

DiplETE – ET (Current Scheme)

Time: 3 Hours

DECEMBER 2018

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. Balun is located
 - (A) Between the tuner and IF section
 - (B) In the tuner circuit
 - (C) Between the receiving antenna and the tuner input
 - (D) None of these
- b. Reference phase of the sub carrier in NTSC is _____clockwise from –(B-Y)

(A) 0°	(B) 57°
(C) 45°	(D) 90°
- c. The crack or puncture in the picture tube results in a violent inrush of air is called

(A) Explosion	(B) Crackdown
(C) Breakdown	(D) Implosion
- d. The value of intercarrier sound IF signal in NTSC is

(A) 4.5 MHz	(B) 5 MHz
(C) 4.43 MHz	(D) 3.58 MHz
- e. The color subcarrier and sidebands produced by its modulation with the chrominance signals are accommodated in the standard channel width by the process of _____

(A) frequency adjustment	(B) frequency interleaving
(C) frequency changing	(D) frequency amalgamation
- f. Colour burst is used to
 - (A) Boost intensity of colours in the picture tube
 - (B) Dilute the vivid colours
 - (C) Ensure the correct modulation of colours in colour encoder
 - (D) Synchronize generation of subcarrier in the receiver
- g. When the frequency of the modulating signal equals the horizontal line scanning frequency

(A) Diagonal bars are formed	(B) Horizontal bars are formed
(C) Vertical bars are formed	(D) Sound bars are formed

- h. Contrast control is located in
 (A) Horizontal Amplifier (B) Video Amplifier
 (C) Picture Tube (D) Vertical Amplifier
- i. Which of the following modulation is used to combine (R-Y) and (B-Y) signals into a single signal called chrominance signal
 (A) Amplitude Modulation (B) Frequency Modulation
 (C) Phase Modulation (D) Quadrature Modulation
- j. Which of the following is used for checking the Camera linearity?
 (A) Sine squared test signals (B) Stair-step test signal
 (C) Ball chart test (D) Colour bar test signal

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

- Q.2** a. Describe VSB Transmission. (8)
 b. Draw the block diagram of a Television broad casting system and explain each block with its importance. (8)
- Q.3** a. Explain the working of precision in line (PIL) colour picture tube. Discuss its merits over delta gun colour picture tube. (8)
 b. Explain, with a neat diagram, basic structure of an electron gun. (8)
- Q.4** a. Explain "Flicker" in Television systems. (8)
 b. Explain the use of synchronizing pulses in a television system. (8)
- Q.5** a. With the help of a block diagram, explain the method of decoding the picture information in color TV. (8)
 b. Explain the method of encoding the Picture information. (8)
- Q.6** a. Explain how the luminance signal (Y – Signal) and colour difference signals are developed from camera output. Why is the "Y" Signal set to $0.3 R + 0.59 G + 0.11 B$? (8)
 b. Explain various types of colour video signals. (8)
- Q.7** a. Explain resolution wedges in the test pattern. (8)
 b. Write a short notes on Sine-Squared Test Signals (8)
- Q.8** a. With the help of a block diagram, explain the working of chroma section used in color TV receiver. (8)
 b. With the help of a diagram give details of color bandpass amplifier with Automatic Color Control (ACC). (8)
- Q.9** a. Write short notes on the following: (4x2)
 (i) TV safety measures
 (ii) High voltage measurements
 b. Explain the interference patterns in the picture. (8)