ROLL NO. _____

Code: DE117 Subject: TELEVISION ENGINEERING & BROADCASTING

DipIETE – ET (New 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. Interlaced scanning is used to
(A) Increase scanning rate **(B)** Reduce Flicker
(C) Increase Aspect Ratio **(D)** Decrease Aspect Ratio

b. In 625 B monochrome system line frequency is
(A) 15625 Hz **(B)** 50Hz
(C) 60 Hz **(D)** 25 Hz

c. In monochrome picture tube focusing method used is
(A) Electromagnetic **(B)** Electrostatic
(C) Both (A)and (B) **(D)** Electronic

d. The difference in picture IF and sound IF is
(A) 38.9 MHz **(B)** 33.4 MHz
(C) 5.5 MHz **(D)** 5.5 Hz

e. The basic circuit of a video detector employs a/an
(A) Diode **(B)** Capacitor
(C) Resistor **(D)** Inductor

f. In discriminator (FM sound detector) response curve is
(A) S shaped **(B)** P shaped
(C) U shaped **(D)** None of these

g. In colour TV primary colours are
(A) Red & Green **(B)** Red & Blue
(C) Blue & Green **(D)** Red, Green & Blue

h. In P.I.L. Colour picture tube the three guns are
(A) In a horizontal line **(B)** Spaced at 120˚
(C) Spaced at 60˚ **(D)** Spaced at 90˚

i. CATV stands for
(A) Common Antenna Television **(B)** Control Area Television
(C) Community Antenna Television **(D)** None of these

j. Horizontal blanking pulse duration is

(A) 64 µs **(B)** 4.7 µs

(C) 12 µs **(D)** 5.8 µs

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

Q.2 a. Define following terms- **(2*4=8)**

(i) Aspect Ratio (ii) Interlaced scanning

(iii) Pedestal Height (iv) Blanking Level

b. Justify the need for pre and post equalizing pulses. Why it is necessary to keep their duration equal to the half line period ? **(3+3+2=8)**

Q.3 a. Show that a total channel Bandwidth of 7 MHz is necessary for successful transmission of both picture and sound signals in the 625 line TV system. Sketch frequency distribution of the channel and mark the location of picture and sound signal carrier frequencies. Why is the sound carrier located 5.5 MHz away from the picture carrier? **(4+2+2 = 8)**

b. Define frequency modulation and its modulation index. Analysis the frequency modulated wave. **(2+2+4=8)**

Q.4 a. Draw Cross sectional view of an image orthicon camera tube and explain its working. **(10)**

b. (i) What is the function of aquadag coating on the inner side of the tube bell?
(ii) Discuss the merits of electromagnetic deflection over electrostatic deflection in television picture tubes.
(iii) Why is cosine winding used for deflection coils? **(2+2+2=6)**

Q.5 a. Discuss the merits and demerits of positive and negative amplitude modulation and justify the choice of negative modulation in most TV systems. **(8)**

b. Draw the Block Diagram of a monochrome TV receiver and label its various section. **(8)**

Q.6 a. Describe the working of basic Video Detector and filter circuit. **(8)**

b. Describe with suitable circuit Diagram different methods of contrast control used in transistor video amplifier. Mention relative merits of each type. **(8)**

Q.7 a. Draw the circuit diagram of balanced ratio detector and explain its working? **(8)**

b. Explain the working of AM limiting circuit in a monochrome receiver. **(8)**

Q.8 a. Describe essential features and working of a Trintron colour picture tube. **(8)**

b. Compare the Three colour TV systems NTSC, PAL and SECAM. **(8)**

Q.9 a. Enumerate various applications of CCTV system of television. Describe with suitable block diagrams various methods employed to feed video signal to different monitors. **(8)**

b. Draw a block diagram of CATV system of signal distribution and explain its plan. **(8)**