

DiplETE – ET (Current Scheme)

Time: 3 Hours

June 2019

Max. Marks: 100

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. In most T.V. systems, for motion picture frame, repetition rate is :
 (A) 25 frame/sec (B) 50 frame/sec
 (C) 75 frame/sec (D) None of these
- b. Which of the following is the most negative electrode in the electron gun?
 (A) Cathode (B) Control Grid
 (C) Screen Grid (D) Focus Grid
- c. The elementary areas into which the picture details may be broken up are known as:
 (A) Aspect Ratio (B) Picture Elements
 (C) Scanning (D) Persistence
- d. According to CCIR standard, the field sync occurs after lines
 (A) 262.5 and 625 (B) 310 & 662.5
 (C) 312.5 & 625 (D) None of these
- e. PAL stands for _____.
 (A) Positive Alteration by Line (B) Phase Alteration by Line
 (C) Peak Alteration by Line (D) Phase Analysis by Line
- f. The colour Yellow is produced by mixing which of the following primary colours?
 (A) Red and Blue (B) Red and Green
 (C) Green and Blue (D) Red, Green and Blue
- g. Colour killer circuit kills the colour when
 (A) Colour burst is excessive (B) Colour burst is present
 (C) Colour burst is absent (D) Both (A) & (B)
- h. In Colour TV, $I = 0.74(R-Y) - 0.27$ (_____).
 (A) B-Y (B) Y-B
 (C) G-Y (D) Y-R

- i. Gamma correction is used to compensate
 (A) Linearity of the TV system (B) Non-linearity of the TV system
 (C) Noise (D) None of these
- j. In monochrome receiver, if there is insufficient vertical height. Then defective stage is
 (A) Sound section (B) Picture tube
 (C) IF stages (D) Vertical Sweep Circuit

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

- Q.2** a. Describe television broadcasting system with the help of a neat diagram. (8)
- b. Sketch the details of horizontal blanking and sync pulses. Label on it (i) Front porch (ii) Horizontal Blanking pulses (iii) Backporch (iv) Active line periods. Why are the front porch and back porch intervals are provided before and after the horizontal sync pulses? (4+4)
- Q.3** a. List the important precautions required in picture tube. (8)
- b. Explain the magnetic deflection in a picture tube. (8)
- Q.4** a. What is Flicker? How flicker can be reduced? (2+6)
- b. Explain the synchronizing pulses. (8)
- Q.5** a. Define following terms :-
 (i) Luminance or Brightness (ii) Hue (iii) Saturation (2×3)
- b. Explain how the 'Y' and colour difference signals are developed from the camera Outputs. Why is the 'Y' signal set = $0.3R + 0.59G + 0.11 B$? (6+4)
- Q.6** a. Describe the colour synchronization burst. (8)
- b. Why is the colour subcarrier frequency made exactly 3.579545 MHz? (8)
- Q.7** a. With the help of a block diagram explain the working of a monochrome TV receiver. (8)
- b. Describe the working of chroma section used in colour TV receiver. (8)
- Q.8** a. Describe three steps to Effective Trouble Shooting . (8)
- b. Explain the safety aspects while servicing a TV receiver. (8)
- Q.9** Write short note on any two of the following - (8×2)
 (i) Test for streaking or smear in the picture
 (ii) Ball Chart for checking camera linearity
 (iii) Test for ringing in the picture