17441

11819

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) Kell factor

(2) Image continuity.

(ii) State the concept of gross structure of TV system.

(iii) What is field blanking interval. State its value.

(iv) Band II is not use for TV signal Transmission. Justify.

(v) Write Grassmen's law of additive colour mixing.

(vi) List the advantages of PAL system.

(vii) Draw a graph showing spectral response of human eye.

(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) What is colour burst? Why it is needed? How it is accomodated in picture signal.

(iii) Compare positive and negative amplitude modulated signals. (4 points)

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

a) What is Kell factor? How does it affect vertical resolution of T.V. signal?

b) Explain pedestal height with neat diagram.

c) Draw neat labelled schemetic diagram of videocon camera tube and state its working.

d) With the help of appropriate sketch, explain why and how interleaving is done in colour transmission.

e) Explain the different factors which influence the choice of color subcarrier frequency in PAL TV system.

f) Draw block diagram and explain working of HDTV transmitter.

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

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

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

c) Draw neat block diagram of silicon diode array camera tube.

d) List advantages and disadvantages of digital TV transmission system. (2 each)

Marks

e) Draw a neat labelled Colour Composite Video Signal (CCVS)

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

4. Attempt any FOUR of the following: 16

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

b) State the any eight characteristics of CCIR-B system for monochrome TV.

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

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

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 o/p waveforms.

5. Attempt any FOUR of the following: 16

a) With the help of labelled sketch for internal construction, explain how human eye percives brightness and hue and colour.

b) Give importance of DC levels in CVS.

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

d) Explain the purpose of equilizing pulses transmitted during vertical synchronous pulses.

e) Explain how U and V signals are obtained from colour difference signal.

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

Marks

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

a) Describe additive and substractive mixing of colours with neat diagram.

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

c) Draw block diagram of QAM for PAL and describe its working.

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

e) Draw block diagram of PAL TV transmitter.

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