17441

21718

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

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

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

(3) Figures to the right indicate full marks.

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

(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) Define:

1) Aspect Ratio

2) Image Continuity

(ii) Explain types of scanning with neat diagram.

(iii) List T.V. channel allocation for Band I.

(iv) Define colour burst signal in colour T.V. signals.

(v) List primary and secondary colours used in colour T.V. signals.

(vi) State the value of bandwidth required for transmission of colour signal. Why it is less than luminance signal?

(vii) Define compatibility and reverse compatibility of colour signal transmission in T.V.

(viii) Justify the use of AM for picture signal transmission in T.V.

Marks

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

(i) Why VSB transmission is used for T.V. signals? Draw its frequency response.

(ii) Describe the operation of vidicon camera tube with diagram.

(iii) Draw labeled vertical blanking details after odd field.

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

a) Explain flicker in T.V. How it is eliminated in T.V. system?

b) Explain function of front porch and back porch in H-blanking period.

c) Draw block diagram of colour camera and state function of each block.

d) Justify the need of weighted colour signal transmission with help of waveforms.

e) Explain PAL-V switching with phasor diagram.

f) Illustrate the basic concept of digital T.V. transmission system.

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

a) Define horizontal and vertical resolution. Calculate bandwidth required for one line transmission.

b) Explain the terms brightness, viewing, distance, luminance and contrast in TV system.

c) Justify, why negative modulation is preferred for T.V signal transmission with proper waveforms.

d) List four advantages of digital T.V over analog T.V transmission.

e) Draw block diagram of PAL encoder and give function of each block.

f) State characteristics of digital TV signal (any four).

Marks

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

a) Justify, why all T.V systems have odd number of lines.

b) Explain, why vertical sync pulse is serrated during V-blanking period.

c) Describe the operation of silicon diode array camera tube with diagrams.

d) Explain working of QAM for PAL with block diagram.

e) Describe generation of (R-Y) and (B-Y) signals with the help of block diagram in colour T.V. signal transmission.

f) Draw well labelled CCVS and give function of colour burst signal.

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

a) Explain different factors to be considered for compatibility of colour signal transmission.

b) State CC/RB standards for colour signal transmission (any eight).

c) Draw the basic block diagram of monochrome TV transmitter with proper signal flow.

d) Give channel allocation of Band III. Give reason why Band II is not suitable for TV signals.

e) Draw human eye response curve for different colours. Also the function of cones in human eye structure.

f) Draw CVS for two horizontal (H) lines and label them well.

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

a) Define additive and subtractive working. Also, state grammars law for additive mixing with example.

b) Give value of PAL colour sub-carrier frequency. Why it is choosen so?

c) Explain frequency interleaving of colour signals with necessary waveforms.

d) Draw block diagram of HDTV signal transmission.

e) Draw block diagram of PAL transmitter.

f) List any four features of HDTV transmission.