Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2023/2024

COURSE NAME	:	ARTIFICIAL INTELLIGENCE
COURSE CODE	:	DAT 21003
PROGRAMME CODE	:	DAT
EXAMINATION DATE	:	JULY 2024
DURATION	:	2 HOURS 30 MINUTES
INSTRUCTIONS	:	1. ANSWER ALL QUESTIONS 2. THIS FINAL EXAMINATION IS CONDUCTED VIA ☐ Open book ☒ Closed book 3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA **CLOSED BOOK**

THIS QUESTION PAPER CONSISTS OF **FIVE (5)** PAGES

PART A

Q1 What is the primary objective of artificial intelligence?

(a) To create robots with emotions

(b) To replicate human intelligence entirely

(c) To replace human decision-making entirely

(d) To develop intelligent systems that can perform tasks autonomously

Q2 Who is the father of artificial intelligence?

(a) Adam Turing

(b) John Turing

(c) Alan Turing

(d) Jack Turing

Q3 These are characteristics of Intelligent Agent **EXCEPT**

(a) Adaptivity

(b) Autonomy

(c) Sensibility

(d) Sociability

Q4 What is an example of how artificial intelligence is used in cars?

(a) Monitoring the car's tyre pressure

(b) Playing music for the driver

(c) Detecting and correcting errors on the road

(d) Helping drivers find their way using GPS

Q5 What is the aim of artificial intelligence implementation in devices?

(a) To make devices more affordable

(b) To make devices more experiential

(c) To make devices more reliable

(d) To make devices more efficient

Q6 In what year computer program defeated the world champion chess player Gary Kasparov in a six-game match?

(a) 1995

(b) 1996

(c) 1997

(d) 1998

Q7 In what year was the term artificial intelligence coined?

(a) 1953

(b) 1954

(c) 1955

(d) 1956

Q8 How does a computer become more accurate in its predictions with machine learning?

(a) By using trial and error

(b) By having a programmer input more data

(c) By receiving more data and refining its algorithm

(d) By randomly guessing patterns until one is found

Q9 Which type of learning involves the use of labelled training data to make predictions?

(a) Used to interpret the results of oil well drilling logs

(b) Used to deduce the molecular structure of organic compounds

(c) Used to perform diagnostics in the area of internal medicine

(d) Used to determine the probable location based on geological information

Q10 Most common algorithms for supervised learning **EXCEPT**

(a) Linear Discriminant Analysis

(b) Principal Component Analysis

(c) Naive Bayes

(d) Decision Trees

(10 marks)

PART B

Q11 (a) State **FOUR (4)** example applications for classification of supervised learning.
(4 marks)

(b) Differentiate between syntax and semantics in logical representation.
(4 marks)

(c) Differentiate between machine learning and deep learning.
(4 marks)

(d) A fully connected multi-layer neural network is called a Multilayer Perceptron (MLP). MLP has 3 basic layers. Explain each of the basic layers.
(6 marks)

(e) Illustrate a representation of an Intelligent Agent.
(7 marks)

Q12 (a) State **THREE (3)** major components of Expert System.
(3 marks)

(b) Explain each major components of Expert System that you answered in **Q12 (a)**.
(6 marks)

(c) State **FOUR (4)** human elements in expert systems.
(4 marks)

(d) State **FOUR (4)** techniques of knowledge representation.
(4 marks)

(e) Illustrate the cycle of knowledge representation.
(8 marks)

Q13 (a) State **THREE (3)** categories of artificial intelligence.
(3 marks)

(b) Differentiate between Inferential Efficiency and Inferential Adequacy.
(4 marks)

(c) There are two types of architecture for Artificial Neural Network (ANN) which are Single Layer Perceptron and Multi-Layer Perceptron (MLP). The structure of MLP can be broken down into three main parts. Explain each of these parts of the structure of MLP.
(6 marks)

(d) Explain **SIX (6)** common stages of the data preprocessing pipeline.
(12 marks)

PART C

Q14 (a) Write a Python code to create the multiplication table (from 1 to 10) of a number. Input number from user.

(3 marks)

(b) Write a Python code that find the smallest number (float) among three input numbers.

(6 marks)

(c) Write a Python code to create function calculate ( ) such that it can accept two variables and calculate add and subtract.

(6 marks)

- END OF QUESTIONS -