1. **CVR COLLEGE OF ENGINEERING**
2. *An UGC Autonomous Institution* - Affiliated to JNTUH
   * + 1. **B.Tech**. **IV** Year **I** Sem. **I MID Examinations –** August, 2018
3. Subject**: Satellite Communications**
4. **(Professional Elective –III)**
5. Date: 23/82018 Time: 2 hours Max. Marks: **40**
6. 
   * + - 1. **PART – A**
7. Answer **ALL** questions **5 *x* 2 = 10 M**
8. What are the advantages of C-band over ka and ku bands? (CO1)
9. If the altitude of a satellite is 35,768.03 km, then find its velocity (km/s) and it’s orbital period (H M S). (CO1)
10. Differentiate single conversion and dual conversion transponders. (CO2)
11. If the noise figure of a receiver is 0.56 dB then find out its noise temperature (K). (CO2)
12. Compare TDMA, FDMA, CDMA. (CO3)

**PART – B**

1. Answer **ALL** questions **3 *x* 10 = 30 M**
2. a) Describe orbital perturbations in detail. [5M] (CO1)

b) How do you calculate Look angle of a geostationary satellite? [5M] (CO1)

(OR)

1. a) What are the Kepler’s laws and describe the orbit of a satellite using these Laws. [5M] (CO1)
2. What is the difference between geostationary and geosynchronous orbits. Also mention the advantages of geostationary satellite? [5M] (CO1)
3. a) Derive the satellite Link equation and explain its significance. [5M] (CO2)

b) A Satellite at a distance of 40,000 km from a point on the earth surface radiates a power of 10 W from an antenna with a gain of 17 dB in the direction of the observer. Find the Flux density and power received by an antenna at this point with an effective area of 10 m2.

[5M] (CO2)

(OR)

1. a) What do you mean by space qualification and derive an equation for reliability of a device? [5M] (CO2)

b) Describe satellite orbital control system. [5M] (CO2)

1. What is inter-modulation? Derive an equation for the power of inter-modulation products at the output of a High Power Amplifier (HPA) in the FDMA System. [10M] (CO3)

(OR)

1. What is the importance of back-off loss in the satellite Communications? Write an equation for calculation of C/N with inter-modulation and mention its significance. [10M] (CO3)