PAPER: DATABASE TECHNOLOGIES AND EXPERT SYSTEMS

SPECIALITY: COMPUTER **ENGINEERING**
OPTION: DATABASE **MANAGEMENT**
EXAM PAPER: DATABASE TECHNOLOGIES AND EXPERT SYSTEMS
CODE: DBM **17**
CREDIT VALUE: **6**
DURATION: **4 HOURS**
NATURE OF EXAM: WRITTEN

NATURE OF EXAM: **WRITTEN**

SECTION A: Artificial Intelligence Fundamentals and Expert Systems – 40mks
   MCQs Choose only one answer in each questions (10 marks)

   1.What is Artificial intelligence?
   a.Putting your intelligence into Computer
   b.Programming with your own intelligence
   c.Making a Machine intelligent
   d.Putting more memory into Computer

   2.Artificial Intelligence has its expansion in the following application.
   a.Planning and Scheduling
   b.Game Playing
   c.Robotics
   d.All of the above

   3. The characteristics of the computer system capable of thinking, reasoning and learning is known is
   a.machine intelligence
   b.human intelligence
   c.artificial intelligence
   d.virtual intelligence

   4.The first AI programming language was called:
   a.BASIC
   b.FORTRAN
   c.IPL
   d.LISP

   5.The first widely-used commercial form of Artificial Intelligence (Al) is being used in many popular products like microwave ovens, automobiles and plug in circuit boards for desktop PCs. It allows machines to handle vague information with a deftness that mimics human intuition. What is the name of this AI?
   a.Boolean logic
   b.Human logic
   c.Fuzzy logic

d.Functional logic

6.What is the term used for describing the judgmental or commonsense part of problem solving?
a.Heuristic
b.Critical
c.Value based
d.Analytical

7.Which kind of planning consists of successive representations of different levels of a plan?
a.hierarchical planning
b.non-hierarchical planning
c.project planning
d.All of the above

8.What was originally called the "imitation game" by its creator?
a.The Turing Test
b.LISP
c.The Logic Theorist
d.Cybernetics

9.PROLOG is an AI programming language which solves problems with a form of symbolic logic known as predicate calculus. It was developed in 1972 at the University of Marseilles by a team of specialists. Can you name the person who headed this team?
a.Alain Colmerauer
b.Nicklaus Wirth
c.Seymour Papert
d.John McCarthy

10.An AI technique that allows computers to understand associations and relationships between objects and events is called:
a.heuristic processing
b.cognitive science
c.relative symbolism
d.pattern matching

Short structural questions (30 marks)

1.Define reasoning? [3 marks]
2. What are the types of human reasoning? [3 marks]
3. List the types of logical reasoning? [3 marks]
4. Define deduction logic? [3 marks]
5. What do you mean by induction logic? [3 marks]
6. Define abduction logic? [3 marks]
7.Define natural language [2 marks]
8.What do you mean by natural language processing? [3 marks]
9.Name the two parts of natural language processing? [2 marks]
10. List five applications of natural language processing? [2 marks]

11. What are difficulties in natural language processing? [3 marks]

SECTION B: Storage and Distributed technologies – 60mrks

1. Differentiate between primary, secondary and tertiary storage. [6 marks]
2. What is File Organization? [2 marks]
3. List 4 types of File Organizations – [4 marks]
4. What is Heap File Organization? Draw a diagram showing its description [5 marks]
5. What do you understand by RAID? List and give the brief function of the different types of RAID. [14 marks]
6. What do you understand by a clustered index? [2 marks]
7. What is the difference between static and dynamic hashing? Give 2 operations of each. [11 marks]
8. What do you understand by the following?
9. What is client/server technology? Discuss Internet as a client/server technology. [5 marks]
10. Give two Advantages of Multidimensional Databases [2 marks]