**PRESIDENCY UNIVERSITY**
**BENGALURU**

## SCHOOL OF ENGINEERING
### END TERM EXAMINATION - JAN 2023

**Semester :** Semester V - 2020                     **Date :** 11-JAN-2023
**Course Code :** CSE2032                              **Time :** 9.30AM - 12.30PM
**Course Name :** Sem V - CSE2032 - Introduction to FoG Computing     **Max Marks :** 100
**Program :** B.Tech. CIT                              **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.*

### PART A

**ANSWER ALL THE TEN QUESTIONS**                        **10 X 2 = 20M**

1.  What are Radios?

(CO1) [Knowledge]

2.  List the characteristics of Zigbee.

(CO1) [Knowledge]

3.  List the characteristics of Fog Computing.

(CO1) [Knowledge]

4.  What is the use of software-defined networking?

(CO2) [Knowledge]

5.  Why is network slicing required in 5G?

(CO2) [Knowledge]

6.  Define the security and privacy layer in Cloud-Fog-IoT integration architecture.

(CO3) [Knowledge]

7.  How does fog aid smart traffic light system?

(CO3) [Knowledge]

8.  List the advantages of Fog Computing.

(CO1) [Knowledge]

9.  List the design requirements of outdoor IoT applications.

(CO1) [Knowledge]

10.  What are the applications of Fogin healthcare?

(CO1) [Knowledge]

## PART B

**11.** Explain how application-specific fog architecture best suits smart vehicular systems compared to application-agnostic architecture.

(CO1) [Comprehension]

**12.** Companies, organizations, and research institutions capture terabytes of data from many sources. Explain how these data can be used and what technologies can be used to analyze these data.

(CO2) [Comprehension]

**13.** Explain the architecture of Cloud-Fog-IoT integration.

(CO3) [Comprehension]

**14.** Illustrate how data analytics in the fog improves the latency requirements and performance of real-time applications.

(CO2) [Comprehension]

**15.** Discuss the taxonomy for the classification of the communication layer in Cloud-Fog-IoT integration architecture.

(CO3) [Comprehension]


## PART C

**16.** Waste management is a widespread challenge for cities, as this process requires time, money, and resources. Garbage collectors routinely clean garbage bins on specific days of the month, depending on their schedule, but they do this without considering how much waste is in the container. Collecting waste from a nearly empty container is utterly inefficient as it leads to unnecessary fuel consumption and a waste of manpower. In contrast, overfilled bins left uncollected make the streets look dirty.Illustrate the architecture for a fog computing-based smart waste management for the waste management authority, and compare this solution with other systems.

(CO4) [Application]

**17.** Smart cities utilize a wide variety of sensors to monitor and regulate road traffic. Sensors embedded into smart traffic lights can detect pedestrians, cyclists, and drivers passing by; measure their speed and the relative distances between them; analyze all of the traffic data as it is collected; and make decisions driven by data in real-time to alter the lights or reorganize the routes of some of the traffic if it is necessary. Demonstrate how fog computing will be the best suitable technology for smart traffic management.

(CO4) [Application]


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