# 22622

*Instructions –*   (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answer with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) 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)   Write two services of GSM.

b)   Name IEEE standard for Wi-Fi and Bluetooth.

c)   State two features of IMT 2000.

d)   Write two applications of IOT.

e)   Define the term LEC (Local Exchange Carrier).

f)   Enlist Two types of WSN Architecture.

g)   State two advantages of 5G.

**2.**   **Attempt any THREE of the following:**                                 **12**

a)   Explain any four GSM channel.

b)   Describe function performed by GPRS support nodes.

c)   Explain characteristics of Wireless Markup Language.

d)   Draw ASK and BPSK waveforms for the bit sequence 101101011.

**Marks**

**3. Attempt any THREE of the following:**     **12**

    a) Explain Quality of Service parameters in 3G network.

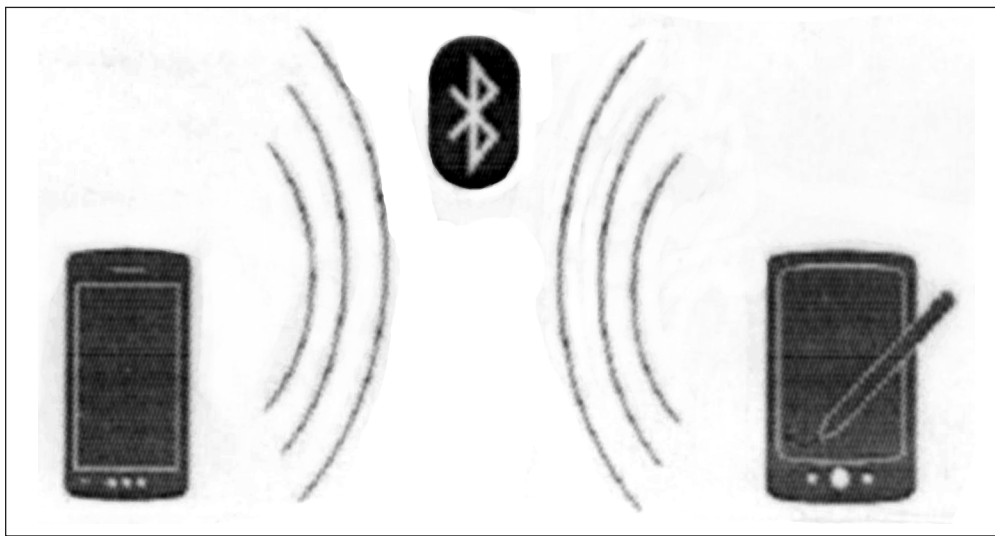    b) Identify technology used in the personal Area Network shown in Figure No. 1 and Explain it.



**Fig. No. 1**

    c) Compare DSSS with FHSS (any four points).

    d) Describe design challenges in MANET (Any four).

**4. Attempt any THREE of the following:**     **12**

    a) Describe WAP protocol with suitable diagram.

    b) Differentiate between Bluetooth and Wi-Fi on the basis of range, Bandwidth, Modulation Technique and number of devices connected.

    c) Explain the energy constraints in sensor nodes in WSN. Name protocol to design energy efficiency in WSN.

    d) State the role of Home agent and foreign agent in. Mobile IP.

    e) Draw MANET topology and explain two applications of MANET.

**Marks**

**5.** **Attempt any TWO of the following:** **12**

    a) Explain Location update procedure for a inter MSC movement in GSM with diagram.

    b) Draw given waveforms for 101001110

        i) Unipolar RZ

        ii) Unipolar NRZ

        iii) Bipolar RZ

        iv) Bipolar NRZ

        v) Alternate Mark Inversion

        vi) Manchester.

    c) Draw and Explain the architecture of UMTS. State its two applications.

**6.** **Attempt any TWO of the following:** **12**

    a) Draw the labeled architecture of GSM and explain the function of the following entities:

        i) MSC

        ii) VLR

    b) Draw and explain ISO equivalent protocol layer architecture of WSN.

    c) Compare the features of 3G and 4G (Any six)

————