Roll No. | | | | | | | | | | | | | **Total No. of Pages : 01**

Total No. of Questions : 8

M.Tech. (ECE) (Sem.–2)

SATELLITE COMMUNICATION

Subject Code : MTEC-PE3A-18

M.Code : 76261

Date of Examination : 22-12-2022

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1.Attempt any FIVE questions out of EIGHT questions.

2.Each question carries TWELVE marks.

Q1 a) Explain the architecture of satellite communication system in detail.

b) What are the uplink and downlink frequency bands used for the satellite communication? Also, explain their advantages and drawbacks.

Q2 a) Explain all the three Kepler's laws of planetary motion.

b) Define all the orbital elements used in satellite communication.

Q3 a) Derive the time period taken by the satellite in the completion of one full revolution in its elliptical orbit around the earth by using the concept of area swept by the satellite.

b) Explain the concepts of solar day and sidereal day in detail.

Q4 a) Explain power sub-systems and antenna sub-systems in detail

b) Explain the role of tracking and monitoring in satellite systems.

Q5 a) Explain attitude and orbit control system in satellite communication system.

b) Explain phenomenon of solar eclipse in detail.

Q6 **Explain in detail :**

a) Explain DBS-TV satellite in detail.

b) The effect of sun transit outage phenomenon on satellite and its remedies.

Q7 a) Explain GPS system in detail.

b) Explain why Doppler frequency shift phenomenon occurs in satellite communication. Also derive the expression for Doppler shift.

Q8 a) Explain multiple access schemes used in satellite communication.

b) Explain the application of VSAT system with its limitation.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.