Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 31233

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2012.

Seventh Semester

Electronics and Communication Engineering

EC 1403 — SATELLITE COMMUNICATION

(Regulation 2008)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Write the equation for total energy of a satellite for a two-body system.

2.   State Kepler's third law.

3.   Define sun transit outage.

4.   What do you meant by station keeping?

5.   For a given satellite and signal transmission. What are the earth station parameters affecting the C/N ratio?

6.   State the basic problems in satellite digital transmission.

7.   Write the need for polling method in demand assigned FDMA.

8.   Write the relation between noise power and noise bandwidth.

9.   What is GIS?

10. List the interacting components of NAVSTAR GPS.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the launching procedure for putting the GEO satellites in the orbit. (16)

Or

(b) What are the orbital parameters? Derive the expression for orbital equation of the satellite starting from Newton's law. (16)

12. (a) (i) With mathematics, illustrate the limits of visibility. (8)

(ii) How do you place satellites into geo stationary orbit? (8)

Or

(b) (i) List the effects to which the displacement in association with tracking feeds gives rise. How can tracking systems be affected? (8)

(ii) With diagrams explain the attitude and orbit control sub-system. (8)

13. (a) Explain the features of uplink design and briefly discuss the downlink attenuation. (16)

Or

(b) Explain the block diagram of double conversion earth station receiver and the concept of rain depolarization. (16)

14. (a) Explain the properties of maximum length sequence and give a detailed account on analog voice transmission. (16)

Or

(b) Explain the block diagram of TDMA and calculate its uplink power requirements. (16)

15. (a) List the characteristics of digital satellite image and explain how image enhancement is carried out. (16)

Or

(b) With urban applications of GIS explain the types of maps. (16)

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