

2062
B.E. (Electronics and Communication Engineering)
Sixth Semester
EC-605: Satellite Communications

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Section. Use of scientific calculator is allowed.

x-x-x

Q.1 Attempt all questions: -

- (a) What do you mean by a satellite Transponder? (2)
- (b) List out the disadvantages of LEO satellites. (2)
- (c) Define Intermodulation. (2)
- (d) What are the different sources of GPS errors? (2)
- (e) Distinguish single access and multiple accesses. (2)

Section- A

- Q.2 (a)** What are the different segments in satellite architecture? Explain. (5)
- (b)** Why the uplink and downlink frequencies are different? Explain. (5)
- Q.3 (a)** What are the various satellite launch vehicle selection factors? Explain them. (5)
- (b)** Define the elevation angle and derive the expression for it. (5)
- Q.4 (a)** What are the various approaches used to improve the reliability of the satellite? Explain any one. (5)
- (b)** Low earth orbit satellites use mainly L band, with ranges varying from 1000 km to 2500 km. Calculate the maximum and minimum path loss from earth to a satellite, in dB, for the uplink frequency of 1.6 GHz and down link frequency of 1.5 GHz. (5)

Section-B

- Q. 5 (a)** What are the different types of antenna mounts used at earth station? Explain. (5)
- (b)** Compare the low earth orbit and geostationary satellite systems. (5)
- Q.6 (a)** Explain the generation of GPS signals with a neat sketch. (5)
- (b)** Explain the principle of differential GPS. (5)
- Q.7** Explain the different propagation effects on satellite communication. (10)

x-x-x