

# 17441

21415

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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

1. (A) Attempt any SIX :

12

(a) Define the term : Aspect ratio.

(b) State the concept of persistence of vision.

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

(d) Explain function of serrations in vertical sync pulses.

(e) Define Grassman's law.

(f) List the advantages of PAL system.

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

(h) Draw neat sketch of positive & negative AM modulated picture carrier.

(B) Attempt any TWO :

8

(a) Draw frequency response curve for vestigial sideband transmission.

(b) What is colour burst ? Why is it needed ? How is it accommodated in picture signal ?

(c) Draw block diagram of colour T.V. camera tube and describe its function.

**P.T.O.**

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

- (a) What is interlaced scanning ? How flickers are eliminated using it ?
- (b) Explain pedestal height with neat diagram.
- (c) Explain working of vidicon camera tube with neat diagram.
- (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 colour subcarrier in PAL TV system.
- (f) Draw block diagram and explain working of HDTV transmitter.

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

- (a) What is Kell factor ? How does it affect vertical resolution of T.V. signal ?
- (b) Define the terms :
  - (i) Brightness
  - (ii) Contrast
  - (iii) Viewing distance
  - (iv) Luminance
- (c) Compare positive and negative modulated amplitude modulated signals. (4 points)
- (d) List features and characteristics of HDTV signal.
- (e) Explain how differential phase error is eliminated in PAL TV system.
- (f) List advantages and disadvantages of digital T.V. system (2 each).

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

- (a) Explain the term : Horizontal and Vertical resolution.
- (b) Explain the need of adding equalizing pulses in CVS. Where are they added ?
- (c) Draw neat block diagram of silicon diode array camera tube.
- (d) Draw neat phasor diagram of weighted primary and secondary colours.
- (e) Why burst signal in PAL TV is called swinging colour burst ?
- (f) Compare standard colour TV system (PAL) with HDTV system. (4 points)

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

- (a) With the help of labelled sketch for internal construction, explain how human eye perceives brightness & colour.
- (b) Write CCIR-B standards (any 8).
- (c) Draw block diagram of monochrome TV transmitter.
- (d) What is the function of V and H blanking pulses ?
- (e) Explain how U and V signals are obtained from colour difference signal.
- (f) Give importance of DC level in CVS.

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

- (a) Explain additive mixing of colours.
  - (b) Why the colour signal is suppressed before transmission of TV signal.
  - (c) Draw block diagram of QAM for PAL and describe its working.
  - (d) State principle of digital TV transmission with neat block diagram.
  - (e) Draw CCVS signal for two horizontal lines and label it well.
  - (f) What is HDTV ? How are HDTV signals delivered ?
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