b.	Illustrate the component of IIoT architecture and discuss how its connected to real-world applications.	12	2	3	3
31. a.	Illustrate the following proximity technology and list out the difference between these technologies (i) Bluetooth (ii) Zigbee (iii) Serial communication	12	2	4	3
	(OR)				
b.	Describe the following industrial network protocol's role in IoT network (i) CAN bus (ii) Mod bus	12	2	4	4
32. a.	Illustrate the following terms used in time series analysis (i) Trends (ii) Seasonal cycles (iii) Non-seasonal cycles (iv) Pulses and steps (v) Outliers	12	2	5	5
	(OR)				
b.	Explain the methods involved in detecting the outliers in any time series analysis with examples.	12	2	5	4

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Reg. No.														

B.Tech. DEGREE EXAMINATION, JUNE 2023

Seventh Semester

18CSE462J – INTRODUCTION TO IOT

(For the candidates admitted during the academic year 2018-2019 to 2021-2022)

Note:

(i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.

(ii) **Part - B & Part - C** should be answered in answer booklet.

Time: 3 hours

Max. Marks: 100

PART – A (20 × 1 = 20 Marks)

Answer **ALL** Questions

	Marks	BL	CO	PO
1. Which of the following is not an IoT platform? (A) Amazon web service (B) Microsoft azure (C) Salesforce (D) Flipkart	1	2	1	1
2. Which of the following is not an application of IoT? (A) BMP 280 (B) Smart home (C) Smart city (D) Self-driven cars	1	2	1	1
3. Which layer is used for wireless connection in IOT devices? (A) Application layer (B) Network layer (C) Data link layer (D) Transport layer	1	2	2	1
4. Which of the following is not a sensor in IoT? (A) BMP280 (B) DHTII (C) Photo resistor (D) LED	1	2	1	1
5. The IoT platforms are mainly divided into how many types. (A) 3 types (B) 5 types (C) 4 types (D) 2 types	1	1	2	1
6. The core element of architecture of smart city is _____. (A) Mobile unified service (B) Urban application platform (C) Management centre (D) Integrated information provider	1	1	2	2
7. Who will used their own IoT business models? (A) PaaS (B) SaaS (C) IaaS (D) Service provider	1	2	2	2
8. A sensor is a _____. (A) Subsystem (B) Software configuration (C) System, machine and module (D) Distributed software	1	2	2	2
9. Chat uses _____ to generate graph. (A) Lines (B) Rows and columns (C) Only rows (D) Only columns	1	3	3	2

10.	MQTT is mainly used for _____. (A) M2M communication (B) Device communication (C) Internet communication (D) Wireless communication	1	3	3	3
11.	MQTT is _____ oriented. (A) Data (B) Message (C) Network (D) Device	1	3	3	3
12.	Standard ports of MQTT are _____. (A) 12C (B) SSL (C) USART (D) TCP/IP	1	3	3	2
13.	Modbus provides client/server or master/slaves communication between _____ and _____. (A) Optical devices, buses or wires (B) Electronic devices, networks or buses (C) Magnetic devices, networks or buses (D) Electromagnetic devices, buses or wires	1	3	4	4
14.	The first Modbus function code contains _____ type of register. (A) Read discrete input (B) Read holding registers (C) Red coil (D) Write single coil	1	2	4	3
15.	A resource that contains an actual value is called as _____. (A) Potential variable (B) Measured variable (C) Resource variable (D) Physical variable	1	3	4	3
16.	What should can URL contain? (A) ASCII values (B) Digits (C) Characters (D) ASCII values, digits and characters	1	2	4	3
17.	A data system acquisition provides _____. (A) Partial communication (B) Ineffective communication (C) Effective communication (D) Complete communication	1	3	4	3
18.	How can the steady state error can be reduced? (A) By decreasing the type of system (B) By increasing system gain (C) By decreasing the static error constant (D) By increasing the input	1	2	4	3
19.	An orderly set of data arranged in accordance with their time of occurrence is called (A) Arithmetic series (B) Harmonic series (C) Geometric series (D) Time series	1	4	4	5
20.	The process of the decomposition of time series is called _____. (A) Histogram (B) Analysis of time series (C) Detrending (D) Pipelining	1	3	5	4

PART – B (5 × 4 = 20 Marks)

Answer **ANY FIVE** Questions

		Marks	BL	CO	PO
21.	List out the advantages of IoT based an Industrial application.	4	2	1	1
22.	Give short notes on different architecture layers components present in the IoT.	4	2	1	1
23.	Give short notes on following concept (i) IoT gate way (ii) Data streaming (iii) Edge computing	4	2	4	1
24.	Explain the working principle of Data stream processing in IoT.	4	2	2	1
25.	Discuss the following Industrial Network Protocols role in IoT network.	4	1	3	1
26.	Explain the following terms (i) Message encoding (ii) Protocol buffer	4	2	4	1
27.i.	What is data processing in Iot?	4	1	5	1
ii.	Give notes on (1) Outlier (2) Trends	2	1	5	1

PART – C (5 × 12 = 60 Marks)

Answer **ALL** Questions

		Marks	BL	CO	PO
28. a.	What are the different architecture layers components present in the IoT and give depth insights about each component?	12	2	1	1
	(OR)				
b.	Build an IoT based model for the SMART home application and list out model components with a neat diagram and description.	12	3	1	1
29. a.	Clarify the following concepts and explain how they function in IIoT or IoT settings (i) IoT gateway (ii) Data streaming (iii) Edge computing (iv) Fault detection in IoT	12	3	2	2
	(OR)				
b.	Explain in detail IIoT reference architecture and its components.	12	2	2	1
30. a.	How to detect and control the fault occurring in IoT or IIoT-based applications? Explain in detail.	12	4	3	3
	(OR)				