JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-2 EXAMINATION-2024

B.Tech-III Semester (IT)

COURSE CODE (CREDITS): 18B11CI315 (03)   MAX. MARKS: 25

COURSE NAME: Python Programming with Raspberry Pi

COURSE INSTRUCTORS: Dr. Vikas Baghel   MAX. TIME: 1 Hour 30 Minutes

Note:

(a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems.

Q.No	Question	CO	Marks
Q1	**a)** Explain the functions and significances of each argument in the given command:	CO-1	[3]
	`rpicam-vid --level 4.2 --framerate 120 --width 1280 --height 720 --save-pts timestamp.pts -o video.264 -t 10000 --denoise cdn_off -n`		
	b) Using the Linux terminal, perform the following tasks to navigate and manage files in a directory:		[3]
	i. Navigate to your home directory.		
	ii. Create a new directory called ***Project***.		
	iii. Create a new text file named ***README.txt*** in ***Project*** directory.		
	iv. List the contents of the ***Project*** directory to verify that the file has been created.		
	v. Create another directory called ***Docs*** within the ***Project*** directory.		
	vi. Move the ***README.txt*** file into the ***Docs*** directory.		
	vii. List the contents of both ***Project*** and ***Docs*** directories to confirm the move operation.		
	c) Define a function named **describe_book** that takes the following parameters:		[2]
	• **title** (positional argument)		
	• **author** (positional argument))		
	• **year** (assignment argument, default value: 2021)		
	• **genre** (assignment argument, default value: "Fiction")		
	The function should print a description of the book in the following format:		
	"Title: {title}, Author: {author}, Year: {year}, Genre: {genre}"		

Q2	**a)** Create a Tkinter window titled "***Login Form***". Add the following elements to the window:
	
	    • A label for "***Login ID***" and an entry field for the user to input their ID.
	    • A label for "***Password***" and an entry field for the user to input their password.
	    • A "***Login***" button that, when clicked, prints the entered login ID and password to the console.
	
	Add appropriate padding and styling to enhance the appearance of the form.
		CO-3	[3]

	b) Using Flask, design a simple web application for our university called "***JUIT***" featuring two linked web pages: a "***Home***" page and an "***About***" page. The Home page should include a brief introduction to the university, highlighting its departments, along with a link to the ***About*** page. The ***About*** page should provide more details about JUIT's history, as well as a link back to the ***Home*** page.		[3]

Q3	Create a simple 2D game using Pygame that features multiple pages, including a start page and a game page. The game should include the following elements:
	
	  i. The start page must have a "Start" button that the player can click to begin the game.
	  ii. Include a sound effect that plays when the start button is clicked, transitioning to the game page.
	  iii. Create a game page where the player controls an object (e.g., a ball or a spaceship) using the keyboard.
	  iv. Implement a sound effect for collisions with boundaries.
	  v. Include a pause button that allows the player to pause the game.
		CO-4	[5]

Q4	**a)** Write a Python program that streams data from a Raspberry Pi camera to a TCP socket.	CO-5	[4]
	b) Using the Tweepy library in Python, write a script to retrieve and display the followers of a specified Twitter user (Get User's Followers).		[2]