Introduction to Internet of Things

Assignment-Week 5

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **15** **Total marks: 15 X 1= 15**

QUESTION 1:

Company ABC manufactures a room temperature monitor which sends data via protocol X and company MNO manufactures another kind of room temperature sensor which sends data via protocol Y. With respect to this, which among the following correctly captures the said scenario?

a. Homogeneity of IoT

b. Heterogeneity of IoT

Correct Answer: b. Heterogeneity of IoT

Detailed Solution: IoT is characterized by heterogeneity where different kinds of devices, each communicating with different set of protocols are designed. Refer first part of Lecture 21.

QUESTION 2:

When two IoT devices wish to communicate, semantic conflict in such a scenario in IoT interoperability refers to_____.

a. Two devices built by the same manufacturer

b. Two devices sensing the same physical parameter

c. Two devices having different deployment location

d. Two devices having different processing and business logic

Correct Answer: d. Two devices having different processing and business logic

Detailed Solution: Semantic conflict refers to when different IoT devices have different processing and business execution logic. Refer Lecture 21@5:32

QUESTION 3:

Which of the following issues needs to be addressed while solving user interoperability?

a. Device characterization and identification

b. Syntactic interoperability

c. Semantic interoperability

d. All of these

Correct Answer: d. All of these

Detailed Solution: All of the options given should be addressed while solving user interoperability issues. Refer Lecture 21@15:16.

QUESTION 4:

Which UMB interoperability component is responsible for converting physical devices into virtually abstracted ones?

a. UMB Adaptor

b. UMB Core

c. UMB Hypervisor

d. UMB Abstractor

Correct Answer: a. UMB Adaptor

Detailed Solution: UMB-A is responsible for converting physical devices into virtually abstracted ones. (Please refer Lecture 21@27:16)

QUESTION 5:

A Protocol Translation Unit (PTU) acts as a middleware between two IoT devices with different native protocols to enable them communicate with each other by translating the language of one device to the other one and vice versa.

a. True

b. False

Correct Answer: a. True

Detailed Solution: Refer Lecture 21@22:16 and onwards where PTU has been explained.

QUESTION 6:

Suppose that a smart CCTV camera has been configured using C++ language. With respect to the device's cosign identification as per the standard definition (A,B,C,D), which among the following the information "Configuration Lang:C++" will be most appropriately mapped ?

a. A

b. B

c. C

d. D

Correct Answer: d. D

Detailed Solution: For a device's cosign (A,B,C,D), 'D' refers to the definition of the object, hence is the most appropriate to which configuration language, which may be considered a definition will be mapped. Refer Lecture 21@21:16.

QUESTION 7:

Which among the following are components of an Arduino UNO Board?

a. LED Power Indicator

b. Digital I/O Pins

c. Analog IN Pins

d. All of these

Correct Answer: d. All of these

Detailed Solution: An Arduino UNO board contains several components, which also contain the ones listed above. Refer Lecture 22 on Arduino Board details.

QUESTION 8:

What is the series of micro controller chips powering Arduino UNO boards?

a. ATM series

b. X86 series

c. ARM 64 series

d. ATMEGA series

Correct Answer: d. ATMEGA series

Detailed Solution: Arduino UNO micro controllers are powered by ATMEGA series. Refer to any standard documentation on Arduino UNO.

QUESTION 9:

In Arduino IDE the ‘Verify’ and ‘Upload’ buttons perform the exact same task.

a. False

b. True

Correct Answer: a. False

Detailed Solution: In Arduino IDE, ‘Verify’ compiles the sketch and checks for its correctness, while ‘Upload’ uploads the sketch to the Arduino board. Refer Lecture 22@13:22

QUESTION 10:

Suppose that an Arduino UNO board is connected to a pneumatic sensor which sends tyre pressure as floating point numbers. Which among the functions will you use to read from the sensor?

a. digitalRead()
b. analogWrite()
c. analogRead()
d. None of these

Correct Answer: c. analogRead()

Detailed Solution: As per the basics of Arduino programming. When you have real numbers in analog format, you use analogRead(). Refer Lecture 22.

QUESTION 11:

Consider the following Arduino sketch.

```
int r = 4;
int g = 5;
void setup(){

Serial.begin(9600);
pinMode(r,INPUT);
pinMode(g,__??__);
}

void loop()
{
  int val = analogRead(r);
  if( val > 10)
  {
      digitalWrite(g,HIGH);
  }
  else
  {
      digitalWrite(g,HIGH);
  }
  delay(500);
}
```

What must be inserted in the place of '??' within the second pinMode() function in void setup()?

a. INPUT

b. OUTPUT

c. None of these

d. Anyone of these is okay

Correct Answer: b. OUTPUT

Detailed Solution: Since pin 'g' is writing digital values, it is required to set in OUTPUT mode. Refer

Lecture 22-23.

QUESTION 12:

For integrating different types of sensors (such as DHT) with Arduino, you would need to install and #include the sensor specific libraries in your sketch.

a. True
b. False

Correct Answer: a. True

Detailed Solution: Each different type of sensor has its specific libraries and functions which must be included with the Arduino sketch. Refer Lecture 24.

QUESTION 13:

Which of the following best describes the command given below?

```
ServoDemo.write(180);
```

a. Creates an instance of the servo
b. Pin writes 180 to the servo
c. Servo moves 180 degrees
d. All of these

Correct Answer: c. Servo moves 180 degrees

Detailed Solution: As per the basics of Arduino libraries. See lecture 25 @ 08:15

QUESTION 14:

In an Arduino sketch, for the default function void setup(), which of the following is true?

a. Point where the code terminates.
b. Point where the code starts.
c. It iterates over the different tasks in the program.
d. None of the above.

Correct Answer: b. Point where code starts.
Detailed Solution: As per the basics of Arduino programming.See lecture 22@13:52

QUESTION 15:

Which among the following can also be described as a relay, which is an actuator?

a. Pneumatic actuator
b. Motor type actuator
c. Electro-mechanical switch
d. Thermal switch

Correct Answer: c. Electro-mechanical switch

Detailed Solution: Relay is a type of electro-mechanical switch and is also an actuator. Refer Lecture 25@3:57

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