

DiplETE – ET (OLD SCHEME)

Code: DE18
Time: 3 Hours

Subject: TELEVISION ENGINEERING
Max. Marks: 100

DECEMBER 2010

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

- a. In a 625 line TV system the duration of vertical sync pulse is
- (A) 64 μ s (B) 160 μ s
(C) 32 μ s (D) 27.3 μ s
- b. The vertical scanning frequency as per CCIR-B 625 line system is
- (A) 25 Hz (B) 15625 Hz
(C) 625 Hz (D) 50 Hz
- c. A desaturated colour is
- (A) Any colour mixed with red (B) Any colour mixed with green
(C) Any colour mixed with white (D) Any colour mixed with blue
- d. In Vestigial sideband Transmission as used in TV
- (A) The complete upper sideband is removed
(B) A part of upper sideband is removed
(C) The complete lower sideband is removed
(D) A part of lower sideband is removed
- e. The color sub carrier used in NTSC color TV system is
- (A) 4.43 MHz (B) 3.58 MHz
(C) 4.58 MHz (D) 3.43 MHz
- f. TV signals are propagated by means of
- (A) Ground wave propagation (B) Sky wave propagation
(C) Space wave propagation (D) None of these

- g. The horizontal bar pattern in a TV pattern generator is used for checking
- (A) Vertical linearity (B) Horizontal linearity
(C) Aspect ratio (D) Poor interlacing
- h. The value of local oscillator frequency when the TV receiver is tuned to Channel 7 is
- (A) 101.15 MHz (B) 228.15 MHz
(C) 221.15 MHz (D) 214.15 MHz
- i. The television picture tube employs
- (A) Electrostatic deflection and electromagnetic focusing
(B) Electromagnetic deflection and electrostatic focusing
(C) Electromagnetic deflection and electromagnetic focusing
(D) Electrostatic deflection and electrostatic focusing
- j. Combining (R-Y) and (B-Y) into a single function is accomplished by
- (A) Amplitude Modulation (B) Frequency Modulation
(C) Phase Modulation (D) Quadrature Modulation

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

- Q.2** a. Discuss briefly the following:
- (i) Vertical Resolution (6)
- (ii) Block diagram of a monochrome TV (6)
- b. Describe basic principle of colour camera. Explain with the help of a suitable diagram. (10)
- Q.3** a. Explain with the help of suitable sketches, how video signal is developed in a Vidicon camera tube? (8)
- b. Describe the constructional details and working of a Trinitron colour picture tube. (8)
- Q.4** a. Explain various adjustments for producing a perfect raster on the picture tube screen. (8)
- b. Explain horizontal sync composition with suitable diagrams. (8)
- Q.5** a. Explain the term compatibility and how colour difference signals are encoded (8)
- b. Explain the operation of PAL encoder with a neat block diagram (8)

- Q.6** a. Explain positive and negative modulation and mention the merits and demerits of negative modulation (10)
- b. Explain Co-channel interference and Adjacent channel interference (6)
- Q.7** a. Explain the separation of U and V color phasors in PAL TV Receiver (8)
- b. Explain the functions of various patterns available in a color TV Pattern Generator. (8)
- Q.8** a. Explain Remote transmitter and Remote control receiver with suitable diagrams. (8)
- b. Explain the functions Booster Amplifier. (8)
- Q.9** Write short notes on any two of the following; (2×8=16)
- (i) NTSC and SECAM TV systems
 - (ii) Phase error cancellation in PAL
 - (iii) Automatic Gain Control (AGC)