Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 50413

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2017

Seventh Semester

Electronics and Communication Engineering

EC 6004 – SATELLITE COMMUNICATION

(Regulations 2013)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. What is Prograde orbit ?
2. What is a geostationary orbit ?
3. Why is thermal control necessary in a satellite ?
4. What are the functions carried out in TT&C ?
5. A satellite downlink at 12 GHz operates with a transmit power of 6 W and an antenna gain of 48.2 dB. Calculate the EIRP in dBW.
6. Define noise factor.
7. What is single channel per carrier ?
8. Define postamble.
9. Define Dilution of Precision in GPS.
10. What is GRAMSAT ?

PART – B (5×16=80 Marks)

11. a) State and explain the parameters for Earth-Orbiting Satellites. **(16)**

(OR)

b) Describe in detail the Launching procedures of a satellite. **(16)**

12. a) Explain in detail with necessary schematics the spin stabilization technique and momentum wheel stabilization technique to keep a satellite's attitude control. **(16)**

(OR)

b) Discuss on the TWTA power amplifier used in a satellite transponder and its power output. **(16)**

13. a) i) Illustrate in detail about the Free-space transmission. **(10)**

ii) The range between a ground station and a satellite is 42,000 km. Calculate the free-space loss at a frequency of 10 GHz. **(6)**

(OR)

b) Briefly explain in detail the effects of rain in uplink and downlink in satellite communication. **(16)**

14. a) In detail explain about the Time Division Multiplexing and bandwidth requirements in a satellite transmission system. **(16)**

(OR)

b) Explain in detail the Code Division Multiple Access technique and lists its advantages. **(16)**

15. a) Describe on the satellite navigational system. **(16)**

(OR)

b) i) Discuss on Direct to home broadcast. **(8)**

ii) Write short notes on GSM. **(8)**