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Question Paper Code : 91378

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2014.

Seventh Semester

Electronics and Communication Engineering

EC 2034/EC 1007/EC 711/10144 ECE 44 — TELEVISION AND VIDEO
ENGINEERING

(Regulation 2008/2010)

(Common to PTEC 2034 — Television and Video Engineering for B.E. (Part-Time)
Seventh Semester — Electronics and Communication Engineering —
Regulation 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Compare between the number of scanning lines of PAL and NTSC systems.
2. What is a composite video signal?
3. What are the IF of Video and Sound of TV?
4. Why EHT is needed in TV circuits?
5. Distinguish between Hue and Saturation.
6. What is the application of degaussing circuit?
7. Give the exact colour sub-carrier frequency of NTSC system.
8. Draw the phase diagrams of the I and Q signals in the NTSC system.
9. What are the transmission principles behind digital TV?
10. What is the value of characteristic impedance of coaxial cable used for CATV?

PART B — (5 × 16 = 80 marks)

11. (a) (i) With neat diagrams explain the principle of interlaced scanning with clear mention about the scanning periods. Describe its scanning sequence. (10)
- (ii) Calculate the vertical resolution, horizontal resolution and modulating frequency of ' f_h ' for a 625 line TV system with kell factor of 0.69 and aspect ratio of 4 : 3. (6)

Or

- (b) (i) State how a solid state image scanner is constructed, and explain its operation. Describe the principle of scanning of TV pictures in it. (10)
- (ii) Explain the beam deflection principle in monochrome picture tube. (6)
12. (a) (i) Draw and explain some of the TV transmitting and receiving antennas. (10)
- (ii) Sketch the current waveforms in the deflection yoke coils to produce full raster. Explain the basic principles of producing such waveforms. (6)

Or

- (b) (i) Describe the basic principles of AGC and explain how the control voltage is developed and applied to IF and RF amplifier stages in the receiver. (10)
- (ii) Draw the basic LPF and HPF configurations which are used to separate vertical and horizontal sync informations and explain. (6)
13. (a) (i) Describe with a diagram the construction of colour TV camera and its optical system. Why is the 'r' signal set = $0.3 R + 0.59 G - 0.11 B$? (10)
- (ii) Explain the various pincushion correction techniques. (6)

Or

- (b) (i) Describe the construction details of a PIL tube and explain how it is different from delta gun colour tube. What are astigmatism and coma errors in it? (10)
- (ii) Describe the formation of the chrominance signals for RGB, Black and White colours. (6)

14. (a) Draw the block diagrams of a PAL coder and decoder and explain their operations by showing waveforms at various stages. (16)

Or

- (b) Explain the essentials of SECAM system and describe the working of its Encoder and Decoder with the help of their block diagrams. (16)
15. (a) (i) With neat block diagram, explain the domestic broadcast system. How does it differ from CATV? (10)
- (ii) Write short notes on projection television? (6)

Or

- (b) (i) Draw and explain the principle of DVD players. Explain the recording and playback operations in detail with diagrams. (10)
- (ii) State the principles of 3DTV and HDTV. (6)
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