SET-1

Code No: 37120

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

R05 IV B.Tech. I Semester Supplementary Exams, May/June – 2009

TELEVISION ENGINEERING

(Electronics and Communications Engineering)

Time: 3 hours Max. Marks.80

Answer any Five questions

All questions carry equal marks

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1. a. What is flicker? Explain how it can be eliminated in interlaced scanning.
   b. What is compatibility in TV transmission? Enumerate essential quarrymen's that make a colour system fully compatible with monochrome system. [10+6]

2. a. Explain vestigial sideband transmission used in television.
   b. Discuss the merits and demerits of positive and negative modulation and justify the choice of negative modulation in most TV systems. [10+6]

3. a. Explain how Y and colour difference signals are developed from R,G,B signals.
   b. Explain colour television camera system with block diagram. [8+8]

4. a. Sketch the cross-sectional view of Monochrome picture tube and explain.
   b. Briefly Explain 625-B Monochrome TV standards. [10+6]

5. Draw the block diagram of Monochrome TV receiver and explain in detail. [16]

6. a. Draw the block diagram VHF tuner of TV receiver and explain.
   b. Explain how channel selection is done with electronic tuning using varacter diodes. [8+8]

7. Explain PAL- D decoder with block diagram. [16]

8. a. Explain separation of vertical and horizontal sync pulses in TV receiver with circuit diagram.
   b. Draw the AFC circuit and explain its operation. [8+8]

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SET-2

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TELEVISION ENGINEERING

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Time: 3 hours Max. Marks.80

Answer any Five questions

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1. a. What is meant by equal vertical and horizontal resolution? Derive the expression for highest modulating frequency in a television system and show that it is nearly 5 MHz in 625-B monochrome system.
   b. Explain the terms:
   i) primary colours
   ii) complementary colours
   iii)additive colour mixing. [10+6]

2. a. What is ghost image? What causes it to appear on the TV receiver screen along with reproduced signal.
   b. Why the FM is chosen for transmission of sound signal in TV system? Why are pre-emphasis and de-emphasis circuits are provided at transmitter and receiver respectively? [8+8]

3. Explain with suitable sketches the basic principle of solid state image scanner camera and describe how CCD array is scanned to provide interlaced scanning. [16]

4. Describe with suitable diagram the gun arrangement and constructional details of Delta-gun colour picture tube. [16]

5. a. Draw the block diagram of RF tuner(front end) and explain how incoming signals from different stations are translated to common picture IF and sound IF.
   b. Explain the factors that influence the choice of intermediate frequencies in TV receivers. [8+8]

6. a. Explain the sound take- off circuit in monochrome TV receiver.
   b. Explain Foster-seely discriminator for FM sound detector. [8+8]

7. a. Explain the delay line method of separating U and V signals in PAL receiver.
   b. What is the function of colour killer circuit in the path of chrominance signal in colour TV receiver. [10+6]

8. a. Explain the method of generating horz and vertical deflection currents in TV receiver.
   b. Explain Digital TV receiver. [8+8]

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SET-3

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TELEVISION ENGINEERING

(Electronics and Communications Engineering)

Time: 3 hours Max. Marks.80

Answer any Five questions

All questions carry equal marks

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1. a. Sketch the composite video signal for three successive lines and indicate i) extreme white level ii) blanking level iii) pedestal height iv) sync pulse level and explain.
   b. Explain the following colour characteristics. i) Hue ii) Saturation iii) Luminance iv) Chrominance. [8+8]

2. a. Explain TV transmitting Antennas.
   b. Explain briefly vestigial sideband transmission used in television. [10+6]

3. Explain silicon diode array Vidicon camera tube with neat diagram. How it differs from Vidicon camera tube. [16]

4. Describe with suitable diagram the constructional details of P.I.L colour picture tube. [16]

5. Explain PAL-D colour TV receiver with neat block diagram [16]

6. a. Explain the sound take- off circuit in monochrome TV receiver.
   b. Explain Foster-seely discriminator for FM sound detector. [8+8]

7. a. Explain the delay line method of separating U and V signals in PAL receiver.
   b. What is the function of colour killer circuit in the path of chrominance signal in colour TV receiver. [8+8]

8. a. Explain Yagi-Uda Antenna of TV receiver.
   b. Explain Direct to Home Satellite TV system. [16]

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SET-4

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R05 IV B.Tech. I Semester Supplementary Exams, May/June – 2009

TELEVISION ENGINEERING

(Electronics and Communications Engineering)

Time: 3 hours Max. Marks.80

Answer any Five questions

All questions carry equal marks

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1. a. Sketch the Vertical Sync details of composite video signal and explain. (10)
   b. Explain how Y and colour difference signals are developed from R,G,B signals. (6)

2. a. Explain briefly vestigial sideband transmission used in television. (6)
   b. Explain TV transmitting Antennas. (10)

3. Draw the cross sectional view of Vidicon camera tube and explain in detail. (16)

4. a. Sketch the cross-sectional view of Monochrome picture tube and explain. (10)
   b. Briefly explain 625-B Monochrome TV standards. (6)

5. a. Explain the separation of U and V colour phasors in PAL-D colour receiver. (8)
   b. With circuit diagram explain sub carrier generation in PAL-D colour receiver. (8)

6. a. Enumerate design requirements of IF section of TV receiver. (8)
   b. Explain the IF section of TV receiver with block diagram. (8)

7. a. Explain the delay line method of separating U and V signals in PAL receiver. (10)
   b. What is the function of colour killer circuit in the path of chrominance signal in colour TV receiver. (6)

8. a. Explain the method of generating horz and vertical deflection currents in TV receiver . (8)
   b. Explain Yagi-Uda Antenna of TV receiver . (8)

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