ROLL NO. _____

Code: DE68 **Subject: TELEVISION ENGINEERING**

DipIETE – ET

Time: 3 Hours **JUNE 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. In a 625 line system, the number of active lines left after deducting lines lost in vertical blanking are _____

(A) 600 **(B)** 585
(C) 540 **(D)** 410

b. Monochrome CRT picture tubes employ _____

(A) Electromagnetic deflection and Electromagnetic focusing
(B) Electrostatic deflection and Electromagnetic focusing
(C) Electrostatic focussing and Electromagnetic deflection
(D) None of these

c. Blanking Pulses in Composite Video Signal are used _____

(A) to make retrace lines invisible **(B)** to make trace lines invisible
(C) to avoid flicker **(D)** to obtain correct scanning

d. The complementary colour yellow is produced by the combination of _____

(A) Red and Blue **(B)** Red and Green
(C) Green and Cyan **(D)** Green and Blue

e. Which of the following modulation is used to combine (R-Y) and (B-Y) signals into a single signal called chrominance signal

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

f. The FM detector that is insensitive to amplitude variations of FM signal eliminating necessity of limiter stage is _____

(A) Balanced Slope detector **(B)** Ratio Detector
(C) Phase discriminator **(D)** PLL detector

g. The Vertical Hold Control is located in _____

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

h. Which of the following signals is useful for testing transient conditions such as overshoot, ringing, streaking and smear

(A) Window Signal **(B)** Sine-Squared Signal
(C) Stair-step Test Signal **(D)** Pattern Signal

i. Which of the following signals bear the brightness variations of the picture information

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

j. When the brightness control is advanced, the picture grows in size while the focus becomes poorer is called _____

(A) Overshoot **(B)** Streaking
(C) Ringing **(D)** Blooming

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

Q.2 a. Explain the following terms: **(6)**
(i) Persistence of vision
(ii) Flicker in motion pictures

b. What is meant by blanking? What is the need of blanking pulses? Compare the differences between horizontal and vertical blanking. **(7)**

c. List out the applications of Television. **(3)**

Q.3 a. Draw the structure of a Tricolor Picture Tube and explain various components used in it. **(8)**

b. Explain the various problems associated with Picture Tubes. **(8)**

Q.4 a. Explain the construction of Composite Video Signal for two horizontal lines with neat sketch. **(8)**

b. Explain Interlaced Scanning Process with the help of a diagram. **(8)**

Q.5 a. With the help of suitable diagrams, explain how the picture information is encoded. **(8)**

b. Write short notes on the following color TV terms:
(i) White
(ii) Hue
(iii) Compatibility **(3+2+3)**

Q.6 a. Explain how color sync burst and H deflection sync differ in amplitude and frequency. Also explain the difference in timing between the 3.58 MHz color sync burst and 3.58 MHz chrominance signal. **(5+5)**

b. Why is the chrominance signal transmitted with the subcarrier suppressed? **(6)**

Q.7 a. Draw the block diagram of a monochrome TV receiver. **(8)**

b. Explain the function of the following sections: **(8)**
(i) Video Detector Section
(ii) 4.5 MHz Sound IF Section

Q.8 a. Explain the safety aspects while servicing a TV receiver. **(8)**

b. Explain the interference patterns in the picture. **(8)**

Q.9 Write short notes on any **TWO** of the following: **(2×8)**

(i) EIA standard for Color-Bar Signals
(ii) Sine-Squared Test Signals
(iii) Stair-Step Test Signals