17441

15116

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) 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) Give significance of Kell factor with its value.

(ii) Define:

1) Aspect ratio

2) Image continuity

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

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

(v) Write Grass-Mans law of additive colour mixing.

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

(vii) Define compatibility and reverse compatibility of colour TV signal transmission.

(viii) Why FM signal is preferred for sound and AM for picture transmission?

Marks

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

(i) Define:

1) Brightness

2) Contrast

3) Viewing distance

4) Luminance

(ii) Give the function of back porch and draw well labelled horizontal blanking details of one horizontal line.

(iii) Draw neat labelled schematic diagram of Videocon camera tube and state its working.

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

a) Describe the process used to create motion picture using principle of persistence of vision. Draw appropriate diagram of the same.

b) Why are equalizing pulses transmitted during vertical synchronous pulses?

c) Draw and describe the working of colour camera giving o/p (R - Y), (B - Y) and Y signal.

d) Draw phasor diagram for weighted primary colours and calculate their phase and magnitude.

e) List the advantages of PAL TV system (any four)

f) State the principle of digital TV transmission with labelled block diagram.

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

a) What are the applications of progressive scanning? (any four) And also list the advantages of interlaced scanning.

b) Give bandwidth of colour signal. Why it is lesser than luminance signal?

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

Marks

d) List characteristics of digital TV transmission (any four)

e) Draw neat labelled of CCVS for two horizontal lines.

f) List two advantages and two disadvantages of digital TV transmission system.

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

a) Illustrate operation of vertical resolution with neat diagram.

b) Explain the significance of sync, blanking, equalizing pulses.

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

d) List factors influencing the choice of colour sub-carrier frequency in colour TV.

e) Describe concept of PAL-V switching and its purpose with the help of phasor diagram.

f) Draw the block diagram of PAL encoder with output waveform.

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

a) Write the process of separation of U and V signals with neat diagram.

b) Why vertical sync pulses are serrated during T.V. signal transmission?

c) Draw basic block diagram and write working of monochrome TV transmitter.

d) State the main characteristics of the CCIR - B system for monochrome T.V.

e) Describe additive and substractive mixing of colours.

f) Write the frequency range of T.V. channel allocation for Band I and Band III.

Marks

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

a) Explain how colour TV system maintains compatibility with monochrome TV system.

b) Colour signal is suppressed before transmission of TV signal, give reason.

c) State the reason of delaying luminance signal by one H-line period before mixing with colour signal.

d) Describe the features and characteristics of HD signal transmission.

e) Draw block diagram of PAL TV transmitter.

f) Write working of HDTV transmitter with neat block diagram.