U.S.N

P.E.S. College of Engineering, Mandya - 571 401
(An Autonomous Institution affiliated to VTU, Belagavi)
Eighth Semester, B.E. - Electronics and Communication Engineering
Semester End Examination; July - 2021
Satellite Communication

Time: 3 hrs   *Max. Marks: 100*

Note: *Answer any FIVE full questions.*

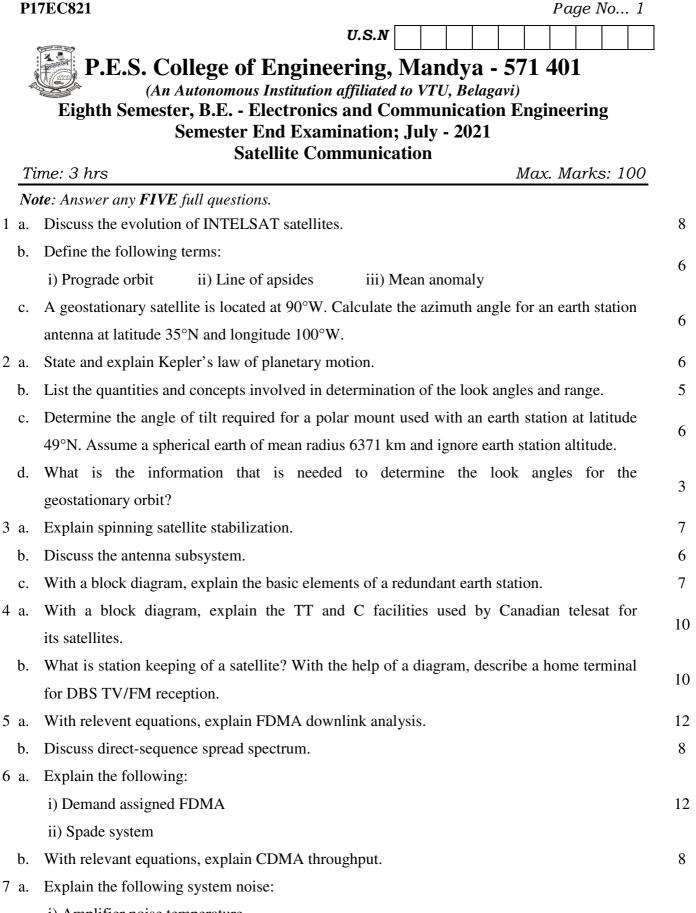|		
1 a.	Discuss the evolution of INTELSAT satellites.	8
b.	Define the following terms: i) Prograde orbit ii) Line of apsides iii) Mean anomaly	6
c.	A geostationary satellite is located at 90°W. Calculate the azimuth angle for an earth station antenna at latitude 35°N and longitude 100°W.	6
2 a.	State and explain Kepler's law of planetary motion.	6
b.	List the quantities and concepts involved in determination of the look angles and range.	5
c.	Determine the angle of tilt required for a polar mount used with an earth station at latitude 49°N. Assume a spherical earth of mean radius 6371 km and ignore earth station altitude.	6
d.	What is the information that is needed to determine the look angles for the geostationary orbit?	3
3 a.	Explain spinning satellite stabilization.	7
b.	Discuss the antenna subsystem.	6
c.	With a block diagram, explain the basic elements of a redundant earth station.	7
4 a.	With a block diagram, explain the TT and C facilities used by Canadian telesat for its satellites.	10
b.	What is station keeping of a satellite? With the help of a diagram, describe a home terminal for DBS TV/FM reception.	10
5 a.	With relevent equations, explain FDMA downlink analysis.	12
b.	Discuss direct-sequence spread spectrum.	8
6 a.	Explain the following: i) Demand assigned FDMA ii) Spade system	12
b.	With relevant equations, explain CDMA throughput.	8
7 a.	Explain the following system noise: i) Amplifier noise temperature ii) Noise factor iii) Antenna noise	9
b.	Explain Request For Comments (RFCs) in detail.	8
c.	Write a short note on asymmetric channels.	3

8 a. Explain enhancing TCP over satellite channels using standard mechanisms.   10

   b. With relevant equations, explain saturation flux density.   10

9 a. Explain transponder capacity.   6

   b. With a block diagram, explain the home reciever indoor unit.   9

   c. List any five applications of radarsat.   5

10 a. Explain satelite mobile services.   10

   b. With a block diagram, explain MPEG-2 encoder paths.   10

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