

# 22622

**22223**

**3 Hours / 70 Marks**

Seat No. 

--	--	--	--	--	--	--	--

---

- Instructions* – (1) All Questions are *Compulsory*.  
(2) Answer each next main Question on a new page.  
(3) Illustrate your answers with neat sketches wherever necessary.  
(4) Figures to the right indicate full marks.  
(5) Assume suitable data, if necessary.  
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

- 1. Attempt any FIVE of the following: **10****
- a) Enlist two applications of personal communication services.
  - b) List the two networks used in Bluetooth technology.
  - c) State any two features of 4G technology.
  - d) List any two applications of WSN.
  - e) State any two limitations of Delta Modulation.
  - f) List any two design challenges in MANET.
  - g) List two advantages of UMTS technology.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) List and explain any four GSM services.
  - b) Draw the architecture and explain the IEEE 802.11 Wireless LANs Services.
    - i) Basic Service Set (BSS)
    - ii) Extended Service Set (ESS)
  - c) List and explain any four specifications of IMT 2000.
  - d) Draw the labeled wireless local loop architecture and list the two functions of each
    - i) WANU
    - ii) WASU
- 3. Attempt any THREE of the following:** **12**
- a) Compare 4G and 5G technologies on the basis of
    - i) Latency
    - ii) Mobility
    - iii) Frequency band
    - iv) Peak data rate
  - b) Define Mobile IP and explain principle of operation with suitable diagram showing home agent and foreign agent.
  - c) Encode the datastream 01001110 using the following techniques
    - i) Unipolar - NRZ
    - ii) Polar - RZ
  - d) Draw the labelled block diagram of sensor node in WSN and define its role in WSN.

- 4. Attempt any THREE of the following:** **12**
- a) Compare W-CDMA and CDMA 2000 on the basis of
    - i) Peak data rate
    - ii) Modes of operation
    - iii) Modulation used
    - iv) Channel bandwidth
  - b) Draw the labeled GPRS network architecture and state the role of SGSN and GGSN in GPRS.
  - c) State and explain any four features of IOT in mobile computing.
  - d) List the types of RFID and state its two applications.
  - e) Describe the energy consumption in WSN and how does WSN reduce energy consumption.
- 5. Attempt any TWO of the following:** **12**
- a) Describe the call processing in GSM using suitable diagram and state how call is connected when sender MS and receiver MS both are present within the same cell.
  - b) Explain the working principle of ASK and FSK with suitable waveforms using the given bit sequence 10110.
  - c) Draw and explain the labeled architecture of UMTS, also state its two applications.
- 6. Attempt any TWO of the following:** **12**
- a) Draw the labeled architecture of GSM and explain the functions of the following entities.
    - i) MSC
    - ii) HLR
  - b) Define MANET, which topology is preferably suitable for MANET? List the four features of MANET.
  - c) Draw the WAP layered architecture and protocol stack and state the functions of any four protocols.
-