B.Tech. – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

00277

Term-End Examination

June, 2014

BIELE-018 : SATELLITE AND TV ENGINEERING

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks. Use of scientific calculator is permitted. Missing data, if any, may be suitably assumed.*

1. (a) Compare the method of transmission by FDMA and TDMA in satellite communication. *5*

(b) Explain various frequency bands used in satellite communication. *5*

2. (a) What is the reason for choosing uplink and downlink frequencies in the GHz range and why are they kept fairly apart from each other ? What limits the life of a satellite when once put in the orbit ? *5*

(b) Draw and explain the block diagram of a typical transponder model. *5*

3. Derive the basic link equation and explain its significance in the design of satellite links. *10*

4. What are the differences between the methods of carrier recovery for MPSK and PLL ? Explain with the help of block diagrams. *10*

5. What do you understand by vertical and horizontal resolution ? Show that the highest modulation frequency that needs to be handled in the 625 TV system is 5 MHz. *10*

6. (a) Justify the choice of a rectangular frame with width to height ratio equal to 4/3 for television transmission and reception. *5*

   (b) Why is medium persistence phosphor preferred for picture tube screens ? Why is an aluminized coating provided on the phosphor screen ? *5*

7. (a) Write the differences between Orthicon, Vidicon and Plumbicon picture tubes. *5*

   (b) Draw and explain the response characteristics of TV receiver. *5*

8. What do you understand by positive and negative modulation ? Justify the choice of negative modulation for TV transmission. *10*

9. Draw and explain the block diagram of digital TV receiver. *10*

10. Write short notes on any ***two*** of the following : *10*

(i) HDTV

(ii) Satellite Packet Switching

(iii) PAL