**Sample Questions**

Computer Engineering

**Subject Name:** Internet of Things **Semester: VI**

Multiple Choice Questions

|  | **Choose the correct option for following questions. All the Questions carry equal marks**  |
| --- | --- |
| 1. | The layer number seven of IoTWF standard is  |
| Option A: | Application |
| Option B: | Data Accumulation |
| Option C: | **Collaboration and Processes** |
| Option D: | Edge computing |
|  |  |
| 2. | In which layer of IoTWF standard is sensors deployed |
| Option A: | Application |
| Option B: | **Physical devices** |
| Option C: | Connectivity |
| Option D: | Data abstraction |
|  |  |
| 3. | The standardized architecture of M2M IoT does not achieve |
| Option A: | Decompose IoT problem to smaller part |
| Option B: | Identify different technologies at each layer and how they relate to one another |
| Option C: | Have a process of defining interfaces that leads to interoperability |
| Option D: | **Define a tiered security model that does not enforce the transition points between levels**  |
|  |  |
| 4. | Which of the following is not new requirements of IoT Data Management and Compute Stack |
| Option A: | Minimizing latency |
| Option B: | Increasing local efficiency |
| Option C: | **Reducing the amount of data transmission** |
| Option D: | Conserving network bandwidth |
|  |  |
| 5. | Which of the following an example of position sensor |
| Option A: | Force gauge  |
| Option B: | Barometer |
| Option C: | Anemometer |
| Option D: | **Potentiometer** |
|  |  |
| 6. | Galvanometer works on which principle |
| Option A: | **Ampere’s Law** |
| Option B: | Faraday’s Law of Induction |
| Option C: | Photoconductive Effect |
| Option D: | Hall Effect |
|  |  |
| 7. | Which of the following is a mechanical actuator |
| Option A: | **Screw Jack** |
| Option B: | Step motor |
| Option C: | Pneumatic cylinder |
| Option D: | Electrostatic motor |
|  |  |
| 8. | MEMS stands for  |
| Option A: | Mini Electro Mechanical System |
| Option B: | **Micro Electro Mechanical System** |
| Option C: | Mini Electro Machine System |
| Option D: | Micro Electro Machine System |
|  |  |
| 9. | Which of the following is disadvantage of Zigbee |
| Option A: | Does not require knowledge to operate zigbee |
| Option B: | **It is not as secure as wifi based secured system** |
| Option C: | Replacement cost is low |
| Option D: | It can be used in outdoor wireless communication |
|  |  |
| 10. | Which of the following Access network sublayer works in least range |
| Option A: | HAN |
| Option B: | FAN |
| Option C: | **PAN** |
| Option D: | LAN |
|  |  |
| **11.** | Which of the following is not part of Layer 2 communication network layer |
| Option A: | Access Network Sublayer |
| Option B: | Gateways and Backhaul Sublayer |
| Option C: | IoT Network Management Sublayer  |
| Option D: | **Application and analytics layer** |
|  |  |
| **12.** | SCADA network mainly focuses on which domain |
| Option A: | Agriculture |
| Option B: | Healthcare |
| Option C: | Utility |
| Option D: | Transportation |
|  |  |
| **13.** | CoAP message has fixed size header field of |
| Option A: | 3 bytes |
| Option B: | 2 bytes |
| Option C: | **4 bytes** |
| Option D: | 5 bytes |
|  |  |
| **14.** | MQTT protocol works on which method of communication |
| Option A: | Get Post |
| Option B: | Send Receive |
| Option C: | **Publish Subscribe** |
| Option D: | Transmit Acknowledeg |
|  |  |
| **15.** | Which of the following is not component is not mandatory in Intrusion detection system |
| Option A: | Proximity sensor |
| Option B: | Buzzer or alert message |
| Option C: | **Gyroscope** |
| Option D: | IR sensor |
|  |  |
| **16.** | Which of the following is an IoT hardware |
| Option A: | **Beaglebone** |
| Option B: | Temboo |
| Option C: | Kaa |
| Option D: | Thingspeak |
|  |  |
| **17.** | Which of the following is not supported by Raspberry Pi 3 |
| Option A: | GPIO |
| Option B: | PWM |
| Option C: | **Analog Pins** |
| Option D: | Wifi |
|  |  |
| **18.** | Arduino Uno has which of the following |
| Option A: | 40 GPIO pins, |
| Option B: | four USB 2.0 ports, |
| Option C: | one micro-SD card slot |
| Option D: | **Analog pins** |
|  |  |
| **19.** | Which of the following is not a category of sensors |
| Option A: | Active or Passive |
| Option B: | Contact or no contact |
| Option C: | Absolute or relative |
| Option D: | **Short and Long range** |
|  |  |
| **20.** | When SCADA is deployed in LLN which technology is used |
| Option A: | TCP |
| Option B: | UDP |
| Option C: | **MAP-T** |
| Option D: | RTU |

