17441

21819

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) Use of Non-programmable Electronic Pocket Calculator is permissible.

(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 aspect ratio. Give its value.

(ii) State the concept of persistance of vision.

(iii) Why Band-II is not use for TV signal transmission.

(iv) Define colour burst signal in color TV signal.

(v) Draw visible light spectrum.

(vi) State the role of blanking pulses in CCV signal.

(vii) State Grass man's law of colour mixing.

(viii) "FM signal is preferred for sound and AM for video signal transmission in TV". Justify the statement.

Marks

b) **Attempt any TWO of the following:** **8**

(i) Draw and explain VSB transmission in TV.

(ii) Explain the need of serreted V. sync pulse during vertical blanking period.

(iii) Draw schematic of CCD camera tube and state its working.

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

a) What is interlaced scanning? How flickers are eliminated using it?

b) Draw pre and post equalizing pulses transmission during vertical blanking period and state their significance.

c) Explain working of vidicon camera tube with neat diagram.

d) Calculate phase and magnitude of weighted primary colours with neat phase diagram.

e) List any 4 advantages of PAL TV system.

f) Draw basic block diagram of digital TV transmission and explain its working.

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

a) Define kell factor. How does it affect vertical resolution of TV signal?

b) Define:

(i) Brightness

(ii) Contrast

(iii) Viewing distance

(iv) Luminance

c) Differentiate between positive and negative modulation (any four points).

d) List the characteristics of digital TV signal (any four).

e) Draw neat labelled block diagram of PAL encoder.

f) List the advantages and disadvantages of digital TV system (any two).

Marks

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

a) For interlace scanning, state the scanning periods for horizontal and vertical scanning.

b) State the importance of DC level in composite video signal.

c) Draw the schematic of silicon diode array camera tube and describe its operation.

d) Explain frequency interleaving used in colour signal transmission.

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

f) Draw labeled CCVS for one horizontal line.

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

a) Define compatibility. Give different factors which has to be considered to fulfill compatibility.

b) List CCIR-B standards for PAL colour TV (any eight).

c) Draw block diagram of monochrome TV transmitter.

d) Describe TV channel allocation for band-I and band III.

e) Describe additive and subtractive mixing of colour.

f) Explain H and V scanning in TV system.

Marks

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

a) Define:

(i) Hue

(ii) Saturation

(iii) Chrominance

(iv) Additive mixing

b) Why colour subcarrier signal is suppressed before transmission?

c) Draw the block diagram of QAM for PAL system and explain it's working.

d) List features and characteristics of HDTV signal (two each).

e) List the advantages of PAL TV.

f) Describe HDTV transmitter with neat block diagram.