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B.Tech. DEGREE EXAMINATION, JUNE 2023

Fifth Semester

18CSE345T - INTERNET OF THINGS ARCHITECTURE AND PROTOCOLS

(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 40 minutes.

ii. **Part - B** and **Part - C** should be answered in answer booklet.

Time: 3 Hours **Max. Marks: 100**

Part - A (20 × 1 Marks = 20 Marks)

Answer **All** Questions

		Marks	BL	CO
1.	_____the data from the various inputs from the production and manufacture stage are combined together to create information (A) Processing (B) Packaging (C) Production (D) Marketing	1	1	1
2.	A gateway software must be smart enough so that it can handle _____ (A) Sensors (B) Logging (C) Message (D) GPS	1	1	1
3.	UDP and TCP are called _____ protocols (A) Network (B) Transport (C) Session (D) Application	1	1	1
4.	Gateway provides the connection between _____ and _____. (A) Controller and device (B) Network and Controller (C) Network and Cloud (D) Cloud and Controller	1	1	1
5.	The Bluetooth technology operates in the ISM band at _____ (A) 2.4 to 2.485 GHz (B) 1.4 to 2.485 GHz (C) 2.4 to 2.485 MHz (D) 3.4 to 10 MHz	1	1	2
6.	What is the IEEE standard of bluetooth (A) 802.15.3 (B) 802.15.1 (C) 802.15.4 (D) 802.15.2	1	1	2
7.	Which one of the following functions is not a Zigbee standard (A) Network routing (B) Address translation (C) Channel acquisition (D) Packet segmentation	1	1	2
8.	Wireless HART is based on the following standard (A) IEEE 802.15.3-2006, 2.4ghz ism band (B) IEEE 802.15.4-2006, 2.4ghz ism band (C) IEEE 802.15.4-2006, 915 mhz ism band (D) IEEE 802.15.3-2006, 915 mhz ism band	1	1	2
9.	What is the range of low-frequency RFID systems? (A) 30 KHz to 300 KHz (B) 40 KHz to 600 KHz (C) 20 KHz to 500 KHz (D) 60KHz to 300 khz.	1	1	3
10.	High-frequency RFID tags read rate is _____ (A) 50tags/sec (B) 100tags/sec (C) 90tags/sec (D) 150tags/sec	1	1	3

11.	_____ is a protocol that is used for transmitting information over serial lines or Ethernet, based on master-slave technology (A) Modbus (B) Profibus (C) Interbus (D) Databus	1	1	3
12.	The address length of IP v4 is 32 bits. What is the address length of IP v6? (A) 64 bits (B) 32 bits (C) 128 bits (D) 62 bits	1	1	3
13.	_____ is a process-to-process protocol that adds only port addresses, checksum error control, and length information to the data from the upper layer (A) TCP (B) UDP (C) HTTP (D) ARP	1	1	4
14.	Which of the following functions does UDP perform? (A) Process-to-process communication (B) Host-to-host communication (C) End-to-end reliable data delivery (D) Interface-to-interface communication.	1	1	4
15.	In TLS padding can be upto a maximum of (A) 79 bytes (B) 99 bytes (C) 255 bytes (D) 199 bytes	1	1	4
16.	MQTT is a _____ protocol (A) Machine to machine (B) Machine to device (C) Device to device (D) Node to Machine	1	1	4
17.	What is the process of hiding text within an image called? (A) Encryption (B) Steganography (C) Spyware (D) Keystroke logging	1	1	5
18.	Which XMPP core describes client-server messaging? (A) RFC 4854 (B) RFC 6120 (C) RFC 5647 (D) RFC 3923	1	1	5
19.	CoAP PROTOCOL is specialized in _____ (A) Internet applications (B) Device applications (C) Wireless applications (D) Wired applications	1	1	5
20.	AMQP is designed for connecting (A) Constrained networks (B) LANs and WANs (C) Systems and Business processes (D) MAN to WAN	1	1	5

Part - B (5 × 4 Marks = 20 Marks)
Answer **any 5** Questions

		Marks	BL	CO
21.	Explain the four-stage IoT architecture in detail.	4	2	1
22.	Write short notes on Gateways.	4	2	1
23.	How the data flow happened, the moment sensed, explain the process.	4	2	2
24.	Discuss the essential types of data analysis methods and processes for business success.	4	2	3
25.	Mention the functions of Transport layers.	4	1	4
26.	Compare UDP and TCP Protocols.	4	2	4
27.	Discuss the different types of attacks in IoT networks.	4	2	5

Part - C (5 × 12 Marks = 60 Marks)
Answer **All** Questions

		Marks	BL	CO
28.	a) Explain basic and advanced devices in IoT with an example. **(OR)** b) Explain the IoT architecture with a neat diagram and also brief its layer's function.	12	2	1
29.	a) Explain the data processing techniques in IoT applications. **(OR)** b) Write short notes on Z-Wave, Bluetooth Protocols.	12	2	2
30.	a) Explain the DHCP protocol in Detail. **(OR)** b)Discuss the important components of RFID and mention the working principle.	12	2	3
31.	a) Explain MQTT protocol architecture and its function in detail. **(OR)** b) Discuss IoT security protocol 6LoWPAN in detail.	12	2	4
32.	a) Discuss the Security applications and issues in RPL. **(OR)** b) Explain X.509, Authentication, and security concerns in IoT applications.	12	2	5

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