Roll No.

ANNA UNIVERSITY

B.E. /B.Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, NOV/DEC 2024

ELECTRONICS AND COMMUNICATION ENGINEERING

SEMESTER VII

EC5791 CONSUMER ELECTRONICS

(Regulation2019)

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

CO1	Explain the V-I characteristic of diode, UJT and SCR. Describe the equivalence circuits of transistors
CO2	Operate the basic electronic devices such as PN junction diode, Bipolar and Field Effect Transistors, Power control devices, LED, LCD and other Opto-electronic devices.
CO3	Gain knowledge on sensors and controls.
CO4	Emphasize the need for communication systems.
CO5	Explore the current technology and apply on home applications

BL – Bloom's Taxonomy Levels

(L1-Remembering, L2-Understanding, L3-Applying, L4-Analysing, L5-Evaluating, L6-Creating)

PART- A(10x2=20Marks)

(Answer all Questions)

Q.No	Questions	Marks	CO	BL
1	What is the difference between an NPN and a PNP transistor.	2	CO1	L1
2	Define the role of a Analog-to-Digital Converter and what are the types?	2	CO1	L2
3	How is Stereo sound different from Mono sound.	2	CO2	L2
4	Write the advantages and disadvantages of DVDs over CDs.	2	CO2	L1
5	What are the technology involved in smart home.	2	CO3	L4
6	Name the benefits of using water level sensors in household automation.	2	CO3	L2
7	What is the main function of automatic cleaning robots in a smart home?	2	CO5	L2
8	Draw the block diagram for smart door lock and define it.	2	CO5	L1
9	What is the main advantage of smartwatches over traditional watches.	2	CO4	L1
10	Who developed the iOS operating system? write types of iOS.	2	CO4	L2

PART- B (5x 13=65Marks)

Q.No	Questions	Marks	CO	BL
11 (a) (i)	Design a 1:8 Demultiplexer with logic diagram and verify its truth table.	8	CO1	L2
(ii)	Differentiate between half-wave and full-wave rectifiers with suitable diagrams.	5	CO1	L2
	OR			
11 (b)	Draw the Architecture and pin diagram of 8085 Microprocessor explain briefly.	13	CO1	L2

12 (a)	What is Modulation? Explain in detail Amplitude Modulation Transmitter and Receiver with neat sketch.	**13**	CO2	L1
	OR			
12 (b)	Construction and working principle of Cathode Ray tube describe in detail write the advantages and disadvantages.	**13**	CO2	L1
13 (a)	Describe the role of virtual assistants like Alexa and Google Home in smart homes. Discuss their features, working principles, and integration with other smart devices.	**13**	CO3	L4
	OR			
13 (b)(i)	What are image sensors, and how are they utilized in home security systems? Provide details about the types of image sensors, their working principles, and their importance in surveillance	**8**	CO3	L4
(ii)	Describe the PIR sensor and Thermal sensor.	**5**	CO3	L4
14 (a) (i)	Explain the working and benefits of Smart Lighting Control systems.	**8**	CO5	L3
(ii)	Define the role of RFID technology in home automation and discuss its applications.	**5**	CO5	L3
	OR			
14 (b)	Describe the role of kitchen Electronics. (i) Microwave (ii) Smart Alarms (iii) Smart Refrigerators.	**13**	CO5	L3
15 (a) (i)	Explain how GPS and tracking systems function within smart devices and their use in real-time location tracking with neat sketch.	**8**	CO4	L2
(ii)	Differentiate between PDAs and modern tablets with examples.	**5**	CO4	L2
	OR			
15 (b)(i)	Explain the evolution and features of cordless telephones and their impact on communication technology	**10**	CO4	L2
(ii)	Define the components and functioning of a video conferencing system.	**3**	CO4	L2

PART- C (1x 15=15Marks)

(Q.No.16 is compulsory)

Q.No	Questions	Marks	CO	BL
16.	(i) How does a successive approximation ADC work with neat diagram. The given analog input 11010100 how to convert into digital output and what is the advantage of a successive approximation converter compared to other ADCs?	**10**	CO1	L4
	(ii) Design a 4 – bit parallel Full Adder and add given binary values A = 1110, B= 1011.	**5**