DipIETE – ET (OLD SCHEME)

Code: DE18
Time: 3 Hou

JUNE 2009

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.**

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

a. Aspect ratio of a picture is

   (A) Height to width ratio   **(B)** Width to height ratio
   (C) Depth to height ratio   **(D)** None

b. For TV broadcast the transmission used is

   (A) SSB transmission   **(B)** DSBFC transmission
   (C) VSB transmission   **(D)** DSB transmission

c. The illumination on the screen of picture tube in the absence of video signal is

   (A) Retrace   **(B)** Resolution
   (C) Raster   **(D)** Interlace

d. In PAL colour TV system, the video bandwidth is

   (A) 4.5 MHz   **(B)** 5.5 MHz
   (C) 5.0 MHz   **(D)** 6.0 MHz

e. The change in horizontal sync frequency causes

   (A) Picture tear   **(B)** No video
   (C) Rolling of picture   **(D)** Smearing

f. TV signals are transmitted through

   (A) Turnstile Antenna   **(B)** Yagi-Uda Antenna
   (C) Parabolic Antenna   **(D)** Horn Antenna

g. Degaussing is used for

   (A) Removing magnetic flux   **(B)** Remove ghost images
   (C) Focussing   **(D)** None of above

h. The phase of chrominance signal represents information about

   (A) Hue   **(B)** Saturation

     (C) Brightness   **(D)** All

i.   R–Y, B–Y components of the colour video signal are scaled down to avoid

     (A) over modulation   **(B)** Intermodulation
     (C) cross talk   **(D)** None of above

j.   Gamma correction is applied for

     (A) compensating for non linearity of the system
     (B) compensating attenuation due to losses
     (C) compensating for distortion
     (D) All of above

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

Q.2   a.   List CCIR-B standards for colour TV signal transmission.   **(8)**

        b.   How interlaced scanning reduces flickering? Explain with an illustration?   **(8)**

Q.3   a.   Draw and explain Delta Gun colour picture tube.   **(8)**

        b.   Draw the composite video signal and label it. State function of different pulses.   **(8)**

Q.4   a.   Describe generation of colour difference signal with the help of the block diagram.   **(8)**

        b.   Explain the working of NTSC encoder with suitable block diagram.   **(8)**

Q.5   a.   Discuss briefly the different types of interference suffered by TV signals.   **(8)**

        b.   Discuss briefly Turnstile array used for television transmission.   **(8)**

Q.6   a.   Explain with a neat block diagram, the PAL encoder.   **(8)**

        b.   Why are the modulated subcarrier vectors shifted by 33° to constitute Q and I signals in the NTSC system? Why different bandwidths are assigned to Q and I signals.   **(8)**

Q.7   a.   What are the functions of TV tuner and explain the working of TV tuner with the help of block diagram.   **(8)**

        b.   For the following symptoms state the defective stage and probable fault   **(8)**

            (i)   insufficient vertical height
            (ii)   sound bars on picture screen

Q.8   a.   List safety precautions, which must be observed while servicing a TV receiver.   **(8)**

        b.   Discuss the alignment of RF tuner.   **(8)**

Q.9   a.   Describe the main components of a Television remote control system using block diagram.   **(8)**

b. Explain how by frequency interleaving the colour information is accommodated within same channel bandwidth of 7 MHz. **(8)**