

B.E. (ETC) Part-III 6th Semester Examination, 2010

**Audio and Video Engineering  
(ET-604)**

Time : 3 hours

Full Marks : 70

Use separate answerscript for each half.

Answer SIX questions, taking THREE from each half.

The questions are of equal value.

Two marks are reserved for neatness in each half.

**FIRST HALF**

1. Explain the terms photoemission and photoconductivity. Draw and explain cross sectional view of camera tube which employed with photoemission. How an electron multiplier works and what is its advantage?
2. Define compatibility and Reverse compatibility in respect of monochrome and colour TV system. What are the characters by which colour visual information can be represented?
3. With necessary diagrams explain the delta-gun colour picture tube. Describe how purity and convergence are achieved in it. Explain pin cushion correction techniques.
4. Explain the sequence of modulation in the PAL colour system and illustrated the colour burst swing in PAL system.
5. What are weighting factors and why are these applied to colour difference signals before quadrature modulation. Draw chrominance signal wave shape for a colour bar pattern and justify the scaling down of (R-Y) and (B-Y) signals.

**SECOND HALF**

6. Draw the block diagram of a monochrome television receiver and explain each block in detail.
7. What is a flicker? How it is reduced in 625 line TV System? How illusion of continuity is created in TV System? With the help of a diagram explain channel bandwidth requirements for 625 line TV System.

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8. With suitable diagram explain in detail about composite video signal for one horizontal line. Explain the basis for keeping the picture-sync ratio 7:3.
9. Determine the number of lines that get traced during each vertical retrace in 625 line TV System. Why is it necessary to separated the broad vertical sync, pulse and why are they notched at 32  $\mu$ s interval and not at 64  $\mu$ s interval? How 1 st and 2nd fields are synchronised?
10. Sketch the sectional view of a picture tube that employ electrostatic focusing and electromagnetic deflection and label all the electrodes. Explain briefly, how the electron beam is focused on the tube screen. What is negative space charge in a vacuum tube? Explain how it is eliminated in TV. picture tube?
11. Define total channel bandwidth using vestigial sideband. Why is a portion of the lower sideband of the AM picture signal transmitted along with the carrier and full VSB? Describe briefly the factors that influences the choice of picture IF = 38.9 MHz in the 625-B monochrome television system.