

2006 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY

III B.TECH I SEMESTER SUPPLEMENTARY EXAMINATIONS,  
TV ENGINEERING  
(ELECTRONICS & COMMUNICATION ENGINEERING)

NOVEMBER 2006

TIME -3 HOUR  
MARK - 80

Answer any FIVE Questions  
All Questions carry equal marks

1. (a) Define aspect ratio, contrast, brightness and resolution.  
(b) How is flicker eliminated by using interlaced scanning?  
(c) Derive the video bandwidth requirement for 625 line system. [4+6+6]
2. (a) Draw a picture frame chart showing the total number of active and inactive lines during each field and explain the need for terminating the first field in a half line and the beginning the second at the middle of a line at the top.  
(b) Why is a portion of lower sideband of the AM picture signal transmitted along with the Carrier and full USB? Does it need any correction some where in the television link? 6m  
(c) What are the merits and demerits of VSB modulation. [6+5+5]
3. (a) Explain fully how a vidicon camera tube develops the video signal.  
(b) Draw the light transfer characteristics of such a tube.  
(c) Explain what do you understand by dark current that flows in the load resistance. [6+5+5]
4. (a) What are the effects of atmospheric and obstacles on space waves? Why is it necessary to keep both the transmitting and receiving antennas as high as possible for television?  
(b) List the salient requirements of TV broad cast transmission. [8+8]
5. Explain the practical video detector circuit which incorporates efficient IF filtering, Suppression of harmonics, Separation of sound signals, Frequency compensation. Give typical values of components. [16]
6. (a) Sketch and label the current waveforms that might flow in the deflection yoke to produce a full raster. Explain the basic principles of generating such waveforms.  
(b) How does impedance of driving source affect the wave shapes? [8+8]
7. (a) Explain the main characteristics of the human eye with respect to the perception of colors.  
(b) What is Y signal? How it is composed? What are the two major components of the total color signals?  
(c) Why different bandwidths are assigned to Q and I signals
8. (a) What is the significance of Y signal in color transmission and reception?  
(b) List the main characteristics of an NTSC colour system.  
(c) Give the block diagram and explain the working of NTSC decoder