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BIELE-018

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

Term-End Examination

00103 **June, 2015**

BIELE-018 : SATELLITE AND TV ENGINEERING

Time : 3 hours *Maximum Marks : 70*

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

1. What are the basic functions of transponder in satellite communication system ? Draw and explain the block diagram of transponder model. *10*

2. (a) Discuss the various uplink and downlink frequency bands used in satellite communication system. *5*

(b) What is pseudonoise sequence ? How is CDMA system capacity calculated in satellite communication ? *5*

3. What is meant by frequency re-use ? Explain frequency re-use by orthogonal polarizations. *10*

4. Derive the general link design equation. Find the expression for C/N and G/T ratios. *10*

5. Draw and explain the block diagram of PLL (Phase Lock Loop) with different modes of operation. *10*

6. (a) Determine the number of lines that get traced during each vertical retrace in 625 lines TV systems. *5*

   (b) What is flicker ? Explain how can it be eliminated in interlaced scanning. *5*

7. (a) What do you understand by image multiplication and signal multiplication in an image orthicon camera tube ? *5*

   (b) Sketch and briefly explain the sectional view of TV picture tube. *5*

8. (a) Why is a portion of lower side band of AM picture signal transmitted along with the carrier and full VSB ? Does it need any correction somewhere in the TV link ? If so, where is it carried out ? *6*

   (b) Why are pre-emphasis and de-emphasis circuits provided at FM transmitter and receiver respectively ? *4*

9. Explain the difference between primary colours and complementary colours. Explain how the 'Y' and colour difference signals are developed from the camera outputs. Why is the Y signal set equal to (0·3R + 0·59G – 0·11B) ? *10*

10. Draw and explain the block diagram of PAL encoder and decoder. Compare its performance with NTSC system. *10*