CSE140: Introduction to Intelligent Systems
Quiz - 4

Date of Examination: 5.06.2023   Duration: 30 mins   Total Marks: 10 marks

Instructions −

- Attempt all questions.
- MCQs have a single correct option.
- State any assumptions you have made clearly.
- Standard institute plagiarism policy holds.
- No evaluation without suitable justification.

1. Mark the true statement related to an Arduino board and program. [**1 mark**]

    1. setup() method is optional in a program even if there are no statements to run.
    2. Any variable declared, gets initialized once in the setup() method.
    3. Syntax for pinMode method is: pinMode(OUTPUT, LED_BUILTIN);
    4. Pin 11 is by default connected to the onboard LED.

    Solution B

2. What is the main goal of Computational Gastronomy? [**1 mark**]

    1. To investigate the nutritional value of different cuisines
    2. To create new cooking techniques
    3. To digitize traditional recipes
    4. To make food computable and enable data-driven approaches in gastronomy.

    Solution D

3. Which of the following is a primary objective of sensor fusion in a multi-sensor system? [**1 mark**]

    1. Reducing the complexity of individual sensors.
    2. Enhancing the functionality of individual sensors.
    3. Improving the accuracy and reliability of measurements.
    4. Minimizing the power consumption of the sensor system.

    Solution C

4. Give a basic explanation of the functioning of an Ultrasonic sensor. How can you use it to measure the distance of an object? [**1+1 marks**]
   Ultrasonic sensors consist of a receiver and a transmitter built into a single device. The transmitter emits a sequence of equally spaced sound waves in the ultrasonic frequency spectrum. These waves upon hitting an object, bounces back and are detected by the receiver. By measuring the time difference between the emission and detection of sound waves and the speed of sound in air, we can estimate the distance as -
        Distance = speed * (time_duration*0.5)
   Rubric - 1 mark for explaining how an Ultrasonic sensor works, 1 mark for the process to measure distance.

5. Describe the architecture of IOT and explain the challenges faced in IOT. [**2+1 marks**]
   Rubrics: 2 marks for the architecture of IOT. 1 mark for explaining the challenges faced in IOT

6. What is the difference between Linguistics and Phonetics? Provide an example to illustrate each concept.
   [**2 marks**]
   Rubrics: 1 mark for the difference between Linguistics and Phonetics. 1 mark for an example for each concept.