

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2005.

Fourth Semester

Electrical and Electronics Engineering

EC 256 – COMMUNICATION ENGINEERING

(Common to : Electronics and Instrumentation Engineering and Instrumentation and Control Engineering)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List any two advantages and disadvantages of geosynchronous satellite.
2. Distinguish AM and FM.
3. What is the principle of ADM?
4. Consider an audio signal $e_m(t) = 2 \cos(1000\pi t)$ Find the signal to quantization noise ratio when the signal is quantized using 8 bit pcm.
5. What is an optimum filter?
6. Why binary ASK is called as on-off keying?
7. What is the need for multiplexing? Mention the different types of multiplexing techniques.
8. Distinguish LASER and LED sources.
9. What is the significance of composite video signal in TV? Draw the schematic of composite video signal.
10. Mention the type of modulation used for picture and sound signal in TV system. What is the difference in frequency between the picture carrier and sound carrier?

PART B — (5 × 16 = 80 marks)

11. (i) Discuss about image scanning. (6)
- (ii) Briefly explain the synchronization of video signal. (5)
- (iii) Compare the performance of different types of camera tubes. (5)

12. (a) Discuss the principle of satellite communication with diagram.

Or

(b) (i) The carrier frequency of a broad cast signal is 50 MHz. The maximum frequency deviation is 60 KHZ. If the higher audio frequency modulating the carrier is limited to 15 KHZ. What is the bandwidth. (6)

(ii) With the help of a neat block diagram, explain an FM receiver. (10)

13. (a) (i) State and prove sampling theorem for low pass signals. (10)

(ii) How do you get PPM from PDM? (6)

Or

(b) With a neat block diagram explain the principle of operation of DPCM. How does it differ from DM. (10)

14. (a) (i) With a block diagram, explain the bare band BPAM system. (10)

(ii) What is ISI? Explain. Discuss about the possible solutions of this ISI. (6)

Or

(b) (i) What is a matched filter? Derive the impulse response of the matched filter in the presence of white noise. (10)

(ii) What are the properties of matched filter. (6)

15. (a) What is time division multiplexing TDM? Explain with waveform. What are the advantages and limitations of TDM?

Or

(b) (i) With circuit diagram explain the principle of operation of fiber optic communication system. (10)

(ii) Compare single mode and multimode fibers. (6)