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B.Tech. DEGREE EXAMINATION, JUNE 2023

Seventh Semester

18ECO101T - SHORT - RANGE WIRELESS COMMUNICATION

(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.	Arrange the elements of a communication systems in an order (A) Data Source, Transmitter, Communication Channel, Receiver. (B) Communication Channel, Data Source, Transmitter,Receiver. (C) Transmitter,Receiver, Communication Channel, Data Source (D) Transmitter, Data Source,Communication Channel,Receiver.	1	1	1
2.	FM Transmission reduce noise by using _____ (A) Pre-emphasis (B) De-emphasis (C) Superheterodyne (D) Transducer	1	1	1
3.	The _____ function is the brain of the WLAN (A) Medium Access Control (B) Logical Link Control (C) Ethernet Control (D) IEEE	1	1	1
4.	The 2.4 GHz band was made available with frequencies between 5.2 and 5.8 GHz (A) 802.11a (B) 802.11c (C) 802.11g (D) 802.11n	1	2	1
5.	The following drawback exists with regard to Bluetooth technology (A) Wireless Technology, Cheap Technology (B) Very simple to form a piconet (C) Robust, low energy consumption (D) Bandwidth is low	1	1	2
6.	Polarisation of helical antenna is _____ (A) Circular (B) Elliptical (C) Linear (D) Nonlinear	1	2	2
7.	The antenna most commonly used for TV broadcasting in the UHF band is (A) Helical Antenna (B) Dipole Antenna (C) Yagi Antenna (D) Monopole Antenna	1	2	2
8.	Code Hopping is also called as _____ (A) Rolling code (B) Rounding code (C) Synchronous code (D) Linear code	1	1	2
9.	Identify the frequency at which RFID module operates (A) 20MHz (B) 10MHz (C) 13.56MHz (D) 12MHz	1	2	3
10.	For generation of FSK signal the data encoding follows (A) RZ pattern (B) NRZ pattern (C) Split-Phase Manchester (D) Binary RZ Pattern	1	2	3

11.	In a receiver, distortion can occur in _____ (A) Mixer (B) Detector (C) IF Amplifiers (D) Either mixer or detector or IF Amplifiers	1	1	3
12.	The process of recovering information signal from received carrier is known as (A) Sensitivity (B) Selectivity (C) Demodulation (D) Fidelity	1	1	3
13.	_____ is defined as the minimum signal power level required at the receiver to achieve a certain BER performance. (A) Sensitivity (B) Selectivity (C) Demodulation (D) Fidelity	1	1	4
14.	A heterodyne frequency changer is called as (A) Modulator (B) Mixer (C) Demodulator (D) Frequency Translator	1	2	4
15.	The amplifier gain of a super regenerative receiver is controlled by the _____ (A) Quenching Circuit (B) Bypass circuit (C) Capacitor (D) Inductor	1	1	4
16.	The 60GHz millimetre-wave is _____ (A) Unlicensed Spectrum Band (B) Licensed Spectrum Band (C) High band Spectrum (D) Low Band Spectrum	1	1	5
17.	CEPD model is a (A) Single path propagation Model (B) Multipath propagation Model (C) Propagation Model (D) Statistical propagation Model	1	2	5
18.	Minimum Shift Keying is similar to _____ (A) Continuous Phase frequency shift keying (B) Binary Phase shift keying (C) Binary Frequency shift keying (D) Quadrature phase shift Keying	1	1	5
19.	_____ are examples of Line-of-Sight Communication. (A) FM Radio (B) FM radio, Microwave and Satellite Transmission (C) Microwave (D) Satellite Transmission	1	2	5
20.	MIMO Technology makes advantage of a natural radio wave phenomenon called as (A) Reflection (B) Multipath (C) Refraction (D) Diffraction	1	1	5

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

		Marks	BL	CO
21.	List the significance of power saving in wireless devices.	4	1	1
22.	Mention the Characteristics of UWB Transmission	4	2	2
23.	Write short notes on RFID.	4	1	3
24.	Mention the properties of Line Coding.	4	2	4
25.	List the features of SAW resonator.	4	2	5
26.	Compare UWB Technologies with conventional Radio -over-Fiber.	4	2	4
27.	Compare VLC with Infrared and Radio frequency.	4	2	5

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

		Marks	BL	CO
28.	a. With neat sketches, explain the network architecture of IEEE 802.11 WLAN. **(OR)** b. Describe the parameters that causes interference on the coexistence of bluetooth and Wi-fi Network.	12	2	1
29.	a. Sketch the block diagram of QAM transmitter and explain in detail. **(OR)** b. With neat diagram, detail about the description of OFDM transceiver.	12	2	2
30.	a. Explain in detail about Software Defined Radio. **(OR)** b. Explain helical Antenna and its modes of operation.	12	1	3
31.	a. Describe about the parameters measured in channel model for 60GHz propagation. **(OR)** b. With the aid of neat diagrams detail about the three PAN scenarios described in IST Magnet project.	12	1	4
32.	a. Explain in detail about the various Noise factor in UROOF technology. **(OR)** b. With the aid of neat diagram, explain the construction and working of Direct modulated Vertical Cavity Surface Emission Lasers (VCSEL).	12	2	5

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