

III B.Tech II Semester Regular Examinations, Apr/May 2006

COMMUNICATION SYSTEMS

(Electronics & Communication Engineering)

Time: 3 hours

Max Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. (a) Explain the operation of FM transmitter and draw the modified diagrams for frequency stability. [6+4]
(b) Explain the classification of radio transmitter according to type of modulation used. [6]
2. (a) Draw the block diagram of a typical AM receiver and describe briefly function of each block. [2+4]
(b) Explain the necessity for
 - i. tone and volume control
 - ii. alignment and tracking in radio receivers. What is meant by spurious response of a receiver? [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) How different telecommunication networks can be integrated?
(b) Explain about the elements of switching systems? [8+8]
5. Discuss about phased operation and slotted operation in time division time switching? [16]
6. (a) Write the functionalities of the following:
 - i. Signalling data link
 - ii. Signalling link
 - iii. Signalling network
 - iv. SCCP
(b) Explain about the methods for deciding the root for a particular connection? [16]
7. (a) Write about network architecture of ISDN?
(b) Discuss about cellular Mobile telephony? [10+6]
8. Explain about cell splitting in mobile radio communications? What are the requirements of cell splitting? Explain about its advantages? [6+6+4]

III B.Tech II Semester Regular Examinations, Apr/May 2006
COMMUNICATION SYSTEMS
(Electronics & Communication Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What is variable capacitor diode modulator? Explain.
(b) What is FET reactance modulator? Explain with circuit diagram.
(c) If the output current of AM transmitter is 6A without modulation, what is the output current when the percentage modulation is 70. [4+6+6]
2. (a) What are the advantages of Superheterodyne receiver as compared to a TRF receiver. [4]
(b) Explain clearly what is meant by image frequency in a superheat receiver and how it can be eliminated. [2+4]
(c) Define conversion transconductance of a mixer. With the help of a typical circuit diagram, explain the working of a separately excited mixer. [2+4]
3. (a) With reference to an AM superheterodyne receiver explain the need for AGC and indicate simple method of obtaining it. What is delayed AGC circuit and in what respects it differs from a simple AGC circuit. [6+2]
(b) Explain the measurement of sensitivity, selectivity and fidelity of receiver. [3+3+2]
4. (a) Write about the three modes of operation in dual processor architecture?
(b) How the functions of control subsystem are divided into levels? [8+8]
5. (a) Write about the design parameters for time division space switch and compare with that of a space division switch?
(b) Explain the principle of time slot interchange (TSI) using an example ? [16]
6. (a) Write about numbering plan?
(b) Discuss about optical fibre Microwave communication? [8+8]
7. Write about the following
(a) Information transfer attributes?
(b) Access attributes?
(c) General attributes?
(d) CDMA [16]
8. (a) Write about the modeling of propagation channel in mobile radio environment?
(b) Discuss about multiple accessing techniques? [8+8]

III B.Tech II Semester Regular Examinations, Apr/May 2006
COMMUNICATION SYSTEMS
(Electronics & Communication Engineering)

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What is variable capacitor diode modulator? Explain.
(b) What is FET reactance modulator? Explain with circuit diagram.
(c) If the output current of AM transmitter is 6A without modulation, what is the output current when the percentage modulation is 70. [4+6+6]
2. (a) Write short notes on:
 - i. Frequency synthesizers
 - ii. Spurious responses in radio receivers(b) Bring out the factors influencing the choice of IF and indicate the values of IF employed in each of the following cases
 - i. AM Broadcast receivers
 - ii. FM Broadcast receiver
 - iii. TV receivers in the VHF and UHF bands. [4+4+3+3+2]
3. Write short notes on: -
 - (a) Fading and Diversity reception [6]
 - (b) Squelch circuit [4]
 - (c) Double conversion and variable selectivity. [3+3]
4. (a) Explain about the switching processor?
(b) Explain about the concept of stored program control? [8+8]
5. (a) Write about the two modes of operation of time division time switching?
(b) Obtain blocking probability for a two stage time space switch? [8+8]
6. (a) Discuss about the signalling techniques used by SSI to SS5 bis?
(b) Describe about subscriber loop systems? [16]
7. (a) Discuss about the motivation for Integrated services digital network (ISDN)?
(b) Write about the advantages and disadvantages of geosynchronous satellites? [10+6]
8. (a) Write about the modeling of propagation channel in mobile radio environment?
(b) Discuss about multiple accessing techniques? [8+8]

III B.Tech II Semester Regular Examinations, Apr/May 2006
COMMUNICATION SYSTEMS
(Electronics & Communication Engineering)

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain the operation of FM transmitter and draw the modified diagrams for frequency stability. [6+4]
(b) Explain the classification of radio transmitter according to type of modulation used. [6]
2. (a) Explain the following special features of communication receiver with circuits wherever necessary:-
 - i. Automatic Gain Control. (AGC)
 - ii. Need of RF section in Superheterodyne Receiver
 - iii. Double Spotting(b) Calculate the image frequency rejection of receiver having an RF amplifier and an IF of 450 KHz if the Qs of the relevant coils are 60 each at an incoming frequency of 1100 KHz. [4+2+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) Write about the design parameters of switching system?
(b) How the functions of control subsystem are divided into levels? [8+8]
5. Write about phased operation in controlling sequential write / random read, random write/ sequential read? [16]
6. Explain about the architecture of the SS7? [16]
7. (a) Draw the block diagram for satellite downlink and explain?
(b) Explain the protocol architecture of ISDN? [8+8]
8. (a) Discuss about interactive services in B-ISDN?
(b) Explain about SONET system? [8+8]
