(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2492 Roll No. | | | | | | | | | | |

B. Tech.

(SEM. VI) THEORY EXAMINATION 2011-12

ANALOG & DIGITAL COMMUNICATION

Time : 3 Hours *Total Marks : 100*

Note : Attempt ***all*** questions. All questions carry equal marks.

1. Attempt any ***four*** parts : **(4×5=20)**

   (a) With the help of block diagram explain the working of communication system.

   (b) What is the need of modulation of signal before transmitting it to distant place ?

   (c) Explain how DSB-SC demodulator works.

   (d) With the support of mathematical expressions explain the working of balanced modulator.

   (e) An amplitude modulated signal is given by :

   $V(t) = 10\cos(2\pi\times10^8t) + 5\cos(2\pi\times10^8t)\cdot\cos(2\pi\times10^3t) + 2\cos(2\pi\times10^8t)\cdot\cos(4\pi\times10^8t)$

   Find the net modulation index.

   (f) Write a short note on super heterodyne receiver.

2. Attempt any ***four*** parts : **(4×5=20)**

   (a) Relate phase and frequency modulation.

   (b) Illustrate the principle of Armstrong method of generating FM.

(c) With the help of block diagram explain working of FM demodulator.

(d) Write a short note on noise.

(e) Explain signal to noise ratio and its importance in brief.

(f) Write short note on transmission bandwidth of FM signals.

3. Attempt any *two* parts : **(2×10=20)**

(a) Draw the block diagram of pulse width modulation and explain its working.

(b) What is sampling theorem ? What is the relevance of Discrete Fourier Transform in relation to Nyquist criterion ?

(c) Explain the working of Delta modulation. How Adaptive Delta Modulation improves the performance of Delta Modulation ?

4. Attempt any *two* parts : **(2×10=20)**

(a) What is pulse code modulation ? Using suitable diagram explain the quantization of signals.

(b) Write short notes on ASK, FSK and PSK.

(c) Explain TDM and discuss synchronization techniques.

5. Attempt any *two* parts : **(2×10=20)**

(a) What is information ? How information is measured ? Discuss in brief.

(b) Write a short note on Shannon-Fano Coding.

(c) Explain information rate, channel capacity. Explain Huffman coding in brief.