

JUNE 2008**Code: DE18**
Time: 3 Hours**Subject: TELEVISION ENGINEERING**
Max. Marks: 100**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.
 - 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 best alternative in the following: (2x10)

- a. Persistence of vision helps in fixing
- (A) Horizontal scanning (B) Blanking Period
(C) Video frequency (D) Vertical frame frequency
- b. If the aspect ratio is 4:3 in a conventional TV system, what would be the width and height in cms for a 100 cm screen?
- (A) 80, 60 (B) 87, 49
(C) 60, 45 (D) 30, 40
- c. Loss of Horizontal synchronization causes
- (A) Picture tear (B) No Video
(C) Rolling of Picture (D) Smearing
- d. Vertical sync pulses are also called
- (A) Equalising Pulses (B) Serrated Pulses
(C) Vertical Blanking Pulses (D) Sync Burst
- e. In CCIR-B the video bandwidth is
- (A) 4.5 MHz (B) 5.5 MHz
(C) 5.0 MHz (D) 6.0 MHz
- f. Halo-effect takes place in
- (A) Image Orthicon (B) Plumbicon
(C) Vidicon (D) Trinitron
- g. The usual take-off point for synchronising signal in a monochrome receiver is
- (A) the output of the IF stage (B) the output of the video detector stage

- (C) the output of the mixer stage (D) the output of video amplifier stage
- h. The most used picture tube in present day colour TV receivers is the
- (A) Delta-gun tube (B) PIL tube
(C) Image orthicon tube (D) Plumbicon
- i. An acoustic delay line is used in:
- (A) PAL receiver (B) NTSC receiver
(C) Monochrome receiver (D) PAL transmitter
- j. Most of the remote systems use
- (A) Ultrasonic carrier (B) Radio Frequency carrier
(C) Infrared carrier (D) Microwave carrier

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

- Q.2** a. What is the need of scanning, explain the principle of interlaced scanning with an illustration show that it reduces flickering. (8)
- b. Calculate the Video bandwidth of a 625 line system, with a Kell factor of 0.64 and aspect ratio 4:3. Assume interlaced scanning with two fields per frame and frame frequency of 25Hz. (8)
- Q.3** a. Draw composite video signal for a chess board pattern and indicate percentage amplitudes and timings of
- (i) Blanking level (ii) Sync. Pulse level
(iii) Time from the start of one line to the start of next line in microsecond (8)
- b. What is meant by D-C component of the video signal? How DC restoration is achieved. (8)
- Q.4** a. What is compatibility? Why and how luminance and chrominance signals are generated in colour transmission? (8)
- b. Why weighting is required in building chrominance signal? Draw video color composite signal with weighting. (8)
- Q.5** a. What is automatic frequency tuning, explain the principle of working of AFT. (8)
- b. What are the disadvantages of non-keyed AGC, explain the principle of keyed

AGC. (8)

- Q.6** a. How sound takes-off is obtained, explain the working of sound section. (8)
- b. Explain the principle of working of Trinitron picture tube. (8)
- Q.7** a. How sync separation is achieved, how AFC is achieved. (8)
- b. Give the merits and demerits of negative modulation in TV transmission. (8)
- Q.8** a. Design a five element Yagi-Uda antenna for channel VII of CCIR and draw its diagram. (8)
- b. What is a Booster, how does it work? Explain with schematic. (8)
- Q.9** Write short notes on:
- (i) SECAM encoder
 - (ii) PLL control
 - (iii) Dipole antenna with reflector and director
 - (iv) Color killer
- (4 x 4)