

**B.TECH. SEM -VII ELECTRONICS 2014 COURSE (CBCS) :**  
**WINTER - 2017**  
**SUBJECT : ADVANCED COMMUNICATION SYSTEM**

Day **Friday**  
Date **19/01/2018**

Time **02.30 PM TO 05.30 PM**  
Max. Marks : **60**

**W-2017-2297**

**N. B. :**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Assume suitable data if necessary.

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**Q. 1** What are the elements of satellite communication? Explain in detail each of them with a suitable block diagram. **(10)**

**OR**

- a) Discuss how wave equations are useful in understanding the propagation of EM waves in wave guides. **(06)**
- b) Explain PIN diode microwave device including applications. **(04)**

**Q. 2** Derive general link equation. Find out expression for C/N and G/T ratio for satellite communication. **(10)**

**OR**

What is system noise temperature? Derive the relation for equivalent system noise temperature. **(10)**

**Q. 3** Explain in detail combined uplink and downlink C/N ratio. **(10)**

**OR**

List and explain the factors governing the design of satellite links. **(10)**

**Q. 4** With suitable diagram explain the principle of operation of FMCW radar. **(10)**

**OR**

Draw the block diagram of MTI Radar using range gates and filters and explain each block. **(10)**

**Q. 5** Draw and explain in detail the cognitive radio architecture. **(10)**

**OR**

- a) What are the benefits of using OFDM? **(04)**
- b) Briefly explain the design rules of cognitive radio. **(06)**

**Q. 6** With neat block diagram describe GSM architecture. **(10)**

**OR**

Explain about the following cellular concepts in detail: **(10)**

- a) Frequency reuse
- b) Channel assignment

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