into list in sorted order.
12. Write a program to append list into existing list.
13. Write a program to reverse any given string.
14. Write a program to find out largest number of any given list.
15. Write a program to find out smallest number of any given list.
16. Write a program to find out best match for any person according to his/her hobby, age .(at least 2 hobby should be matched and age difference of male and female should be 3 year(min) Use compound object facility).
17. Write a program to read records for any files and insert into database.
18. Write a program to insert, delete, update and view records from database.
19. Write a program to check grammatical mistake of simple English sentence.
20. Write a program to write records into text file.