ROLL NO. _____

Code: DE68 **Subject: TELEVISION ENGINEE**

DipIETE – ET

Time: 3 Hours **DECEMBER 2013** **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. The horizontal deflection circuits for either the camera tube or the picture tube operate at the frequency of

(A) 15,750 Hz **(B)** 60 Hz
(C) 50 Hz **(D)** 100 Hz

b. The camera signal with blanking and sync signal is called

(A) Video Signal **(B)** Composite Video Signal
(C) Blanking Signal **(D)** Sync Signal

c. Which of the following distortions is corrected in monochrome receiver by means of small permanent magnets embedded in the front part of the housing of deflection yoke

(A) Barrel distortion **(B)** Trapezoidal distortion
(C) Pincushion distortion **(D)** Harmonic distortion

d. One half line spacing between the start positions for scanning even and odd fields produces

(A) Linear Scanning **(B)** Line Pairing
(C) Fishtailing **(D)** Exact Interlacing

e. The output of chroma bandpass amplifier is

(A) C - Signal **(B)** Y- Signal
(C) I - Signal **(D)** Q - Signal

f. Which of the following synchronizes the phase of the 3.58 MHz colour osc in the receiver

(A) Sync Signal **(B)** Colour Burst Signal
(C) Blanking Signal **(D)** Video Signal

g. The Window Signal is useful in testing

(A) Linearity **(B)** Vertical Resolution
(C) Horizontal Resolution **(D)** Overshoot

h. The AGC produces a fixed level of video signal at the output of

(A) IF Amplifier **(B)** RF Amplifier
(C) Video Amplifier **(D)** Audio Amplifier

i. Contrast control is located in

(A) Video Amplifier **(B)** Horizontal Amplifier
(C) Picture Tube **(D)** Vertical Amplifier

j. Which of the following bars are seen when the signal frequency is higher than, but not an exact multiple of the horizontal line scanning frequency

(A) Vertical bars **(B)** Horizontal bars
(C) Diagonal bars **(D)** Cross bars

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

Q.2 a. Explain with the block diagram, the working of TV broadcasting System. **(8)**

b. Explain the horizontal and vertical synchronization. **(8)**

Q.3 a. Explain the basic construction of electron gun. **(8)**

b. Describe briefly an arrangement for projection television. Why is brightness the main problem? **(8)**

Q.4 a. Define:
(i) Scanning raster (ii) The pincushion effect
(iii) Line pairing (iv) Interline flicker
(v) The noise effect **(10)**

b. Explain why the synchronizing pulses inserted during blanking time. **(6)**

Q.5 a. How does colorplexed video signal indicate hue, saturation and luminance of the picture information. **(8)**

b. Show the calculation for Y luminance values of blue, red, green and white. **(8)**

Q.6 a. Explain the following terms:
(i) Luminance (ii) Hue
(iii) Saturation (iv) Chrominance **(8)**

b. Explain the types of colour video signals. **(8)**

Q.7 a. Explain the Ball Chart for checking camera linearity. **(8)**

b. Define the following sine squared test signals: T, 2T, 12.5T and 20T **(8)**

Q.8 a. With the help of a block diagram explain the working of a heterodyne T.V. receiver. **(8)**

b. With the help of a diagram give details of color bandpass amplifier with Automatic Color Control (ACC). **(8)**

Q.9 Write short notes on the following:-
(i) Interference patterns in the picture
(ii) Safety during TV servicing **(8+8)**