

8E8022

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B.Tech. VIII Semester (Main/Back) Examination, April/May - 2017  
Electronics and Communication Engg.  
8EC2A Radar and TV Engineering

Time : 3 Hours

Maximum Marks : 80

Min. Passing Marks : 26

**Instructions to Candidates:**

Attempt any **five** questions, selecting **one** question from **each** unit. All Questions carry **equal** marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitable be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

**Unit-I**

1. a) What is Radar? Draw the neat and clean block diagram of Radar. (4)
- b) Write Radar frequency bands and application of Radar. Explain with example. (4)
- c) Explain the working of LORAN system. (6)
- d) When a CW transmitter has 10 GHz frequency, calculate the Doppler frequency, seen by the stationary Radar. Target radial velocity is 250 km/h? (2)

**(OR)**

1. a) A radar operating at 12GHz, has a maximum range of 45km with an antenna gain of 5dB. If the transmitter has a power of 300kw and minimum detectable signal is  $2 \times 10^{-13}$  watt. Calculate Radar cross section of target. (4)
- b) Explain microwave landing system using neat and clean diagram. (8)
- c) Write short note on Radar display. (4)

**Unit-II**

2. a) Draw the block diagram of Monochrom TV transmitter and explain each block. (8)
- b) What is the limitation of NTSC system and how it is overcomes in PAL system? Explain the PAL system. (8)

(OR)

2. a) Explain plumbicon camera tube with its constructional diagram. (6)  
b) Draw the waveform of composite video signal and write the significance of (6)  
i) Pedestal height  
ii) Horizontal sync. pulse  
c) What is Flicker problem and how is it overcome? (4)

Unit-III

3. a) What is vestigial sideband transmission and why it is used for transmission of TV picture signals? (8)  
b) What do you understand by compatibility in TV transmission? (5)  
c) Define Luminance, Hue and saturation. (3)

(OR)

3. a) Explain how the 'y' and colour difference signals are developed from camera outputs? Why is the 'y' signal set (5+3=8)  
"y = 0.3 R + 0.59G + 0.11B"?  
b) Describe briefly the different type of TV transmission and reception antennas, with constructional diagram. (8)

Unit-IV

4. a) Draw the circuit diagram of direct coupled video amplifier and explain its main features. (4+4=8)  
b) What are the advantages of using AGC in television receivers? (8)

(OR)

4. a) Explain the use of (3×4=12)  
i) R.F Tuner,  
ii) Video detector,  
iii) Deflection oscillator and  
iv) EHT generation in TV receiver.  
b) Compare HDTV with normal TV receiver in terms of complexity and picture quality. (4)

Unit-V

5. a) Compare the analog TV and digital TV. (8)  
b) Explain the transmission of TV signal through satellite and transponders. (8)

(OR)

5. Write short note on : (8+8=16)

- a) DTH and cable TV  
b) IPTV and DBS-TV

