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

JUNE 2011

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 value of nominal video signal bandwidth as per CCIR-B 625 line standards is

(A) 10 MHz **(B)** 5 MHz
(C) 7 MHz **(D)** 20 kHz

b. The value of vertical sync pulse width as per CCIR-B 625 line standards is

(A) 1280 μs **(B)** 20 ms
(C) 10 ms **(D)** 18.72 μs

c. CRT type TV picture tube employs

(A) Electromagnetic deflection and electromagnetic focusing
(B) Electrostatic deflection and electrostatic focusing
(C) Electromagnetic deflection and electrostatic focusing
(D) Electrostatic deflection and electromagnetic focusing

d. Which of the following colour difference signals are chosen for colour signal transmission?

(A) (R-Y) and (G-Y) **(B)** (B-Y) and (G-Y)
(C) (R-Y), (G-Y) and (B-Y) **(D)** (R-Y) and (B-Y)

e. The values of Picture IF and sound IF as per CCIR-B 625 line standards are

(A) 38.3 MHz and 33.9 MHz respectively
(B) 38.9 MHz and 33.4 MHz respectively
(C) 33.9 MHz and 38.3 MHz respectively
(D) 33.4 MHz and 38.9 MHz respectively

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f. The type of antenna used for the reception of TV signals is

(A) Yagi Antenna **(B)** Rhombic Antenna
(C) Turnstile Antenna **(D)** Horn antenna

g. Which of the following colour TV system employs U and V colour difference signals?

(A) NTSC **(B)** SECAM
(C) PAL **(D)** NTSC and SECAM

h. The equipment that provides video signals, direct and with RF modulation on the standard TV channels for alignment, testing and servicing of TV receivers is

(A) TV Pattern Generator **(B)** High Voltage probe
(C) Sweep Generator **(D)** None of them

i. The predominant spectral colour of the received light is called

(A) Saturation **(B)** Luminance
(C) Chrominance **(D)** Hue

j. Contrast control is located in

(A) Video amplifier **(B)** Horizontal Oscillator
(C) Vertical Oscillator **(D)** Audio amplifier

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

Q.2 a. Explain the principle of working of CCD camera. **(8)**

b. Explain how flicker is eliminated using interlaced scanning. **(8)**

Q.3 a. Explain the constructional details and the operation of silicon diode array vidicon Camera tube. **(8)**

b. Explain the constructional details and the operation of monochrome picture tube. **(8)**

Q.4 a. Explain the various terms involved in a composite video signal drawn for three Scanning lines of different average brightness levels. **(8)**

b. Describe briefly the basic trouble shooting procedure to be employed for localizing faults in a Television receiver. **(8)**

Q.5 a. Explain (i) Quadrature Modulation and (ii) Frequency Interleaving. **(10)**

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b. Explain Additive Colour Mixing and Grassman's Law. **(6**

Q.6 a. Explain the terms positive modulation and negative modulation and explain the merits and demerits of negative modulation over positive modulation. **(10)**

b. Explain Turnstile array and Dipole Panel antennas. **(6)**

Q.7 a. Explain the block diagram of SECAM coder. **(8)**

b. Explain the block diagram of NTSC decoder. **(8)**

Q.8 a. Explain, with a block diagram, the functioning of sound section of a TV receiver. **(8)**

b. Explain how the U and V signals are separated in TV Receiver with a block diagram. **(8)**

Q.9 Write short note on the following:
(i) PLL control
(ii) Sweep Generator
(iii) AFC
(iv) Booster Amplifier **(4×4)**

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