JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION-2022

B.Tech-III Semester (IT)

COURSE CODE (CREDITS): 18B11CI315 (3) MAX. MARKS: 35

COURSE NAME: Python Programming with Raspberry Pi

COURSE INSTRUCTORS: Dr. Emjee Puthooran MAX. TIME: 2 Hours

Note: *All questions are compulsory. Marks are indicated against each question in square brackets.*

Q1. What the different types of GPIO pins and power supply pins available in Raspberry Pi? Briefly describe the function of each of them and how each of them can be configured to interface with hardware device? [CO1, 5M]

Q2. Draw the schematic diagram to interface 8 LEDs with Raspberry Pi. Write a Python program to switch ON and OFF the alternate LEDs with time delay of 1s. [CO1, 5M]

Q3. Describe about the Linux file system used in Raspberry Pi operating system. Explain about the different file permissions of access in Raspberry Pi OS. Give the shell command to change file permissions. [CO2, 5M]

Q4. Using Python GUI programming, design a simple web browser application, with an Entry box to enter the URL and a button to launch the web content. When the web browser is opened, it should display www.juit.ac.in in the URL entry area. When the Go button is pressed, it should load the web page. [CO3, 5M]

Q5. Write a Python program to setup a chat server in Raspberry Pi. Write a client application in Python to connect to the chat server and exchange text messages. [CO5, 5M]

Q6. Define a class Directory in Python with members: name and phone number. Use the class object to store a list of phone numbers. The class should include the following methods: (a) store name and phone number interactively taking input from the user (b) to search and display the phone number when name is given (c) to search and display names when phone number is given. [CO2, 5M]

Q7. A DNA sequence consist of four nucleotides, namely adenine (A), thymine (T), guanine (G), and cytosine (C). Write a Python program to count the total number of occurrence of each of the nucleotides in a DNA sequence represented as a string of letters 'A', 'T', 'G' and 'C'. Use a Dictionary in Python to store the number of occurrence of each nucleotide. [CO2, 5M]