| 21. | What is the full form of SCADA |
| --- | --- |
| Option A: | Supervisory Control and Document Acquisition |
| Option B: | **Supervisory Control and Data Acquisition** |
| Option C: |  Supervisory Column and Data Assessment |
| Option D: |  Supervisory Column and Data Assessment |
|  |  |
| **22.** | MQTT is \_\_\_\_\_\_\_\_\_\_ oriented |
| Option A: | Data |
| Option B: | **Message** |
| Option C: | Network |
| Option D: | Device |
|  |  |
| **23.** | Which type of sensor is used to measure the distance between the vehicle and other objects in its environment |
| Option A: | Tactile sensor |
| Option B: | 1. **Ultrasonic sensor**
 |
| Option C: | 1. Motion sensor
 |
| Option D: | Pressure sensor |
|  |  |
| **24.** | DHT22 sensor is used to sense |
| Option A: | 1. Obstacles
 |
| Option B: | 1. **Humidity**
 |
| Option C: | 1. Position
 |
| Option D: | 1. Resistance
 |
|  |  |
| **25.** | What is ESP8266 |
| Option A: | **WIFI module** |
| Option B: | Sensor |
| Option C: | Board |
| Option D: | USB cable |
|  |  |
| **26.** | Which sensor is LM35 |
| Option A: | Pressure sensor |
| Option B: | Humidity sensor |
| Option C: | **Temperature sensor** |
| Option D: | Touch sensor |
|  |  |
| **27.** | Barometer is which type of sensor\_\_\_\_\_\_\_\_ |
| Option A: | **Pressure sensor** |
| Option B: | Temperature sensor |
| Option C: | Touch sensor |
| Option D: |  Humidity sensor |
|  |  |
| **28.** | Which devices measures gases or liquid |
| Option A: | Proximity sensor |
| Option B: | **Pressure sensor** |
| Option C: | Temperature sensor |
| Option D: | Touch sensor |
|  |  |
| **29.** |  \_\_\_\_\_\_\_\_ sensor is used for tracking rotation or twist |
| Option A: | **Gyroscope** |
| Option B: | Temperature |
| Option C: | Pressure |
| Option D: | Proximity |
|  |  |
| **30.** | What is the microcontroller used in Arduino UNO |
| Option A: | **ATmega328P** |
| Option B: | ATmega327P |
| Option C: | ATmega329P |
| Option D: | ATmega326P |
|  |  |

Descriptive Questions

| **10 marks each** |
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| Justify the need of OT and IT convergence and elaborate the challenges associated with it. |
| Describe the hierarchy of Cloud computing, Edge computing and Fog Computing |
| Explain IoTWF standardised architecture with diagram |
| Explain concept and working of RFID System |
| Describe Smart Object and its characteristics |
| Describe MEMS and its application |
| Discuss the framework of Zigbee and its application |
| Elaborate the working of Layer 1 of Core IoT Functional Stack |
| Elaborate Tunneling Legacy SCADA over IP Networks with three scenarios |
| Describe the SCADA Transport over LLNs with MAP-T |
| Elaborate the working model of smart weather monitoring system |
| Elaborate the working model of smart agriculture system |
| Compare Arduino Uno and Raspberry Pi 3 model in terms of connectivity and communication standards |
| Identify the IoT board / platform in terms development environment and communication standards for smart irrigations system and discuss the security concerns related to it. |
| Identify the most appropriate IoT board / platform in terms development environment and communication standards for smart home and discuss the security concerns related to it. |
| Identify the most appropriate IoT board / platform in terms of computing smart irrigations system and discuss the security concerns related to it. |

| **5 marks each** |
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| Elaborate the driving force behind development of new architecture for IoT |
| Compare M2M and IoT frameworks |
| Discuss any one IoT Software platform and its working wrt an application |
| Define sensor and list types of sensors |
| Give different ways to categorized the sensors with one example for each |
| List differences between bluetooth and BLE |
| Explain working of Backhaul Sublayer in communication network layer |
| Explain the working principle and characteristics of actuators |
| Describe the types of topologies used in sensor network |
| Distinguish between Bluetooth and BLE |
| Distinguish between Analytics and Control Applications of layer 3 IoT Functional stack |
| Discuss the need of IoT Data Broker and its working |
| Analyze the deployment requirements for smart irrigation system |
| Analyze the deployment requirement for smart parking system. |