BIELE-001

B.Tech. – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

Term-End Examination

00504

June, 2017

BIELE-001 : TELEVISION ENGINEERING

Time : 3 hours   *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks. Assume missing data suitably, if any. Use of scientific calculator is allowed.*

1. (a) What is interlaced scanning ? Show that it reduces flicker and conserves bandwidth. **5**

   (b) Explain briefly about image continuity. **5**

2. With a neat diagram, explain the working of a CCD camera. State its advantages. **10**

3. What are the essential functions assigned to the IF section of the receiver ? Show the frequency response of output voltage of the IF section. Also explain how a VSB connection is carried out. **10**

4. Explain the detection methods of a composite video signal. How is the polarity of the video output signal decided ? **10**

5. Give the block diagram of PAL-D encoder and decoder. Compare its performance with an NTSC system. *10*

6. Explain the following terms : *5×2=10*

(a)   Chrominance signal

(b)   Q & I signals in NTSC

(c)   U & V signals in PAL

(d)   Colour burst

(e)   Frequency interleaving

7. Explain how the RF signal is scrambled to make it intelligible on the receiver screen. Describe with a functional block diagram, how the process is reversed when the CATV operator sends a descrambling signal on the channel. *10*

8. Draw a simplified schematic block diagram of a digital broadcast receiver-decoder and describe how it functions to produce digital video and audio signals. *10*

9. (a)   A cable channel has an upper frequency band limit of 222 MHz. What is the frequency of the local oscillator, when the channel is tuned ? *3*

(b)   Describe the merits of digital TV receivers that are not achievable in analog receivers. *7*

10. For a superheterodyne receiver having no RF amplifier, the loaded Q of the antenna coupling circuit is 100. The intermediate frequency is 455 kHz. The superheterodyne receiver is to be improved for high frequency reception, so that its image rejection at 25 MHz is as good as it was at 1100 kHz. Find

(a) the loaded Q which is required for RF amplifier, and

(b) the new intermediate frequency that will be necessary in the absence of RF amplifier. *10*