Dec 13 (kuk)

Roll No. ..... Total Pages : 03

BT-7/D-13 **8709**

TELEVISION ENGINEERING

ECE-403-E

Time : Three Hours] [Maximum Marks : 100

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Explain the interlaced scanning. How does interlaced scanning help reduce the bandwidth of the video signal ? **10**

(b) Define and explain the following terms : **10**

(i) Pre-emphasis and de-emphasis

(ii) Intercarrier sound signal.

2. (a) A television standard has 819 scan lines and picture scan rate of 50 Hz with 2 : 1 interlace. Assuming 15% as blanking time, find the bandwidth requriements of the system. Also derive the formula used. **10**

(b) What is Vestigial sideband transission and why is it used for transmission of TV picture signal ? 10

Unit II

3. By giving suitable diagrams, compare the construction and characteristics of the Image orthicon and Vidicon camera tubes. Explain, how video signal is developed in these tubes. 20

4. (a) Describe the structure of a Yagi-Uda antenna and explain its working. 8

   (b) Draw the block diagram of a monochrome television receiver and explain the working of each section in detail. 12

Unit III

5. (a) Show how it is enough to send two color difference signals only along with the luma signal to obtain the three primary colors. 10

   (b) Explain how synchronous demodulation is used to derive the chroma components from quadrature modulated color subcarriers. 10

6. (a) Compare the performance and the complexity of the NTSC, PAL and SECAM system. 10

   (b) With the help of suitable diagrams, explain the working principles of delta gun color picture tube. 10

Unit IV

7. (a) With the help of suitable block diagram, explain the working of HDTV. 10

   (b) What are the requirements for digitization of video signal as regards the quantization and bit rate ? Compute the minimum bit rate for the 625/50 PAL system. Describe the method of bit rate reduction. 10

8. Explain the following : 10+10

   (a) Applications of CCTV

   (b) Camcorders.