Sl. No.

A9.5-R5 - Artificial Intelligence Concept and R Programming

DURATION : 03 Hours **MAXIMUM MARKS : 100**

OMR Sheet No. :						

Roll No. : | | | | | | |

Answer Sheet No. : | | | | | | |

Name of Candidate : _____ **; Signature of Candidate :** _____

INSTRUCTIONS FOR CANDIDATES :

- Carefully read the instructions given on Question Paper, OMR Sheet and Answer Sheet.
- Question Paper is in English language. Candidate has to answer in English language only.
- There are **TWO PARTS** in this Module/Paper. **PART ONE** contains **FOUR** questions and **PART TWO** contains **FIVE** questions.
- **PART ONE** is Objective type and carries **40** Marks. **PART TWO** is Subjective type and carries **60** Marks.
- **PART ONE** is to be answered in the **OMR ANSWER SHEET** only, supplied with the question paper, as per the instructions contained therein. **PART ONE** is **NOT** to be answered in the answer book for **PART TWO**.
- Maximum time allotted for **PART ONE** is **ONE HOUR**. Answer book for **PART TWO** will be supplied at the table when the Answer Sheet for **PART ONE** is returned. However, Candidates who complete **PART ONE** earlier than one hour, can collect the answer book for **PART TWO** immediately after handing over the Answer Sheet for **PART ONE** to the Invigilator.
- **Candidate cannot leave the examination hall/room without signing on the attendance sheet and handing over his/her Answer Sheet to the invigilator. Failing in doing so, will amount to disqualification of Candidate in this Module/Paper.**
- After receiving the instruction to open the booklet and before answering the questions, the candidate should ensure that the Question Booklet is complete in all respect.

DO NOT OPEN THE QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO.

PART ONE

(Answer **all** questions. Each question carries **ONE** mark)

1. Each question below gives a multiple choice of answers. Choose the most appropriate one and enter in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)

1.1. Artificial Intelligence has its expansion in the following application.

(A) Planning and Scheduling

(B) Game Playing

(C) Robotics

(D) All of the above

1.2 The characteristics of the computer system capable of thinking, reasoning and learning is known as :

(A) machine intelligence

(B) human intelligence

(C) artificial intelligence

(D) virtual intelligence

1.3 The first widely-used commercial form of Artificial Intelligence (AI) is being used in any 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

1.4 What is the term used for describing the judgmental or commonsense part of problem solving ?

(A) Heuristic

(B) Critical

(C) Value based

(D) Analytical

1.5 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

1.6 What is Artificial intelligence ?

(A) Programming with your own intelligence

(B) Putting your intelligence into Computer

(C) Making a Machine intelligent

(D) Playing a Game

1.7 Which Nobel Laureate is also known as the Father of Artificial Intelligence ?

(A) Herbert A. Simon

(B) Howard Aiken

(C) Charles Babbage

(D) Alan Turing

1.8 R is an_____programming language.

(A) Closed source

(B) GPL

(C) Open source

(D) Definite source

1.9 A particular system that contains intelligent agents.

(A) AI systems

(B) Agency

(C) Autonomous systems

(D) Company

1.10. Who developed R ?

(A) Dennis Ritchie

(B) John Chambers

(C) Bjarne Stroustrup

(D) Dennis Marks

2. Each statement below is either TRUE or FALSE. Choose the most appropriate one and enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein.

(1x10)

2.1 An Artificial Neural Network is based on Strong AI Approach.

2.2 Completely automated chess engine (Learn from previous games) is based on Strong AI.

2.3 A basic line following robot is based on Weak Artificial Intelligence approach.

2.4 The performance of an agent can be improved by Observing.

2.5 The Face Recognition system is based on Applied Artificial Intelligence approach.

2.6 An expert system is fundamentally the same as a DSS.

2.7 A completely automated chess engine (Learn from previous games) is based on Cognitive Artificial Intelligence approach.

2.8 The knowledge engineer creates knowledge for the expert system.

2.9 External actions of the agent is selected by Performance.

2.10 Mutation refers to giving preference to newer outcomes.

3. **Match words and phrases in column X with the closest related meaning / word(s) / phrase(s) in column Y. Enter your selection in the "OMR" answer sheet supplied with the question paper, following instructions therein.**

(1x10)

Column X		Column Y	
3.1	Artificial intelligence is _____.	**A.**	Planning and Scheduling Game Playing & Robotics
3.2	The characteristics of the computer system capable of thinking, reasoning and learning is known as	**B.**	LISP
3.3	Which of the following are examples of software development tools	**C.**	Making a Machine intelligent
3.4	Artificial Intelligence has its expansion in the following application.	**D.**	John McCarthy
3.5	LISP was invented by _____.	**E.**	C++
3.6	What was originally called the "imitation game" by its creator	**F.**	artificial intelligence
3.7	Graphic interfaces were first used in a Xerox product called :	**G.**	Intelligent goal-based agent
3.8	The first AI programming language	**H.**	The Turing Test
3.9	Spam Filtering	**I.**	debuggers editors assemblers, compilers and interpreters
3.10	What is the term used for describing the judgmental or commonsense part of problem solving	**J.**	Fisher Ada
		K.	Classification
		L.	Heuristic
		M.	Smalltalk

4. Each statement below has a blank space to fit one of the word(s) or phrase(s) in the list below. Choose the most appropriate option, enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein.

(1x10)

A	Next	**B**	Auckland	**C**	Atomic vectors and lists	**D**	Any operating system
E	Apply and sapply	**F**	FOUR	**G**	SIX	**H**	Vector
I	CRAN	**J**	R	**K**	Repeat	**L**	DOS
M	Supervised learning						

4.1 One of the basic data structures in R is the _____.

4.2 R runs on _____.

4.3 Vectors come in two parts _____ and _____.

4.4 _____ and _____ are types of matrices functions.

4.5 _____ initiates an infinite loop right from the start.

4.6 _____ is used to skip an iteration of a loop.

4.7 _____ programming language is a dialect of S.

4.8 In 1991, R was created by Ross Ihaka and Robert Gentleman in the Department of Statistics at the University of _____.

4.9 You can download "base" R system from _____.

4.10 R have _____ atomic vector types.

PART TWO

(Answer any FOUR Guestions)

5. (a) Write a short note on history of AI.

(b) Explain Support Vector Machine in brief.

(c) What do mean by Business Analytics ?

(5+5+5)

6. (a) Applications of AI in health care sector.

(b) Describe some Machine Learning Algorithms.

(c) Explain K-Nearest Neighbor Classifier & K-Means Algorithm.

(4+5+6)

7. (a) Write a short notes on following

(i) Neural Network

(ii) Ensemble methods of classification

(iii) clustering

(b) Describe in brief Visualization using matplotlib and Seaborn.

(7+8)

8. (a) What you understand by Statistical data analysis ?

(b) Explain Binomial distribution ?

(7+8)

9. (a) Define Face Recognition and Detection with OpenCV.

(b) Define Perceptron Learning Algorithm.

(8+7)

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SPACE FOR ROUGH WORK

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