DipIETE – ET (OLD SCHEME)

Code: DE18 **Subject: TELEVISION ENGINEERING**
Time: 3 Hours **Max. Marks: 100**

DECEMBER 2009

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.**

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

a. A colour broadcast Television receiver

(A) Does not require a monochrome stage
(B) Requires a monochrome stage
(C) Requires both monochrome and chrominance stage
(D) Requires only chrominance stage

b. Perception of vision is indicative of

(A) Number of Horizontal lines
(B) Number of Vertical lines
(C) Number of frames to be repeated per second
(D) Number of frames lost during retrace

c. To arrive at the bandwidth of video one should know

(A) Brightness and Contrast **(B)** Resolution and Aspect ratio
(C) Contrast and Frame frequency **(D)** Resolutions and Frame frequency

d. Dichroic mirror separates

(A) Luminance and Chrominance **(B)** Primary colour components
(C) Colour difference signals **(D)** Provides gamma correction

e. Pin cushion distortion occurs due to

(A) Change in brightness **(B)** Loss of convergence
(C) Loss of focus **(D)** Difference in width to height

f. The signals sent by the television transmitter to ensure correct scanning in the receiver are called

(A) Luminance **(B)** Synchonizing
(C) Chroma **(D)** Video

g. PAL standard transmits audio using

(A) Amplitude Modulation **(B)** Phase Modulation
(C) Balanced Modulation **(D)** Frequency Modulation

h. PAL-D helps in correcting

(A) Video Synchronisation **(B)** Differential phase error
(C) Horizontal frequency **(D)** Amplitude of video

i. The sound IF in colour T.V. receiver is

(A) 5.5 MHz **(B)** 38.9 MHz
(C) 33.4 MHz **(D)** 4.43 MHz

j. Digital tuning requires

(A) Frequency Synthesizer **(B)** Electromechanical tuning
(C) Automatic Gain control **(D)** Adaptive filter

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

Q.2 a. Briefly describe the following:

(i) The effect of interlaced scanning on bandwidth.
(ii) The effect of resolution on picture quality. **(8)**

b. What is the principle of working of CCD camera? **(8)**

Q.3 a. What is Gamma effect and how Gamma correction is achieved? **(8)**

b. Explain the following:

(i) Aperture correction.
(ii) Automatic beam control. **(8)**

Q.4 a. Explain the construction and working of a PIL gun tube. **(8)**

b. How the following are avoided?

(i) Pin cushion distortion
(ii) Gaussing effect **(8)**

Q.5 a. Explain horizontal sync and vertical sync details. **(10)**

b. What is the need of equalizing pulses? **(6)**

Q.6 a. What is the need of colour difference signals? Why (R-Y) and (B-Y) are preferred? **(8)**

b. Explain the generation of chrominance signal and the need for weighting correction. **(8)**

Q.7 a. Draw a simple T.V. Transmitter and show the frequency spectrum at the output of each stage. **(8)**

b. Compare the various differences between a 525 line system and a 625 line system. **(8)**

Q.8 a. What do you mean by PAL-D? Explain a PAL-D decoder. **(8)**

b. Explain the function of:-

(i) AFT control
(ii) Colour Killer **(8)**

Q.9 a. List out the applications of:- **(8)**

(i) Colour bar generator
(ii) High voltage Probe
(iii) T.V. Test chart
(iv) Booster Amplifier .

b. Explain the working of a video pattern generator with a neat block diagram. **(8)**