

**BACHELOR OF SCIENCE (COMPUTER SCIENCE) (CBCS - 2016 COURSE)**  
**S.Y.B.Sc.(Computer Science) Sem-III : WINTER- 2022**  
**SUBJECT : PRINCIPLES OF COMMUNICATION**

Day : Saturday

Time : 10:00 AM-01:00 PM

Date : 17-12-2022

**W-14885-2022**

Max. Marks : 60

**N.B.:**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the **RIGHT** indicate **FULL** marks
- 3) Draw neat labeled diagrams **WHEREVER** necessary.

**Q.1** Answer **ANY TWO** of the following : **[12]**

- a) Explain Frequency Division Multiplexing. Also explain FDM hierarchy. State advantages and disadvantages of FDM.
- b) Explain QPSK with the help of constellation diagram and waveforms.
- c) Explain amplitude modulation with respect to concept, equation, frequency spectrum and modulation index. Also state advantages and disadvantages of it.

**Q.2** Answer **ANY TWO** of the following : **[12]**

- a) Draw block diagram of communication system. Explain the function of each block.
- b) Explain the concept of Frequency- Shift Keying, Phase-Shift Keying and Amplitude- Shift Keying.
- c) Explain the GSM architecture in brief.

**Q.3** Answer **ANY TWO** of the following : **[12]**

- a) What is asynchronous and synchronous transmission? Explain asynchronous transmission with necessary diagram.
- b) With neat diagram and waveforms explain the concept of Pulse Amplitude Modulation.
- c) i) Explain simplex, half duplex and full duplex communication with one example each.  
ii) State three points of difference between wired and wireless communication.

**Q.4** Answer **ANY THREE** of the following : **[12]**

- a) Define mobile communication. Explain i) Terminal mobility  
ii) Personal mobility iii) service mobility
- b) What is frequency modulation? Explain Centre frequency, frequency deviation and carrier swing
- c) Explain the general block diagram of a cellular telephone unit.
- d) Explain the working of diode demodulator with a neat circuit diagram.

**Q.5** Answer **ANY FOUR** of the following : **[12]**

- a) Define the following i) S/N ratio ii) Baud rate iii) Channel bandwidth
- b) What is FDMA? State any two features of it.
- c) State three points of difference between Amplitude modulation and Frequency modulation
- d) Explain any three applications of electronic communication in brief.
- e) State one example of each : i) RFID ii) ZigBee iii) Bluetooth
- f) State the need of antenna. Also define any two parameters of it.