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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, APRIL – 2025

FUNDAMENTALS OF ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

[Maximum Marks: **75**]   [Time: **3** Hours]

PART-A

I. Answer '*all*' the following questions in one word or one sentence. Each question carries '*one*' mark.

(9 x 1 = 9 Marks)

		Module Outcome	Cognitive level
1.	Define supervised learning in AI.	M1.02	R
2.	List any two applications of AI.	M1.04	R
3.	Expand NLP, which is a field of AI.	M1.03	R
4.	myList = [1, 2, 3, 4, 5] Write the statement in python to print the length of myList.	M2.03	A
5.	Write the statement in python to import a module mod1 from the package myPackage.	M2.04	A
6.	import numpy as np arr= np.array([1**,** 2, 3, 4, 5]) In the above python code, write the statement for printing average of the array which is defined in numpy.	M3.04	A
7.	--------------------is a supervised machine learning technique used to predict a real or continuous value, such as "salary" or "weight".	M3.02	U
8.	List 2 applications in which mini max algorithm can be used.	M4.02	R
9.	Write in one sentence about the role of search algorithms in AI.	M4.02	U

PART-B

II. Answer any '*eight*' questions from the following. Each question carries '*three*' marks.

(8 x 3 = 24 Marks)

		Module Outcome	Cognitive level
1.	List any three tools used in AI.	M1.04	R
2.	Write a python program to count the number of occurrences of an element in a list.	M2.03	A
3.	Explain the syntax of while loop in python with an example.	M2.02	U
4.	Write a python function to count number of vowels in a string.	M2.03	A
5.	Explain the syntax of a user defined function in python with example.	M2.03	U
6.	Explain about clustering in machine learning.	M3.02	U
7.	Explain about mean removal in machine learning.	M3.04	U
8.	Explain about min max scaling used in data preprocessing.	M3.04	U
9.	What is combinational search algorithm in AI?	M4.02	R
10.	List the steps to build a last coin standing game.	M4.04	U

PART-C

Answer 'all' questions from the following. Each question carries 'seven' marks.

(6 x 7 = 42 Marks)

		Module Outcome	Cognitive level
III.	List the reasons why it is essential to learn AI.	M1.01	R
	OR		
IV.	Examine the role of AI in health care and medical field and explain how AI technologies and applications be leveraged to make a positive impact in these areas?	M1.04	U
V.	Write a python function to find the factorial of an integer number n where n ≥ 0.	M2.03	A
	OR		
VI.	Explain how to define a string in python programming language. Write a python program to read a string and print its reverse using function.	M2.03	A
VII.	Write a python program to i) define a class named Student with regno, name, mark1, mark2, mark3 as class members. ii) define constructor to initialize data members. iii) define member function findAverage to calculate average mark. iv) define member function displayDetails to display all the details of a student.	M2.04	A
	OR		
VIII.	Write a python program i) to create a dictionary for storing name, register number and grade of a student. ii) call the built in dictionary function to print only the keys from the dictionary. iii) call the built in dictionary function to print only the values from the dictionary. iv) read in a key and display the corresponding value for the key.	M2.03	A
IX.	Explain KNN in detail.	M3.03	U
	OR		
X.	Define normalization and explain why it is essential in data preprocessing.	M3.04	U
XI.	Explain about unsupervised learning technique. List its advantages and disadvantages.	M3.02	U
	OR		
XII.	Explain K Means clustering algorithm. Explain each step of the algorithm in detail.	M3.03	U
XIII.	Explain minimax algorithm in detail.	M4.02	U
	OR		
XIV.	List and explain the steps for building tic tac toe game.	M4.05	R