

17441

15162

3 Hours / 100 Marks

Seat No.

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- 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) Use of Non-programmable Electronic Pocket Calculator is permissible.
- (7) 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) Explain interlace error.
- (iii) List channel allocation for Band I. for TV.
- (iv) Define colour burst signal.
- (v) Draw well labeled visible sight spectrum with wavelength and frequency.
- (vi) Give the function of combining network in PAL signal transmission.
- (vii) Draw human eye response curve and state the function of cones in human eye structure.
- (viii) Justify the use of AM for picture signal in T.V.

P.T.O.

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

- (i) Define VSB transmission. Also draw VSB spectrum/B.W. for colour signal.
- (ii) Explain the need of serrated V. Sync. pulse during vertical blanking period.
- (iii) Draw schematic of CCD camera and explain its working.

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

- a) Explain how H-resolution is used to calculate the bandwidth of picture signal transmission.
- b) Draw H-blanking details for one H-line and explain function of front and back porch.
- c) Explain the working principle of colour camera tube.
- d) Explain why colour signals are weighted, with proper diagrams.
- e) Explain PAL-V switching with phasor diagrams.
- f) Draw basic block diagram of digital T.V. transmission and explain its working.

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

- a) Explain how image continuity is achieved in motion pictures.
- b) Define:
 - (i) Persistence of vision
 - (ii) Image continuity
 - (iii) Glass structure
 - (iv) Luminance
- c) Justify, why negative modulation is preferred for TV signal transmission.
- d) List any four characteristics of digital TV signal.
- e) Draw well labelled block diagram of PAL encoder.
- f) List two advantages and two disadvantages of digital T.V. system.

- 4. Attempt any FOUR of the following: 16**
- a) Draw vertical blanking period details after 1st field and label it well.
 - b) Explain H and V scanning in TV system.
 - c) Draw block diagram of colour camera and explain its working.
 - d) Explain frequency interleaving used in colour signal transmission.
 - e) Calculate exact PAL colour subcarrier frequency. Also list factors influencing it.
 - f) Draw well 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) Explain the purpose of pre and post equalizing pulses during V-blanking period.
 - c) Draw block diagram of monochrome T.V. transmitter.
 - d) List - 8 CCIR-B standards used for PAL TV signal transmission.
 - e) Explain why colour difference signals are preferred for transmission than pure colour signals.
 - f) Define and give function of pedestal height, De lead in CVS.
- 6. Attempt any FOUR of the following: 16**
- a) Explain why (G-7) signals are not selected for transmission of colour signal.
 - b) Explain why colour subcarrier signal is suppressed before transmission.
 - c) Draw block diagram of QAM for PAL system and explain its working.
 - d) Draw and explain block diagram of HDTV.
 - e) List advantages of PAL TV.
 - f) List characteristics and features of HD signals, transmission.
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