

Code: DE18
Time: 3 Hours

DECEMBER 2008

Subject: TELEVISION ENGINEERING
Max. Marks: 100

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.
 - 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.
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Q.1 Choose the correct or best alternative in the following: (2x10)

- a. The Aspect Ratio in a Conventional TV system is
- (A) 1:2 (B) 2:1
(C) 3:4 (D) 4:3
- b. Video transmission in CCIR–B standard is:
- (A) Narrow band FM
(B) Amplitude Modulated Double side Band
(C) Amplitude Modulated Vestigial side Band
(D) Quadrature amplitude Modulated
- c. The colour sub-carrier frequency in one of the CTV systems is:
- (A) 5.5 MHz (B) 38.9 MHz
(C) 33.4 MHz (D) 4.43 MHz
- d. Diplezer is used at the
- (A) T.V. Transmitter (B) T.V. Receiver
(C) Only color T.V. Receiver (D) In DTH system
- e. Luminance signal is generated by adding following signals
- (A) $0.3 R + 0.22 B + 0.59 Y$
(B) $0.3 R + 0.59 G + 0.11 B$
(C) $0.8 (R - Y) + 0.2 (G - Y)$
(D) $0.3 (R - Y) + 0.59 (G - Y) + 0.11 (B - Y)$
- f. AFT circuit in a TV receiver is located in
- (A) RF tuner (B) Vertical oscillator
(C) IF amplifier (D) Video amplifier
- g. The pattern of scanning Lines in a video system is called

- (A) Re-trace
(B) Resolution
(C) Raster
(D) Interlace

h. If the picture is rolling the fault may be due to

- (A) Absence of vertical sync
(B) horizontal sync failure
(C) fault in AGC
(D) fault in IF section

i. The EHT voltage supply for the anode of a picture tube is generated in

- (A) Mains transformer
(B) Vertical output stage
(C) Horizontal output stage
(D) Horizontal deflection oscillator

j. Balun is used to

- (A) Terminate a coaxial cable
(B) Join two coaxial cables
(C) Connect indoor aerial
(D) Connect Folded dipole to co-axial cable

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

- Q.2** a. Define and explain the effect of following on the reproduction of picture
(i) Vertical Resolution
(ii) Progressive scanning
(iii) Horizontal Resolution (9)
- b. Why synchronization is needed in Video system but not in audio systems. (7)
- Q.3** a. Explain the principle and working of Vidicon picture tube. (8)
- b. How a colour camera is different from monochrome camera. Explain. (4)
- c. What is degaussing and why is required? (4)
- Q.4** a. What are the advantages of using VSB instead of SSB to transmit Video. Draw the VSB spectrum for channel V of CCIR-B standard, also indicate the sound carrier location with respect to picture carrier location. (10)
- b. What is the need of a Diplexer in a intercarrier system, what is the principle behind its working? (6)
- Q.5** a. Define the terms: pedestal height, blanking pulses. (8)

- b. How is weighting correction achieved before quadrature modulation? **(8)**
- Q.6** a. Explain how encoding and colour difference signals is activated in a quadrature modulator with the help of a block diagram? **(8)**
- b. What are the functions of AFT and AGC. Explain the principle of working of keyed AGC. **(8)**
- Q.7** a. Explain with a diagram the working of PIL colour picture tube. **(8)**
- b. Explain
- (i) Convergence
 - (ii) function of purity magnets **(8)**
- Q.8** a. What is the need of the following in a color TV receiver:
- (i) Color Killer
 - (ii) Delay line **(8)**
- b. Bring out the differences between NTSC, PAL and SECAM systems. **(8)**
- Q.9** Write short notes on:
- (i) Booster Amplifier
 - (ii) Remote Control
 - (iii) TV Test charts.
 - (iv) TV Receiving antenna **(4 x 4)**