Roll No. ..... Total Pages : 2

BT-7/D09 **8927**

TELEVISION ENGINEERING

Paper : ECR-403(E)

Time : Three Hours] [Maximum Marks : 100

Note : Attempt *five* questions in all, selecting at least *one* question from each unit.

UNIT–I

1. (a) Explain Interlaced scanning. Why is an odd number of lines used for scanning ? 10

(b) How does interlaced scanning help reduce the bandwidth of the video signal ? Deduce relation between the video signal bandwidth, scan lines and scan rate used in television system. 10

2. (a) Draw the waveform at the end of one of the vertical fields, showing a horizontal and a vertical blanking pulse. Indicate the duration and relative amplitudes of the two pulses, and explain their functions. 10

(b) With the help of a diagram, explain the function of the serrations in the vertical sync. pulse. 10

UNIT–II

3. 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

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4. (a) Describe the structure of a Yagi-Uda antenna, and explain its working. 12

(b) Draw the block diagram of a monochrome television receiver, and explain the working of each section in detail. 8

UNIT–III

5. (a) Explain how by frequency interleaving, the colour information is accommodated within the same channel bandwidth of 7 MHz. 10

(b) Explain what is meant by the Y, I and Q signals in colour TV, and why they are generated. 10

6. (a) Explain with a suitable block diagram, the encoding process in the PAL colour system. 10

(b) With the help of suitable diagrams, explain the working principle of Trinitron colour 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 qantization and bit rate ? Compute the mnimum bit rate for the 625/50 PAL system. Describe the method of bit rate reduction. 10

8. Explain the following :

(a) Applications of CCTV.

(b) Camcorders. 10+10