

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the Q.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.
- Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

Q.1 Choose the correct or the best alternative in the following: (2×10)

a. For a 51 cm monochrome picture tube, the value of final anode voltage is about

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|-----------|-----------|
| (A) 16 KV | (B) 25 KV |
| (C) 5 KV | (D) 10 KV |

b. The horizontal line blanking period is as per CCIR B standards

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|----------------|-----------------|
| (A) 64 μ s | (B) 4.7 μ s |
| (C) 12 μ s | (D) 5.8 μ s |

c. Which of the following is used to remove the magnetic flux from metal parts of picture tube that have become magnetized

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|--------------|----------------|
| (A) Tracking | (B) Degaussing |
| (C) Scanning | (D) Blanking |

d. The difference in intensity between black parts and white parts of the reproduced picture is known as

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|----------------|----------------|
| (A) Brightness | (B) Resolution |
| (C) Contrast | (D) Hue |

e. Which of the following distortion in the picture tube is corrected by mounting small permanent magnets on the deflection yoke of the monochrome picture tube

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|------------------|-----------------|
| (A) Pincushion | (B) Trapezoidal |
| (C) Line pairing | (D) Fishtailing |

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- f. The diagonal bars at 45 degrees in the white disc of EIA test pattern are used for _____ check
- (A) Aspect Ratio (B) Resolution
(C) Interlacing (D) Deflection Linearity
- g. The standard values of IF for TV receivers as per American standards are
- (A) 41.25 MHz for picture and 45.75 MHz for sound
(B) 45.75 MHz for picture and 41.25 MHz for sound
(C) 47.75 MHz for picture and 43.25 MHz for sound
(D) 43.25 MHz for picture and 47.75 MHz for sound
- h. The Contrast Control is located in
- (A) Chroma amplifier (B) Color killer
(C) Delay line (D) Video amplifier
- i. Which of the following shuts down the colour bandpass amplifier completely when a monochrome signal is being received
- (A) 3.58 MHz Oscillator (B) 3.58 MHz burst amplifier
(C) Colour Killer (D) Colour demodulator
- j. Which of the following may be used to prevent shock hazard for hot-chassis receivers
- (A) Isolation Transformer (B) Bypass capacitor
(C) RC Filter (D) LC Filter

**Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.**

- Q.2** a. Explain Horizontal & Vertical Synchronization in the television picture. (8)
b. Explain 3.58 MHz colour signal in a colour TV system. (8)
- Q.3** a. Explain magnetic deflection used in picture tubes. (8)
b. Explain electrostatic focus in picture tubes. (8)
- Q.4** a. Explain odd-line interlaced scanning pattern with neat sketch. (8)
b. In picture tubes, why do we require synchronizing pulses during scanning? (8)
- Q.5** a. Explain with block diagram, decoding of the picture information. (8)

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- b. Explain the working of Additive color Mixtures & Adding color-voltages. (8)
- Q.6** a. Why is the color subcarrier frequency made exactly 3.579545 MHz? (8)
- b. Explain various types of colour video signals. (8)
- Q.7** a. Explain, with a neat diagram, how EIA test pattern can be used for checking the TV receiver. (8)
- b. Explain how window signal can be used for testing overshoot, ringing, streaking and smear. (8)
- Q.8** a. Draw and explain color band-pass amplified with ACC. (8)
- b. Explain the need for luminance delay in video detectors. (8)
- Q.9** Write short notes on any **TWO** of the following:
- (i) TV safety measures.
 - (ii) Signal Tracing & Injection.
 - (iii) Interference Patterns in the pictures.
- (8+8)