Reg. No. : ⬜⬜⬜⬜⬜⬜⬜⬜⬜⬜⬜⬜

Question Paper Code : X 20419

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
Seventh Semester
Electronics and Communication Engineering
EC 6004 – SATELLITE COMMUNICATION
(Regulations 2013)
(Also Common to PTEC 6004 – Satellite Communication for B.E. (Part-Time) –
Seventh Semester – Electronics and Communication Engineering – Regulations 2014)

Time : Three Hours   Maximum : 100 Marks

Answer ALL questions

PART – A   (10×2=20 Marks)

1. When does the satellite remain in the orbit forever ?

2. Write the principle of on-board propulsion system.

3. Write the need for a two-way system of radio communication.

4. Write the relationship between EIRP and antenna gain.

5. Write the inverse square law.

6. Define free-space loss.

7. List the types of Multiple access systems.

8. List the functions of a typical CDMA receiver.

9. What do satellite data networks employing VSATs offer ?

10. Compare GEO and LEO systems.

PART – B   (5×13=65 Marks)

11. a) Explain the features of typical launch vehicles.   (13)

(OR)

b) State Kepler's laws. Define the various orbital elements.   (13)

12. a) Explain the specific technologies under the category of electric and ion propulsion. **(13)**

    (OR)

    b) Describe the design aspects of the Satellite Link. **(13)**

13. a) Write the ionospheric and tropospheric effects on space link. **(4+9)**

    (OR)

    b) Explain the use of Travelling Wave Tube Amplifiers in satellite communication systems. **(13)**

14. a) Why is Code Division Multiple Access called spread spectrum communication ? **(13)**

    (OR)

    b) Explain the relation between Time Division Multiple Access and ALOHA. List the features of spread spectrum technology. **(3+10)**

15. a) Write the applications of GPS. **(13)**

    (OR)

    b) While fixed satellite services represent the majority of the commercial business, mobile satellite communications applications have risen to the point of being more than an industry niche. Justify this statement. **(13)**

PART – C   **(1×15=15 Marks)**

16. a) List and explain the steps of Link power budget analysis of downlink. **(15)**

    (OR)

    b) List the various factors of home receiver unit. Write the features of digital TV broadcast. **(6+9)**

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