

Reg. No.

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B.E. / B.TECH. DEGREE EXAMINATION, MAY 2023

Fifth Semester

EE18011 – IoT FOR ELECTRICAL ENGINEERS*(Electrical and Electronics Engineering)***(Regulation 2018)****TIME:3 HOURS****MAX. MARKS: 100**

- CO 1** Articulate the main concepts, key technologies of IoT.
CO 2 Apply IoT in Home & Building automation.
CO 3 Apply IoT in Industrial automation.
CO 4 Apply IoT in smart grid & Energy Management.
CO 5 Apply IoT in Electric Vehicle.

PART- A(10x2=20Marks)
(Answer all Questions)

	CO	RBT LEVEL
1. List the importance features of Internet of Things.	1	2
2. Compare SPI and I ² C bus.	1	2
3. List the sensors used for smart home applications.	2	2
4. Enumerate the components used in surveillance systems.	2	1
5. Highlight the importance of Embedded systems in industry 4.0.	3	2
6. Justify the important role of IoT based automation in industry.	3	2
7. Distinguish between HAN and WAN.	4	2
8. What are the features of smart grid?	4	1
9. What is the need for a Battery management system.	5	1
10. What are the advantages of smart controller in Electric vehicle.	5	1

PART- B (5x 14=70Marks)

	Marks	CO	RBT LEVEL
11. (a) Describe the communication models and Application Programming Interfaces (API) for IoT and classify the IoT levels.	(14)	1	3
(OR)			
(b) (i) Discuss the architecture of Raspberry pi 3 model B with neat sketches and technical specifications.	(7)	1	3
(ii) Summarize the advantages of Raspberry pi model over conventional microcontroller.	(7)	1	3

12. (a)	Elaborate the step by step procedure involved to detect objects and response of systems using intrusions surveillance systems in home automation.	(14)	2	4
(OR)				
(b)	Design a wireless control system for an open and enclosed offices and conference room from the basics.	(14)	2	4
13. (a)	Explain in detail the various automation systems used in industry and internet of things in automation.	(14)	3	3
(OR)				
(b)	(i) Describe the real time monitoring and controlling operations in industries.	(7)	3	3
	(ii) Summarize the IoT with sensors based machines to optimize the productivity.	(7)	3	3
14. (a)	(i) Show the concepts of advanced infrastructure for measuring quantities using SCADA.	(7)	4	3
	(ii) Brief the components of smart inverter for energy saving applications.	(7)	4	3
(OR)				
(b)	Discuss about IoT solutions in renewable energy power generation.	(14)	4	3
15. (a)	Explain in details about design of electric vehicle smart charging station and location of EV station with block diagram.	(14)	5	4
(OR)				
(b)	Design and construct a circuit which implements the IoT based smart parking system and discuss the usage of components.	(14)	5	4

PART- C (1x 10=10Marks)

(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	With a typical example explain the interfacing of input / output devices with Raspberry Pi.	(10)	1	3