

**DECEMBER 2006**

**Code: D-18**  
**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. This circuit in a TV receiver is mainly controlled by sync pulses

- (A) video amplifier.                      (B) if amplifier.  
(C) sync separator.                      (D) mixer.

b. In scanning sequences, the number of lines lost during vertical retrace are

- (A) 20 lines.                                  (B) 40 lines.  
(C) zero lines.                                (D) 10 lines.

c. For TV broadcast the transmission used is

- (A) SSB transmission.                      (B) DSBFC transmission.  
(C) VSB transmission.                      (D) DSB transmission.

d. The kelly factor varies in the range

- (A) 0.2 to 0.4.                                (B) 0.5 to 0.6.  
(C) 0.65 to 0.75.                            (D) 1 to 2.

e. The cable used to connect Yagi antenna to TV receiver

- (A) flat cable.                                (B) coaxial cable.  
(C) fiber optic cable.                      (D) shielded cable.

f. India uses the system of colour TV

- (A) NTSC.                                      (B) German PAL.  
(C) French SECAM.                        (D) American system.

g. Antenna used for TV transmission

- |                         |                       |
|-------------------------|-----------------------|
| (A) Turstile Antennas   | (B) Yagi –uda antenna |
| (C) Parabolic reflector | (D) Dish Antenna      |

h. Colour burst is transmitted with the slot on

- |                          |                                          |
|--------------------------|------------------------------------------|
| (A) vertical sync pulses | (B) horizontal sync pulses               |
| (C) picture signal       | (D) back perch of horizontal sync pulses |

i. Video signal bandwidth in TV

- |                      |                        |
|----------------------|------------------------|
| (A) 20 Hz to 20 KHz. | (B) 7 MHz.             |
| (C) 5 MHz            | (D) None of the above. |

j. Colour subcarrier frequency in PAL is

- |              |              |
|--------------|--------------|
| (A) 5 Hz     | (B) 7 MHz    |
| (C) 1.25 MHz | (D) 4.43 MHz |

**Answer any FIVE Questions out of EIGHT Questions.**

**Each question carries 16 marks.**

- Q.2** a. List CCIR-B standards for colour TV signal transmission. **(8)**
- b. Draw the block diagram of monochrome TV transmitter. **(8)**
- Q.3** a. Draw composite video signal & label it. State the function of different pulses in it. **(6)**
- b. Draw the block diagram of monochrome TV receiver with appropriate waveforms. **(10)**
- Q.4** a. Draw & explain Delta gun picture tube. **(10)**
- b. Write the function of following parts / controls in TV picture tube
- |                     |                                   |            |
|---------------------|-----------------------------------|------------|
| (i) Deflection Yoke | (ii) Aquadage Conductive coating. | <b>(6)</b> |
|---------------------|-----------------------------------|------------|
- Q.5** a. Explain the principle of colour TV transmission & reception. **(4)**
- b. State the function of
- |                         |                     |             |
|-------------------------|---------------------|-------------|
| (i) Booster             | (ii) Diplexer       |             |
| (iii) Balun transformer | (iv) Dipole antenna | <b>(12)</b> |

- Q.6** a. Draw and explain Yagi Uda Antenna. **(6)**
- b. Explain the working of PAL encoder with suitable block diagram. **(10)**
- Q.7** a. Draw and explain block diagram of PAL-D colour TV receiver. **(12)**
- b. Compare Parabolic Antenna & Folded Dipole Antenna. **(4)**
- Q.8** a. Explain in brief the principle of colour TV camera. Explain how Luminance & Chrominance signals are derived. **(11)**
- b. Define and explain following terms w.r.t. TV
- (i) Hue.
  - (ii) Saturation.
  - (iii) Luminance signal.
  - (iv) Chrominance signal.
  - (v) Colour burst signal. **(5)**
- Q.9** a. Mention 3 different TV systems used in the world and compare & contrast the TV systems. **(12)**
- b. Compare Yagi antenna & folded dipole antenna. **(4)**