



B.Tech V Semester Supplementary Examinations, July 2024

PRINCIPLES OF ELECTRONIC COMMUNICATIONS
(IT)

Maximum Marks: 70

Date:30.07.2024 Duration: 3 hours

- Note:**
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A		CO	Bloom Tx
All the following questions carry equal marks (10X2M=20 Marks)			
1	The maximum peaks of an electromagnetic wave are separated by a distance of 8 in. What is the frequency in megahertz?	CO1	L5
2	Define attenuation.	CO1	L1
3	Define Image frequency rejection ratio.	CO1	L1
4	Show the space representation of PSK and QPSK.	CO1	L2
5	State the characteristics of the ringing signal supplied by the telephone company.	CO2	L2
6	What is an Ethernet switch? What benefit does it offer?	CO2	L4
7	What is the frequency allocation for satellite with respect to International Telecommunication Union?	CO2	L2
8	Mention the role of photo diode in OFC?	CO3	L4
9	Define burst formatting in GSM.	CO3	L2
10	List the operating frequency ranges of ZigBee and the maximum data rates for each.	CO3	L1
Part-B			
Answer All the following questions. (5X10M=50Marks)		CO	
11	Explain the concept of frequency translation with suitable example. (10)	CO1	L2
OR			
12	A piece of communication equipment has two stages of amplification with gains of 40 and 60 and two loss stages with attenuation factors of 0.03 and 0.075. The output voltage is 2.2V. Find the overall gain (or attenuation) and the input voltage. (10)	CO1	L5
13	A. Explain operation of square law detector with circuit diagram and waveforms. B. Describe the time domain band-pass representation of SSB with necessary sketches. (5+5)	CO1	L3
OR			

14	A. Draw the ASK, FSK and PSK waveforms for digital data 10100110. B. Discuss about the spectra of PWM and PPM signals. (5+5)	CO1	L4
15	A. Describe the operation of an Internet Protocol telephone. B. State the general operation of a cordless telephone. (5+5)	CO2	L2
OR			
16	A. Describe how repeaters, transceivers, hubs, bridges, routers, and gateways are used in LANs. B. Discuss and compare various types of networks. (5+5)	CO2	L4
17	A satellite is orbiting in the equatorial plane with a period from perigee to perigee of 12 hours. Given that the eccentricity is 0.002, calculate the semi-major axis. The earth's equatorial radius is 6378.1414 Km (10)	CO2	L3
OR			
18	Explain how light is propagated through a fiber-optic cable. Name the three basic types of fiber-optic cables and state the two materials from which they are made. (10)	CO2	L2
19	A. Compare and contrast Near end and Far end interferences. B. Briefly discuss different diversity techniques. (5+5)	CO3	L3
OR			
20	Identify the features, benefits, applications, and operation of the wireless technologies WiMAX, and ultrawideband (UWB). (10)	CO3	L3