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Minor CERTIFICATION EXAMINATION, NOVEMBER 2023

Third Semester

18EIE008T - INDUSTRIAL INTERNET OF THINGS

(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** and **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
1.	Job shop is a part of _____ production (A) low (B) medium (C) high (D) very high	1	1	1
2.	How many numbers of the element in the open IoT architecture? (A) 4 (B) 5 (C) 6 (D) 7	1	1	1
3.	The phrase used to describe the complete automation of a manufacturing plant (A) Computer Integrated Manufacturing (B) Enterprise Systems Architecture (C) Cyber Physical systems (D) Measurement and Control	1	1	1
4.	What is the real example of a smart grid device in IoT? (A) mobile phone (B) smart meter (C) television (D) smart speakers	1	1	1
5.	MQTT is mainly used for _____ (A) M2M communication (B) Device communication (C) Internet communication (D) Wireless communication	1	1	2
6.	Identify the open standard protocol (A) CoAP (B) MQTT (C) XMPP (D) HTTP	1	1	2
7.	Which layer is used for wireless connection in IoTdevices? (A) Application layer (B) Network layer (C) Data link layer (D) Transport layer	1	1	2
8.	Select the false statement about the IoT component. (A) A photoresistor is an analog sensor (B) A microphone is a digital sensor (C) A push button is a digital sensor (D) A keyboard is a digital sensor	1	1	2
9.	_____ allows us to control electronic components. (A) RESTful API (B) CoAP API (C) HTTP (D) MQTT	1	1	3
10.	Specify the function that will be called when there is a new message received from the channel. (A) Reconnect (B) Error (C) Connect (D) Callback	1	1	3
11.	Z wave operates on low frequency speed in the range of _____ (A) 908.42 (B) 250.07 (C) 1080 (D) 1024.07	1	1	3

12.	API enables system portability between _____ (A) systems (B) devices (C) network (D) service	1	1	3
13.	The control in SCADA is _____ (A) Online control (B) Direct control (C) Supervisory control (D) Automatic control	1	1	4
14.	The rack and pinion is an example of a _____ (A) Hydraulic actuator (B) Electrical actuator (C) Mechanical actuator (D) Pneumatic actuator	1	1	4
15.	Pulse type communication does not have real time properties due to its _____ nature. (A) screening (B) accumulating (C) dispersive (D) bulk	1	1	4
16.	How many levels are present in a complex SCADA system? (A) 3 (B) 4 (C) 5 (D) 6	1	1	4
17.	Which of the following is not an IoT platform? (A) Amazon Web Services (B) Flipkart (C) Microsoft Azure (D) Salesforce	1	1	5
18.	Which one of the industrial revolutions used electric energy to create mass production for the first time? (A) First (B) Second (C) Third (D) Fourth	1	1	5
19.	What are the advantages of Industry 4.0? (A) Improved productivity and efficiency (B) Low cost of implementation (C) Creating more vacancies for workers (D) No risk of hacking into the internal network	1	1	5
20.	This company was the first to utilize a robotics system in its production line (A) Ford Motor Co (B) Volkswagen (C) General Motors (D) Toyota	1	1	5

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

		Marks	BL	CO
21.	Define CIM?	4	2	1
22.	What are the levels of Manufacturing?	4	1	1
23.	What are the 'Things' referred to in IoT?	4	1	2
24.	List some examples of Actuators and its functions	4	2	2
25.	Define MQTT	4	2	3
26.	Explain the key aspects of distributed control system.	4	2	4
27.	List the characteristics of a Smart Factory	4	1	5

PART - C (5 × 12 = 60 Marks)
Answer **all** Questions

		Marks	BL	CO
28.	(a) Explain in detail the IIoT architecture Layers with a diagram **(OR)** (b) Describe the process of ERP system in Industry?	12	2	1

29.	(a) Explain in detail about the physical design using prototyping boards.	12	2	2
	(OR)			
	(b) Explain the functions of any one layer of IoT protocol.			
30.	(a) Explain any three IoT communication models in detail with illustrations	12	2	3
	(OR)			
	(b) List the types of short range IoT solutions and discuss in detail any two types used in the industry			
31.	(a) Describe in detail the challenges in the deployment of IIoT.	12	2	4
	(OR)			
	(b) Discuss about the middleware IIoT platforms and give few examples on the same.			
32.	(a) Apply the design of IoT principles for a Smart factory	12	3	5
	(OR)			
	(b) Describe with an industrial example for IoT in manufacturing industry.			

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