17441

16117

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 SIX of the following:** **12**

(i) Define

1) Aspect ratio

2) Vertical resolution

(ii) State the concept of persistence of vision.

(iii) State the front porch and back porch period.

(iv) State Grassman's law.

(v) State the function of

1) Blanking pulse and

2) D.C. level in C.V.S.

(vi) Draw visible light spectrum.

(vii) Why is FM preferred for sound and AM for video signal transmission in TV?

(viii) Describe the colour burst. Describe its significance?

P.T.O.

Marks

b) **Attempt any TWO of the following:** **08**

(i) Draw and explain VSB transmission in TV.

(ii) Give TV channel allocation in Band I and III

(iii) Draw the block diagram of colour TV camera tube and describe its function.

2. Attempt any FOUR of the following: **16**

a) Describe the term flicker. How is it eliminated?

b) Draw labelled sketch of composite video signal.

c) Describe the operation of CCD camera tube with the help of diagram.

d) State the different factors influencing the choice of colour sub-carrier frequency.

e) State the advantages of PAL system.

f) Draw and describe the basic block diagram of digital TV transmission.

3. Attempt any FOUR of the following: **16**

a) State bandwidth required for video signal in TV channel? Is it related to horizontal and vertical resolution? Justify.

b) Compare positive and negative modulation.

c) Define:

(i) Hue

(ii) Luminance

(iii) Saturation

(iv) Contrast

d) State advantages and disadvantages of digital TV transmission.

e) List the features and characteristics of HDTV.

f) Draw the block diagram of PAL Encoder.

Marks

4. Attempt any FOUR of the following: **16**

a) For interlace scanning state the scanning periods for horizontal and vertical scanning. Draw proper waveforms.

b) Explain the purpose of pre and post equalizing pulses.

c) Draw and explain the operation of vidicon camera tube.

d) Draw and explain frequency interleaving of colour signal.

e) Explain how differential phase error is eliminated in PAL system.

f) Draw CCVS and label it.

5. Attempt any FOUR of the following: **16**

a) Describe why (G-Y) signal is not transmitted.

b) Draw and describe the block diagram to show generation of colour difference signal.

c) Draw and describe horizontal blanking details.

d) Draw the details of vertical sync pulse.

e) Draw the block diagram of black and white TV transmitter and describe the function of each block.

f) List CCIR-B standards for PAL colour TV.

6. Attempt any FOUR of the following: **16**

a) What is HDTV? How are HDTV signals delivered?

b) State the bandwidth of colour signal and luminance signal. How is PAL colour signal transmitted by VSB?

c) Draw phasor diagram for weighted and unweighted primary and secondary colours.

d) Draw neat diagram and write how U and V signals are generated?

e) Describe the factors influencing the choice of colour sub-carrier signal. What is the colour sub carrier frequency for PAL system?

f) Compare standard colour TV system (PAL) with HDTV system.
