Code No: **R4204A** **R10** **Set No. 1**

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2016

TELEVISION ENGINEERING

(Electronics and Communication Engineering)

Time: 3 hours **Max. Marks: 75**

Answer any FIVE Questions

All Questions carry equal marks

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1 a) Write short notes on:
i) Aspect Ratio ii) Kell factor
iii) Persistence of vision iv) Resolution [8]

b) Explain the operation of a PAL encoder with a neat block diagram. [7]

2 a) With a neat block diagram, explain the working of a TV transmitter in detail. [8]

b) Explain vestigial sideband transmission used in television. [7]

3 a) Explain vidicon camera tube working principle with its cross-sectional view. [8]

b) What is the basic principle of a camera pick-up tube and describe the two photo electric effects used for converting variations of light intensity into electrical signals. [7]

4 a) Discuss the transfer characteristics of a picture tube. [8]

b) What are the characteristics of 525 line American black and white TV system? Compare it with 625 line monochrome TV system. [7]

5 a) Explain the functioning of IF subsystem in monochrome TV receiver. [8]

b) Discuss the briefly about sync separation and processing in monochrome television receiver. [7]

6 a) Describe the methods for noise cancellation in TV receiver. [8]

b) Explain the operation of remote control infrared receiver and draw its schematic diagram. [7]

7 a) Explain the block diagram of PAL-D decoder. [8]

b) Explain briefly the operation of colour killer circuit. [7]

8 a) What is digital terrestrial TV? State its advantages and disadvantages. [8]

b) Write short notes on UHF antennas. [7]

Code No: **R4204A** **R10** **Set No. 2**

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2016

TELEVISION ENGINEERING

(Electronics and Communication Engineering)

Time: 3 hours **Max. Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks
*****

1 a) With a neat block diagram explain the operation of basic TV Transmitter. [8]
b) Explain the importance of interlaced scanning with a neat diagram. [7]

2 a) Discuss the positive and negative modulation and justify the choice of negatives modulation in most TV systems. [8]
b) What is the range of propagation of TV signals? What are the different parameters that affect the range? [7]

3 a) Explain silicon diode array vidicon camera tube with neat diagram. [8]
b) State and briefly explain about characteristics of picture tube? [7]

4 a) Explain how the electron beam is focused using electrostatic focusing in a picture tube. [8]
b) Explain 625-B monochrome TV standards briefly. [7]

5 a) Explain the block diagram of video amplifier in black and white receiver. [7]
b) Draw the block diagram of the sound section of a monochrome TV receiver and explain the functions preformed by each block. [8]

6 a) Explain how accuracy is achieved and maintained by using digital tuning of electronic tuners with block diagram. [8]
b) Draw the block diagram of VHF tuner of TV receiver and explain. [7]

7 a) Explain ACC amplifier working with its circuit. [8]
b) Explain the operation of burst phase discriminator circuit in detail. [7]

8 a) Explain direct to home satellite TV system. [8]
b) Describe briefly the merits of digital TV receiver over analog receiver. [7]

Code No: **R4204A** **R10** **Set No. 3**

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2016

TELEVISION ENGINEERING

(Electronics and Communication Engineering)

Time: 3 hours **Max. Marks: 75**

Answer any FIVE Questions

All Questions carry equal marks

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1 a) Draw the neat sketch of composite video signal for there successive lines and explain each and every point of the signal. [8]

b) Explain how luminance and colour difference signals developed from R, G and B signals. [7]

2 a) Why the FM is preferred for transmission sound signal in TV system? Why necessary pre-emphasis and de-emphasis circuits in the transmitter and receiver respectively. [8]

b) What are the sources of interference in TV reception? Discuss the technique employed to eliminate such interference in fringe areas. [7]

3 a) Differentiate between a monochrome and colour TV camera tubes. [8]

b) Explain with suitable sketches the basic principle of a solid state image scanner camera and describe briefly in which manner the CCD array is scanned to provide interlaced scanning. [7]

4 a) Explain the monochrome picture tube working with a neat sketch. [8]

b) Explain the principle of operation of a PIL colour picture tube with a neat sketch. [7]

5 a) Draw the block diagram of RF tuner and explain its working. [8]

b) How can you separate the U and V colour phasors in TV receiver. [7]

6 a) What are the functions performed by a TV receiver tuner? [7]

b) Draw the block diagram of UHF tuner and explain the functions of each block. [8]

7 a) Explain how (G-Y) signal is obtained from the U and V demodulated signals. [7]

b) Explain the function of following :

i) Crystal controlled reference oscillator (RO). ii) 180^{o} PAL switch. [8]

8 a) Explain the single ended AFC circuit with a neat circuit diagram. [8]

b) Write short notes on parabolic reflector antenna. [7]

Code No: **R4204A** **R10** **Set No. 4**

IV B.Tech II Semester Regular/Supplementary Examinations, April/May - 2016

TELEVISION ENGINEERING

(Electronics and Communication Engineering)

Time: 3 hours **Max. Marks: 75**

Answer any FIVE Questions

All Questions carry equal marks

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1 a) Explain the necessity of the vertical sync of monochrome signal with relevant figures. [7]

b) Write about:

i) Perception of brightness and colours.

ii) Primary and Complementary colours.

iii) Additive colour mixing. [8]

2 a) Explain how picture carrier and sound carrier are accommodated in total channel bandwidth. [8]

b) What are the requirements for TV broadcasting antenna? Give some examples. [7]

3 a) What are the different types of camera tubes used for TV and compare them in detail. [8]

b) Write about the various problems in vidicon camera tube and their remedies. [7]

4 a) Explain the NTSC colour system. [8]

b) Describe the gun arrangement and constructional details of delta-gun colour picture tube with a neat sketch. [7]

5 a) Draw a block diagram of PAL-D decoder and explain the functions performed by each block. [8]

b) Explain the operation of raster circuits. [7]

6 a) Explain the requirements of AGC circuit and what is the purpose of delayed AGC. [8]

b) Explain the block diagram of digital FM detector. [7]

7 a) Explain the working of R, G, B Matrixes and derive amplifier. [8]

b) Explain the working of a sub carrier reference oscillator with a neat circuit diagram. [7]

8 a) Explain Yagi-Uda antenna of TV receiver. [8]

b) Explain digital TV receiver. [7]