Code: R7410409

R07

B.Tech IV Year I Semester (R07) Supplementary Examinations, May 2013

SATELLITE COMMUNICATIONS

(Electronics and Communication Engineering)

Time: 3 hours Max. Marks: 80

Answer any FIVE questions

All questions carry equal marks

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1 Describe the future trends of satellite communication.

2 (a) A satellite is moving in a near earth circular orbit at a distance of 640 km. Determine its orbital period.

(b) A satellite is moving in a molniya orbit having the farthest and the closet points as 35000 km and 500 km respectively from the earth's surface. Determine the time period and the velocity at the apogee and perigee points.

3 (a) Illustrate the DS-SS CDMA with seven chip spread code sequence 1110100.

(b) Show a base band correlator for discrete spread CDMA system.

4 (a) What is meant by wide area augmentation system WAAS?

(b) What is the need of local area augmentation system using DGPS?

5 (a) Draw a neat diagram of telemetry. Tracking and command and explain the operation.

(b) What is transponder? How many transponders are provided in a satellite link and discuss about the frequencies used in these transponders.

6 (a) Discuss the link budget of down link.

(b) Design a Ku band receiving earth station to provide an overall clear air C/N of 17 dB in a 27 MHz, if noise bandwidth at carrier frequency of 11.45 GHz. The antenna noise temperature is 30 K and the LNA and ignores the noise generator in the other parts of the receiving antenna. The receiving terminal is located on the 3 dB contour of the satellite foot print and clear air attenuation on the path and other losses total 0.8 dB.

7 (a) What is the necessity of satellite for communication? Explain.

(b) Discuss the three types of satellite systems.

8 (a) Define bits symbols and channels in TDMA.

(b) Write about TDMA frame structure.

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