

BE 8th Semester Final Examination 2013
Satellite Communication
(ET-814/4)

Time: 2hr.

F.M: 35

Answer question number 1 and any two from the rest

- 1.(a) Explain how communication is possible using LEO type of satellites?
(b) Why for C-band satellites specifically 6GHz is used for uplink and 4 GHz for downlink.
(c) What is Van Allen belt?
(d) How an active satellite differs from a passive one?
(e) Explain the term 'sun transit outage'.

[5 × 1 = 5]

2. (a) Name different subsystems of a satellite. With a neat schematic explain the function of TT&C system.

(b) What is a transponder? Explain with a block diagram the operation of a single conversion transponder. Make a comparison between a single conversion transponder with a double conversion transponder.

[(2+6)+(1+4+2)]

3(a). Name different access systems of a satellite. What is burst? Explain the difference between a reference burst and a traffic burst of TDMA frame. What is mixed access system?

(b) What do you mean by 'space qualification' and 'reliability' of a satellite system?

[(2+1+6+1)+5]

4. How the uplink design is different from then the downlink design? Why design of downlink is more critical than that of uplink? In what conditions a complete satellite link become downlink limited?

With necessary mathematical derivation prove that the required altitude of a geostationary satellite is 36,000Km.

[(1+2+6)+6]

5. (a) Write short technical note on:

(i) INMARSAT,

(ii) INTELSAT,

(iii) GPS

[5 × 3 = 15]