

Roll No



**PRESIDENCY UNIVERSITY
BENGALURU**

**SCHOOL OF ENGINEERING
END TERM EXAMINATION - JUN 2023**

Semester : Semester VI - 2020

Course Code : ECE3076

Course Name : Sem VI - ECE3076 - IOT Platforms and Application
Development

Program : ECM

Date : 14-JUN-2023

Time : 9.30AM -12.30PM

Max Marks : 100

Weightage : 50%

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and non-programmable calculator are permitted.
- (iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS

(15 X 2 = 30M)

1. Sensor receives the first of its kind of information to process and submit it to the physical layer. List 4 different types of sensors that can be used in smart IoT devices.
(CO3) [Knowledge]
2. The IDE environment allows you to write the sketch, compile and upload the program. Arduino IDE consist of 2 functions. What are they?
(CO2) [Knowledge]
3. An Application Programming Interface (API) defines the rules that you must follow to communicate with other software systems. List 2 popular API used in IoT platform desining.
(CO3) [Knowledge]
4. Prototyping the IoT devices is costly affair hence many development boards are used for this purpose suggest 2 commonly used such development boards.
(CO2) [Knowledge]
5. IoT technology plays crucial role in maintaining human health this branch of IoT is called as WIoT(Wearable IoT). List the wearable IoT devices used by human being.
(CO3,CO2) [Knowledge]
6. Protocols are set of rules that are used to keep the process in right stuff and make the system work without any problems. Which are the two class of protocols used in IoT and name them with one example?
(CO1) [Knowledge]

7. There are functions and features that must be there for any middleware platform to be worthy of being part of the Internet it has to follow functionalities and capabilities. Identify the functionality of the good Internet of Thing(IoT) platform.
(CO3) [Knowledge]
8. MQTT-Message Queuing Telemetry Transport is the most common protocol used in IoT application. Which communication mode describe it well?
(CO2) [Knowledge]
9. Radio Frequency Identification Device is wireless communication-based device which uses radio frequency for communication. List the types of RFID tags available in the market?
(CO1) [Knowledge]
10. To test the platform functionality from device to the platform and from web applications to the platform. They work as an interface in an Internet of Thing(IoT) platform they are known as API. List one of the API.
(CO3) [Knowledge]
11. The first level of the Internet of Thing(IoT) architecture allows users to access data from sensors. If we have to simplify IoT architecture into just 3 steps then identify those 3 essential layers and list them.
(CO4) [Knowledge]
12. IPV4 and IPV6 are the two methods of addressing the data on the internet. Give one example of IpV4 and IpV6 addressing?
(CO1) [Knowledge]
13. Cloud and fog computing are the choices designer always has to create the proper infrastructure. List the components of fog computing considering IoT application into mind.
(CO3) [Knowledge]
14. Internet of Thing(IoT) protocols help to establish communication between IoT node devices and cloud-based servers over the internet. It helps to send commands to IoT devices and receive data from IoT devices over the Internet. List any two protocols used in IoT.
(CO4) [Knowledge]
15. An actuator is a device that converts energy into another form. It does this by taking an electrical signal and combining it with an energy source. In an Internet of Thing(IoT) system, the actuator can act on data collected by sensors to create an outcome as determined by the chosen settings of the user. List the types of actuators supported by IoT technology.
(CO3) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS

(2 X 15 = 30M)

16. Cloud based application plays a key role in IoT architecture and helps the designer to include many features. As cloud is a paid utility the vendor serves it in packages. Identify the cloud-based services and compare them.
(CO2) [Comprehension]
17. IoT device that monitors the lights in a house. The lights are controlled through switches. The database has maintained the status of each light and also REST services deployed locally allow retrieving and updating the state of each light and trigger the switches accordingly. For controlling the lights and applications, Suggest the IoT deployment level that can be more suitable for this case.
(CO3) [Comprehension]

PART C

ANSWER ALL THE QUESTIONS

(2 X 20 = 40M)

18. IoT designs are very much dependent on embedded systems and embedded systems are very much dependent on how the memory management is done. What is the mechanism that can be used while making the decision of the memory selection process for an embedded system or IoT system? What are the types of memory devices which are as smaller faster and costlier where the memory devices which are larger, and slower are cheaper. .? Explain the concept using a suitable diagram and how you will arrange the memory based on the above in a pyramid structure to take a suitable decision.

(CO2) [Application]

19. A new startup wants to have their own IoT setup for their company. They have decided to have cloud-based application as platform to host the website and maintain their inventory of stock using RFID. Justify their decision by explaining what feature of cloud computing can really help the new startup to boost their business and improve their visibility in the market.

(CO4) [Application]