

Wednesday, December 11, 2019	10:30 am - 01:30 pm	1T01018 - B.E.(ELECTRONICS & TELE-COMM)(SEM VIII) (CBSGS) / 52906 - Satellite Communication & Networks	80270
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**Duration: 3 Hrs.**

**Marks: 80**

**NB:**

- Q.1 is compulsory.**
- Solve any three from remaining five questions.**
- Assume suitable data wherever required.**
- Draw required diagrams neatly.**

**Q.1 Solve any Five:**

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- a) Discuss the signification of Microwave frequency in Satellite communication.
- b) Explain different tests conducted for the selection of Satellite component.
- c) Explain why 14/12 GHz band is used for DTH application, what are the advantages and disadvantages of this band?
- d) Define and explain reliability in satellite.
- e) Explain AM/PM conversion.
- f) How does back off power affect satellite link performance?

**Q.2**

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- a) Give a detail comparison between low, medium and high attitude satellite.
- b) Discuss the effect of earth's oblateness, moon and sun on the orbit of satellite. Explain "Parking orbit".

**Q.3**

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- a) A carrier 6/4 GHz satellite uplink has the following data: Earth station EIRP = 80dBW; Earth station satellite distance = 35780 km; attenuation due to atmospheric factor = 2dB; satellite antenna efficiency = 0.8; satellite antenna's aperture area 0.5m<sup>2</sup>; satellite receiver's effective noise temperature = 190K; satellite receiver band width = 20 MHz. Determine the link margin if the threshold value of received carrier to noise ratio is 25dB.
- b) Describe the significance of carrier to noise ratio, carrier to noise density ratio and bit energy to noise density ratio.

**Q.4**

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- a) What are the advantages and disadvantages of pre-assignment and demand assignment multiple access system? Explain how they are implemented in TDMA.
- b) Discuss FDMA-SCPC system.

**Q.5**

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- a) Discuss in brief the general configuration of earth station.
- b) Explain on-board connectivity with beam scanning.

**Q.6 Write short note on**

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- a) OSI reference model for Satellite Network.
- b) Concept and need of Laser satellite system.
- c) Factor govern the design of Earth station.
- d) Major techniques of attitude control.

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