Code No: RR421703 **Set No. 1**

IV B.Tech II Semester Regular Examinations, Apr/May 2006
TV ENGINEERING
(Electronics & Telematics)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What do understand by interlaced scanning? Show that it reduces flicker and conserve s bandwidth.
   (b) Draw a picture frame chart showing the total number of active and inactive lines during each field and establish the need for terminating the first field in half line and the beginning the second at the middle of a line at the top.[8+8]
2. (a) What do you understand by active and blanking periods in horizontal and vertical scanning? Give the periods of nominal, active and retraced intervals of horizontal and vertical scanning as used in the 625 line system.
   (b) Discuss about equalising pulses. [8+8]
3. (a) What are the main characteristics of a Television camera tube.
   (b) List different types of camera tubes along with their applications. [8+8]
4. (a) Give the block diagram of high level modulated T.V. transmitter. Explain the various differences between high level and low level modulation.
   (b) Explain how Diplexer works. Give its construction details [10+6].
5. (a) Explain the basic operation of Diode detection with suitable circuit. diagram and waveforms, also discuss the choice of RL , C and diode of the circuit.
   (b) Explain the following with circuit diagram and response curve
      i. Series trap circuit.
      ii. Parallel trap circuit. [8+8]
6. (a) What is AFC in sync separator circuit? What are the methods to implement AFC?
   (b) Draw the basic block structure of AFC and explain how control voltage is developed. [8+8]
7. (a) Why is the (G-Y) difference signal not chosen for transmission ? Explain how it is obtained in the receiver for modulating the corresponding beam of the picture tube.
   (b) What are the common faults encountered in color picture tubes? [10+6]
8. (a) List the basic characterstics of CCIR-B-PAL colour system.
   (b) Draw the block diagram of a PAL encoder, and explain its working. [8+8]

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Code No: RR421703 **Set No. 2**

IV B.Tech II Semester Regular Examinations, Apr/May 2006
TV ENGINEERING
(Electronics & Telematics)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Define aspect ratio, contrast, brightness and resolution.
   (b) How is flicker eliminated by using interlaced scanning?
   (c) Derive the video bandwidth requirement for 625 line system. [4+6+6]
2. (a) Justify the need for a blanking period of 20 lines after each active field of scanning. Why does the vertical retrace not begin with the incoming of the first serrated vertical sync pulse?
   (b) How is the illusion of continuity created in television pictures? Why has the frame reception rate been chosen to be 25 and not 24 as in motion pictures?

   [8+8]
3. (a) Explain fully how a vidicon camera tube develops the video signal.
   (b) Draw the light transfer characteristics of such a tube.
   (c) Explain what do you understand by dark current that flows in the load resistance. [6+5+5]
4. Draw the block diagram of an IF modulated TV transmitter and briefly explain the operation. [16]
5. Draw and explain the various functional blocks of TV receiver. [16]
6. Draw the circuit diagram of keyed AGC system employing transistor and having noise gate. Explain how AGC voltage is developed and amplified. [16]
7. (a) Explain the main characteristics of the human eye with respect to the perception of colors.
   (b) What is Y signal ? How it is composed ? What are the two major components of the total color signals?
   (c) Why different bandwidths are assigned to Q and I signals? [6+5+5]
8. (a) What is the significance of Y signal in color transmission and reception ?
   (b) List the main characteristics of an NTSC colour system.
   (c) Give the block diagram and explain the working of NTSC decoder. [5+5+6]

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Code No: RR421703 **Set No. 3**

IV B.Tech II Semester Regular Examinations, Apr/May 2006
TV ENGINEERING
(Electronics & Telematics)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Define aspect ratio, contrast, brightness and resolution.
   (b) How is flicker eliminated by using interlaced scanning?
   (c) Derive the video bandwidth requirement for 625 line system. [4+6+6]

2. Sketch the details of horizontal blanking and sync pulses, Label on it:
   (a) Front porch
   (b) Horizontal sync pulse
   (c) Back porch and
   (d) Active line periods.

   Why are front porch and back porch intervals provided before and after horizontal sync pulse? Explain why the blanking are not used as sync pulse. [6+5+5]

3. (a) Explain important characteristics and properties of various lenses used in TV cameras.
   (b) Explain briefly about image multiplication and signal multiplication in an Image orthicon camera tube. [8+8]

4. (a) Draw the block diagram of high level modulation transmitter and explain the function of each block.
   (b) What is IF modulation? Explain the criteria of selection of IF frequency.[8+8]

5. (a) Explain in detail how various parameters can be controlled in the horizontal amplifier circuit.
   (b) Describe with suitable diagram and waveform how trapezoidal waveform is generated. [8+8]

6. (a) Why deflection oscillator is necessary in sync processing unit? What are the types of oscillators?
   (b) Why is trapezoidal waveform necessary to obtain vertical deflection? Explain the operation of typical circuit to generate the wave form. [8+8]

7. (a) The requirement of y-signal in color transmission
   Prove that (G -Y) = -0.51 (R-Y) - 0.19(B -Y).
   (b) Explain the method used for production of the color difference signal. [8+8]

8. (a) Explain the functioning of a synchronous demodulator for different condition of
U signal.
   (b) Explain the function of Color killer circuit in the path of chrominance signal in the receiver. [8+8]

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Code No: RR421703 **Set No. 4**

IV B.Tech II Semester Regular Examinations, Apr/May 2006
TV ENGINEERING
(Electronics & Telematics)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Define aspect ratio, contrast, brightness and resolution.
   (b) How is flicker eliminated by using interlaced scanning?
   (c) Derive the video bandwidth requirement for 625 line system. [4+6+6]
2. (a) What do you understand by active and blanking periods in horizontal and vertical scanning? Give the periods of nominal, active and retraced intervals of horizontal and vertical scanning as used in the 625 line system.
   (b) Discuss about equalising pulses. [8+8]
3. (a) What is meant by the resolving power of a camera tube? How is it specified?
   (b) What is meant by the gamma of a camera tube? Explain how the gamma of the camera tube, the camera signal chain and the picture tube are matched to give a overall faithful reproduction of the picture. [6+10]
4. Draw the block diagram of an IF modulated TV transmitter and briefly explain the operation. [16]
5. (a) Explain the various factors affecting the design of Tuner section.
   (b) Explain in detail why RF amplifier and Mixer are used in VHF tuner and explain the response curves. [8+8]
6. Draw the circuit diagram of keyed AGC system employing transistor and having noise gate. Explain how AGC voltage is developed and amplified. [16]
7. (a) In each case name the two colors which may produce the following :
      i. Yellow
      ii. Magenta
      iii. Cyan
      iv. Orange
   (b) Explain the constructional details and working of the Precision - in - line (PIL) picture tube. [8+8]
8. (a) Explain the functioning of a synchronous demodulator for different condition of
      U signal.
   (b) Explain the function of Color killer circuit in the path of chrominance signal in the receiver. [8+8]

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