

Total number of printed pages – 4

B. Tech
PEEC 5411

Eighth Semester Examination – 2008
ADVANCE COMMUNICATION SYSTEMS

Full Marks – 70

Time : 3 Hours

Answer Question No. 1 which is compulsory
and any **five** from the rest.

The figures in the right-hand margin
indicate marks.

Provide suitable illustrations
wherever necessary.

1. Answer the following in brief : 2×10
- (a) What is ATM ? What is its role in data communication ?
- (b) How sampling of an analog signal helps to achieve TDM ? What is sampling interval for toll quality speech ?

P.T.O.

- (c) Give the spectrum of any line code that you familiar with.
- (d) What is a combo chip ?
- ✓(e) What is cellular about digital cellular phone ?
- (f) Is a pure binary data system suitable as line code ? Why ?
- ✓(g) Name any speech coding technique. What is its objective ?
- (h) What is the objective of a CDMA system ? How it is done ?
- ✓(i) What is the role of diversity in a microwave system ? Name any two diversity method.
- ✓(j) What is the basic ISDN data rate ? How is it grouped ?
- ✓ 2. (a) Describe the accessories required for setting a LAN. What is a typical protocol used for data transfer ? 6

- (b) Discuss a synchronous data link protocol. What is synchronous about it ? 4
- ✓ 3. (a) Discuss the T carrier system. How the frame rate is decided ? 7
- (b) What is the digital carrier frame synchronization ? Why is it necessary ? 3
- ✓ 4. (a) Describe any speech coding technique that you have studied. Draw neat sketch to illustrate your answer. 5
- (b) How digital modulation is different from analog modulation ? Discuss any digital modulation scheme by giving its spectrum. 5
5. (a) Explain how TDMA works in a satellite communication system. Draw neat diagram. 6
- (b) Discuss the log characteristics of microwave radio. What does it mean ? 4
- ✓ 6. (a) Compare CDMA and FDMA from five points of view. 5

(b) Discuss the voice channel of a GSM system. 5

✓ 7. (a) Enumerate the essential components of a satellite communication system. Explain the function of each component. 7

(b) What is the purpose of a repeater station? 3

✓ 8. (a) What is LOS characteristics of microwave radio? What is its significance and in which frequency range you obtain it? 4

(b) Discuss CCITT X.25 protocol. What type of protocol is this? What is its importance? 6