

C 1112

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**SIXTH SEMESTER B.TECH. (ENGINEERING) [09 SCHEME] DEGREE
EXAMINATION, APRIL 2016**

EC/PTEC 09 L05—SATELLITE COMMUNICATION

Time : Three Hours

Maximum : 70 Marks

Part A

Answer all questions.

1. On the basis of which device satellite is called passive satellite.
2. What type of effect will be caused by econosphere on satellite performance ?
3. What is a Transponder ?
4. Why uplink design is easier than downlink design ?
5. Why TDMA is not well suited to narrowband signals from small earth stations ?

(5 × 2 = 10 marks)

Part B

6. How is the performance of a satellite impaired due to external factors ?
7. Explain Orbital perturbations.
8. Draw the block diagram of optical satellite receiver and explain its working.
9. What are the factors contributing to noise in an earth station receiving channel ?
10. Explain the DA-TDMA burst structure. In what ways is it different from a simple structure.
11. Point out the function of : (a) the burst code word and (b) the carrier and bit-timing TDMA burst.

(4 × 5 = 20 marks)

Part C

12. (a) How is the performance of a satellite impaired due to external factors ? Also suggest suitable methods to overcome the same.

Or

- (b) Summarise how you will determine the look angles for the geostationary orbit ? What are known as sun-synchronous orbits ?

13. (a) Explain optical satellite crosslink in detail. What are the various parameters affecting the working of the link ?

Or

Turn over

(b) Derive an expression for the resulting downlink signal, after the uplink, crosslink and downlink transmissions have taken place.

14. (a) Write short notes on the following :

(i) Erlang call congestion formula and (ii) CATV system.

Or

(b) (i) Explain optical satellite link receiver with block diagram.

(ii) Discuss tracking and pointing in optical satellite link.

15. (a) Explain the block diagram of an outdoor unit for a DBS home receiver.

Or

(b) Compare the salient features of FDMA, TDMA and CDMA.

(4 × 10 = 40 marks)