



R20 Regulation
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A' Grade)

305FA

Subject code: ~~B450E2~~

B.Tech V Semester Supplementary Examinations, June/July 2023

PRINCIPLES OF ELECTRONIC COMMUNICATIONS
(OPEN ELECTIVE)
(INFORMATION TECHNOLOGY)

Maximum Marks: 70

Date: 04.07.2023 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 which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10x2M=20 Marks)

- 1 An amplifier has a gain of 45,000, which is too much for the application. With an input voltage of 20 μ V, what attenuation factor is needed to keep the output voltage from exceeding 100 mV? Let A_1 = amplifier gain = 45,000; A_2 = attenuation factor; A_T = total gain
- 2 Define the term signal to noise ratio.
- 3 Define ASK and PSK
- 4 Write AM equation. Define modulation index, and percentage modulation.
- 5 Describe the modulation and data rate used in Paging system.
- 6 List out Network topologies.
- 7 State the effects on a satellite signal if the angle of elevation is too low.
- 8 what is meant by bandwidth as it applies to fiber-optic cable. What units are used to express bandwidth?
- 9 List the operating frequency ranges of ZigBee and the maximum data rates for each.
- 10 Define personal-area network (PAN) and wireless local area network (WLAN).

Part-B

Answer All the following questions.

(10MX 5=50Marks)

- 11 Draw and describe the various frequency ranges in the electromagnetic spectrum with its applications. [10]
- OR
- 12 A. Power amplifier with a 40-dB gain has an output power of 100 W. What is the input power?
B. Explain the concept of frequency translation with suitable example. [5]
- 13 Explain PCM? Illustrate the PCM transmitter and receiver with a diagram. [10]
- OR
- 14 A. Discuss about the spectra of PWM and PPM signals. [5]
B. Compare the characteristics of AM with FM. [5]
- 15 A. Explain about paging systems. [5]
B. Describe how repeaters, hubs, bridges, routers and gateways are used in LANs. [5]

OR

- 16 A. State the general operation of a cordless telephone. [5]
B. Explain the working of Token ring with neat diagram. [5]
- 17 Explain optical communication system with suitable diagram. [10]
OR
- 18 Explain the block diagram of optical fiber communication system with transmitter and receiver. [10]
- 19 A. Compare and contrast CDMA and WCDMA. [5]
B. Illustrate the working of Bluetooth [5]
OR
- 20 Explain in detail various wireless technologies commonly used in recent days. [10]