JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- December 2021

B.Tech IT III Semester

COURSE CODE: 18B11CI315   MAX. MARKS: 35

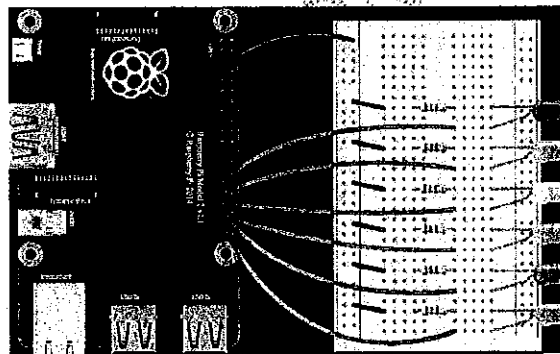COURSE NAME: PYTHON PROGRAMMING WITH RASPBERRY PI

COURSE CREDITS: 03   MAX. TIME: 2Hr

Note: All questions are compulsory. Each question carries equal marks. Carrying of mobile phone during examinations will be treated as case of unfair means.

1. Write the Python code for following interfaces:
   (a) LED with variable brightness
   (b) Button controlled LED
   (c) Button controlled camera
   (d) A collection of LEDs can be treated like a bar graph using LED Bar Graph

2. Write the Python code with interface schematics for:
   (a) Light sensor
   (b) Distance sensor
   (c) Motion sensor robot
   (d) Full color LED controlled by 3 potentiometers

3. (a) Explain the following steps to Configuring Remote GPIO:
   i. Preparing the Raspberry Pi
   ii. Enable remote connections
   iii. Preparing the control computer for:
      • Raspberry Pi

- Linux
- Windows

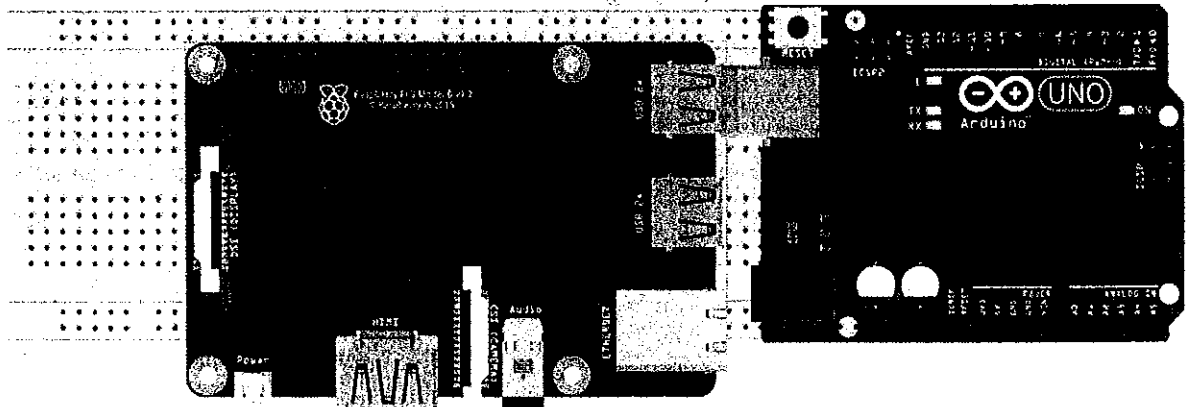(b) The best use of Raspberry Pi is in Internet of Things applications. How will you check?

    i.   Internet ping indicator

    ii.   A Bar Graph for processor Temperature

4. Write the Python code for following Remote GPIO Recipes:
   (a) Multi-room motion alert
   (b) Multi-room doorbell
   (c) Remote button robot
   (d) Light sensor + Sense HAT

5. (a) How will you interface a Raspberry Pi with an Arduino so the two boards can communicate with one another? Explain with steps.

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    (b) Give one application interface for Raspberry Pi with an Arduino interface with schematics and code