

315339

12526

3 Hours / 70 Marks

Seat No.

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- 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) 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) Define :
 - i) Cluster
 - ii) Frequency Reuse
 - b) State the function of HLR, VLR.
 - c) Define MIMO in wireless communication.
 - d) Define network slicing in 5G.
 - e) State any two features of bluetooth technology.
 - f) Explain the function of –
 - i) Base station
 - ii) Mobile switching center in cellular network.
 - g) Draw piconet, scatternet of Bluetooth.

P.T.O.

- 2. Attempt any THREE of the following : 12**
- a) Compare GSM standard with NAMP standard by considering
 - i) Generation
 - ii) Channel bandwidth
 - iii) Analog/digital
 - iv) Data rate
 - b) Explain step by step procedure of a mobile originated call.
 - c) Draw and explain the LTE network architecture with function of each block.
 - d) State the role of SGW and PGW in LTE architecture.
- 3. Attempt any THREE of the following : 12**
- a) Draw and explain microcell zone concept.
 - b) Compare 3G and 4G wireless generation. (Any four points)
 - c) State advantages, disadvantages and application of IEEE802.11a.
 - d) Explain the challenges in 5G spectrum allocation and management in India.
- 4. Attempt any THREE of the following : 12**
- a) Explain beamforming and it's significance in 5G.

b) Name the block diagram shown in Fig. No. 1

- i) Identify the block 'A' and 'B' in the given block diagram.
- ii) State the function of block A and B. (Refer Fig. No. 1)

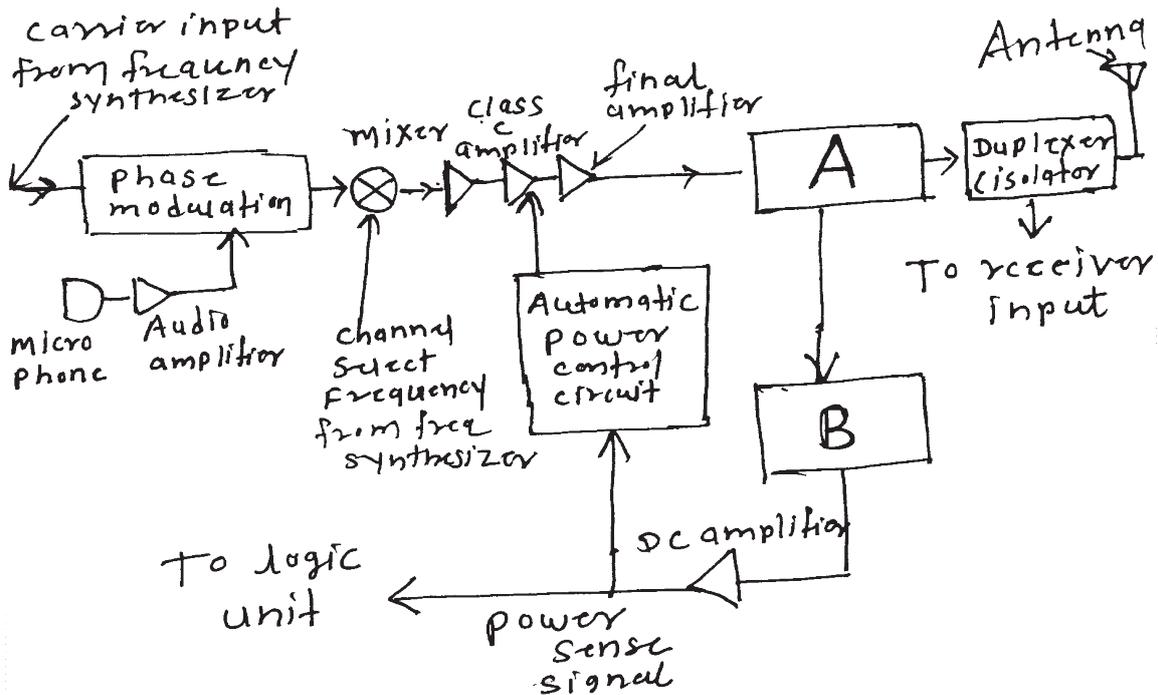


Fig. No. 1

- c) Define adjacent channel interference. State method to reduce adjacent channel interference.
- d) Compare 4G and 5G network on –
 - i) Generation
 - ii) Data speed
 - iii) Network Architecture
 - iv) Type of modulation used
- e) Differentiate between IEEE 802.11a and IEEE 802.11g (Any four)

- 5. Attempt any TWO of the following :** **12**
- a) Draw block diagram of frequency synthesizer and explain each block.
 - b) Draw the architecture of GSM. State the function of network switching.
 - c) Compare 5G spectrum band low, mid, mm wave with their advantages and deployment challenges.
- 6. Attempt any TWO of the following :** **12**
- a) State any 8 radio aspect of GSM.
 - b) Explain IMT 2020 standard with it's three key usage scenarios and technical requirements.
 - c) Explain application of wireless communication for V2V communication.
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