GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Fourth Semester Regular) Examinations, May – 2024

22BCMES24001 – Python Programming for Machine Learning

(CSE - AIML)

Time: 3 hrs Maximum: 70 Marks

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions		CO #	Blooms Level
a.	Illustrate interactive mode and script mode of python program.	CO1	K1
b.	Explain identity operators in python.	CO1	K1
c.	Write a python list comprehension to print "GUNPUR" 20 times.	CO2	K2
d.	Explain what are python modules.	CO3	K2
e.	Explain the real-time applications of tuple.	CO1	K3

PART – B **(15 x 4 = 60 Marks)**

Answer ***ALL*** questions		Marks	CO #	Blooms Level
2. a.	Describe the features of Python that made it so popular.	8	CO1	K1
b.	Write a program to determine how many of the numbers between 1 and 10000 contain the digit 3.	7	CO1	K3
	(OR)			
c.	Explain about Negative indexing and List Slicing in Python with a sample program.	7	CO2	K3
d.	The number 99 has the property that if we multiply its digits together and then add the sum of its digits to that, we get back to 99. That is, (9 9) + (9 + 9) = 99. Write a python program to find all of the numbers less than 10000 with this property. (There are only nine of them.)	8	CO2	K4
3.a.	What is an Anonymous function and when should you use it? How Anonymous function is different from normal function?	7	CO3	K2
b.	Write a Python program to compute the natural logarithm of 2, by adding up to n terms in the series 1 – 1⁄2+ 1/3 – 1⁄4 + 1/5 -... 1/n where n is a positive integer and input by user.	8	CO3	K2
	(OR)			
c.	Write a python program to count the number of vowels in a string provided by the user.	7	CO3	K2
d.	Write a program that asks the user to enter a string. The program should create a new string called new_string from the user's string such that the second character is changed to an asterisk and three exclamation points are attached to the end of the string. Finally, print new_string. Typical output is shown below: Enter your string: Qbert Q*ert!!!	8	CO3	K2
4.a.	Explain the concept of inheritance and its types. Illustrate with code as	7	CO4	K1

examples

b.	Define Polymorphism. Demonstrate how polymorphism is applied in Python.	8	CO3	K2
	(OR)			
c.	Write a python function is_key_present () to check whether a given key already exists in a dictionary. Dictionary elements are to be taken from the user as input.	7	CO3	K4
d.	Explain how sets are used in real-time. Explain all the operations of sets with help of python code.	8	CO3	K3
5.a.	Demonstrate the process of loading the data 'income.csv'. and apply pre-processing of imputing the missing values of both numerical and categorical with code snippets.	9	CO4	K4
b.	Describe the need of visualization of data. Illustrate how bar plot and box plot are plotted using python libraries.	6	CO4	K2
	(OR)			
c.	For the given below image 6 x 6 and kernel 3 x 3	6	CO4	K2

0	0	0	1	1	1
0	0	0	1	1	1
0	0	0	1	1	1
0	0	0	1	1	1
0	0	0	1	1	1
0	0	0	1	1	1

6*6

*

1	0	-1
2	0	-2
1	0	-1

3*3

Apply convolutional operation and max pooling. Also specify the sizes properly of the final output.

d.	Let us consider a Convolutional Neural Network having three different convolutional layers in its architecture as – Layer-1: Filter Size – 3 X 3, Number of Filters – 10, Stride – 1, Padding – 0 Layer-2: Filter Size – 5 X 5, Number of Filters – 20, Stride – 2, Padding – 0 Layer-3: Filter Size – 5 X 5, Number of Filters – 40, Stride – 2, Padding – 0 If we give the input a 3-D image to the network of dimension 39 X 39, then determine the dimension of the vector after passing through a fully connected layer in the architecture. For the above layers specification construct a CNN architecture and illustrate each layers input and output with help of a diagram.	9	CO4	K3

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