

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

**00792 Term-End Examination**

**December, 2017**

**BIELE-018 : SATELLITE AND TV ENGINEERING**

*Time : 3 hours*

*Maximum Marks : 70*

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

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1. (a) What are the frequency bands available for satellite communication ? 5
- (b) What are the advantages of digital satellite communications ? Which technology is dominating in satellite communication ? 5
2. (a) What is the difference between FDMA and TDMA systems of message transmission ? 5
- (b) Explain the working principle of satellite packet switching. 5

3. (a) Describe the types of demand assignments. 5
- (b) Explain frequency reuse by orthogonal polarizations. 5
4. (a) What is a Transponder ? Explain its working principle for satellite communication. 5
- (b) Explain rain induced attenuation. How is it related to rain-induced cross-polarization interference ? 5
5. (a) Draw and explain the functional block diagram of an earth station transmitter. 5
- (b) Explain the operation and design principle of satellite link design with a suitable diagram. 5
6. (a) Draw and explain the block diagram of Phase-Lock Loop (PLL). Describe its usage in satellite communication. 5
- (b) How is carrier recovery done with a narrow band pass filter and AFC loop ? 5
7. (a) Draw the block diagram of a TV transmitter and receiver. Explain its working principle. 7
- (b) Explain the theory of scanning in TV. 3

8. (a) What is Image Orthicon ? Differentiate between vidicon and plumbicon. 5
- (b) Explain the principle of operation, construction and working of TV picture tubes. 5
9. (a) Explain the use of vestigial side bands in picture transmission of TV systems. 5
- (b) Explain the response characteristics of TV transmitter and receiver. What is the use of pre-emphasis and de-emphasis in TV systems ? 5
10. Write short notes on any *two* of the following :  $2 \times 5 = 10$
- (a) NTSC and PAL
- (b) HDTV
- (c) VCR
- (d) Plasma TV
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