

III B.Tech II Semester Regular Examinations, Apr/May 2007
COMMUNICATION SYSTEMS
(Electronics & Communication Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain how frequency stability is achieved in modern transmitter. [4]
(b) Describe with aid of suitable diagram, the principal method of SSB power generation. [3+5]
(c) Describe the advantages of a SSB system for high frequency point to point communication & explain why it is unsuitable for broadcasting. [2+2]
2. (a) Discuss in detail the various tracking techniques used for receivers. [4]
(b) A Superheterodyne receiver is to tune the range from 4-10 MHz, with an IF of 1.8 MHz. Calculate the range of oscillator frequencies, the range of image frequencies. [6]
(c) Write about image frequency. [2+4]
3. (a) Differentiate between simple, delayed and amplified AGC and explain their action with the help of simple circuits blocks.
(b) Discuss briefly similarities and differences between FM and AM receivers.
(c) Write in detail about the limiter used in FM receiver. [8+4+4]
4. (a) Explain about the concept of stored program control?
(b) Explain about the two approaches to organize stored program control? [8+8]
5. (a) Draw the block diagram for memory controlled time division space switch?
(b) Discuss about combinations switching? [8+8]
6. (a) Write about ionosphere communications?
(b) Write about inchannel signaling? [16]
7. (a) Write about the advantages and disadvantages of geosynchronous satellites?
(b) Explain the protocol architecture of ISDN? [8+8]
8. (a) Write about the modeling of propagation channel in mobile radio environment?
(b) Discuss about multiple accessing techniques? [8+8]

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1. (a) Discuss about long wave, short wave & medium wave radio broadcast transmitter. [4+3+3]
(b) What is amplitude limiters? Where it is used? [2+4]
2. (a) Explain the necessity for AGC in a radio communication.
(b) Discuss the consideration that governs the choice of IF in a receiver.
(c) Explain the operation of superheterodyne receiver. [5+5+6]
3. (a) Differentiate between simple, delayed and amplified AGC and explain their action with the help of simple circuits blocks.
(b) Discuss briefly similarities and differences between FM and AM receivers.
(c) Write in detail about the limiter used in FM receiver. [8+4+4]
4. (a) Write about the classification of switching systems?
(b) What is the need for telecommunication networks and explain about it?[8+8]
5. (a) Draw the block diagram for memory controlled time division space switch?
(b) Discuss about combinations switching? [8+8]
6. (a) Write about transmission loss budget?
(b) Explain the operation of Echo suppressor? [8+8]
7. Write about the following
(a) Information transfer attributes?
(b) Access attributes?
(c) General attributes?
(d) CDMA [16]
8. Write the merits and demerits of the following
(a) Continuous traffic?
(b) Bursty traffic.
(c) SONET [16]

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(b) Describe with aid of suitable diagram, the principal method of SSB power generation. [3+5]
(c) Describe the advantages of a SSB system for high frequency point to point communication & explain why it is unsuitable for broadcasting. [2+2]
2. Write short notes on:
 - (a) Image frequency and its reduction.
 - (b) Fading and diversity reception.
 - (c) Squelch circuit. [6+6+5]
3. What are the causes for fading in radio transmission? Explain in detail. Describe briefly different diversity systems for radio reception to reduce fading. [4+6+6]
4. (a) What is the necessity for integrating different services?
(b) Write about the classification of switching system? [8+8]
5. (a) Obtain blocking probability for a two stage space time switch?
(b) Draw the block diagram for memory controlled time division space switch? [8+8]
6. Explain about the architecture of the SS7? [16]
7. Write about the following:
 - (a) Basic rate access?
 - (b) Primary rate access? [8+8]
8. What is meant by frequency reuse? What are its advantages and disadvantages in mobile radio communications? [4+6+6]

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1. (a) What is BJT Reactance modulator? Explain with circuit diagram.
(b) What is the purpose of 90 degree phase shifter circuit used in wide band Armstrong system
(c) If the output current of a FM broadcast transmitter is 8.5 A without modulation, what is the output current when the percentage modulation is 90. [6+4+6]
2. (a) Explain the principle of a simple Automatic Gain Control (AGC) of super heterodyne AM receiver.
(b) What is the necessity for tracking in radio receivers? Explain briefly the tracking techniques used in radio receivers.
(c) Write about separately excited mixer. [6+4+6]
3. (a) Differentiate between simple, delayed and amplified AGC and explain their action with the help of simple circuits blocks.
(b) Discuss briefly similarities and differences between FM and AM receivers.
(c) Write in detail about the limiter used in FM receiver. [8+4+4]
4. (a) Bring out the differences between centralized SPC and distributed SPC?
(b) Explain about the concept of stored program control? [6+10]
5. Discuss about phased operation and slotted operation in time division time switching? [16]
6. Discuss about transmission plan? [16]
7. Define the following terms
 - (a) Circular orbits
 - (b) Elliptical orbits
 - (c) Sub-synchronous orbits
 - (d) Inclined orbits
 - (e) Equatorial orbit
 - (f) polar orbit
 - (g) Apogee
 - (h) perigee [8x2=16]

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Set No. 4

8. (a) Write about the modeling of propagation channel in mobile radio environment?
(b) Discuss about multiple accessing techniques? [8+8]
