17441

21314

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory*.

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. a) **Attempt any <u>SIX</u> of the following:** **12**

i) Define aspect ratio

ii) What is colour burst signal? Why is it present in the back porch?

iii) Draw the diagram of CCD camera?

iv) Draw visible light spectrum.

v) State one application of additive and subtractive mixing.

vi) How much is the bandwidth required for transmission of colour signal? Why?

vii) How is differential phase error removed in PAL system?

viii) What is the role of vertical and horizontal blanking pulses?

Marks

b) **Attempt any <u>TWO</u> of the following:** **8**

i) Describe the interlace scanning with diagram. State its advantages.

ii) Describe the operation of vidicon camera tube.

iii) State the specifications of PAL burst signal and state the selection of exact PAL colour sub-carrier frequency.

2. Attempt any <u>FOUR</u> of the following: **16**

a) Define horizontal and vertical resolution. Calculate horizontal and vertical resolution for 625 line system.

b) Draw labelled diagram of horizontal sync. details. Explain the function of front porch and back porch.

c) Why FM is used in sound signal and AM used in picture signal?

d) Define hue and saturation. State Grassman's law for colour mixing.

e) State the advantages of PAL system.

f) State the features of high defination transmission.

3. Attempt any <u>FOUR</u> of the following: **16**

a) Describe VSB transmission with diagram.

b) Compare positive and negative modulation.

c) Explain persistance of vision. Describe how motion picture is created.

d) Draw the block diagram of digital T.V. transmission and explain describe its working.

e) Draw the block diagram of PAL and describe function of each section.

f) State two advantages and two disadvantages of digital T.V. transmission.

Marks

4. Attempt any <u>FOUR</u> of the following: **16**

a) Why does all the T.V. system have odd number of lines?

b) Describe the use of pre and post equalizing pulses.

c) Describe the operation of colour camera tube with diagram.

d) Describe frequency interleaving used in T.V. system.

e) Describe the generation of colour difference signal with the help of block diagram.

f) Draw labelled diagram for CCVS and explain.

5. Attempt any <u>FOUR</u> of the following: **16**

a) What is compatibility of colour signal? State the factors to be considered for compatibility.

b) State CCIR-B standards for colour signal.

c) State the different channel allocation with frequency band for Band I and Band III.

d) Draw the block diagram of monochrome T.V. transmitter and describe the function of each block.

e) Explain why (G-Y) signal is not transmitted for colour signal transmission.

f) Draw the labelled waveform of vertical sync pulse. Why is the vertical sync pulse serrated?

Marks

6. Attempt any <u>FOUR</u> of the following: **16**

a) Describe the function PAL encoder and state the function of each block.

b) Draw the block diagram of HDTV transmitter and describe its working.

c) State the characteristics of digital transmission.

d) Explain suppressed colour sub-carrier transmission in T.V.

e) Explain phasor diagram for weighted and unweighted primary and secondary colours.

f) Draw human eye response to different colours.