



BRAINWARE UNIVERSITY

Term End Examination 2022
Programme – B.Tech.(ECE)-2019
Course Name – Satellite Communication
Course Code - PEC-ECCL703A
(Semester VII)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) State, Which of the following are the satellite receivers on the earth station?
a) DTH satellite equipment
b) Mobile reception equipment in aircraft
c) Satellite telephones
d) All the these
- (ii) Satellites are classified into _____ types.
a) 9
b) 10
c) 8
d) 12
- (iii) GPS express as _____.
a) Global Positioning System
b) Global Positioning System
c) Guide Posting System
d) Global pointing System
- (iv) State, How many techniques are used for achieving multiple access?
a) 2
b) 3
c) 4
d) 5
- (v) FDD technique in multiplexing express _____.
a) Frequency division duplex
b) Frequency double division
c) Frequency duplex division
d) Frequency division double
- (vi) Choose, Which of the following are the examples of FDMA?
a) AMPS
b) NMT
c) Radiocom
d) All of these
- (vii) Choose, Which of the following are the advantages of FDMA?
a) It is easy to implement
b) It is a continuous transmission scheme
c) Less complex scheme
d) All of these
- (viii) Select the following components in satellite communication?
a) Mixer
b) Transponder
c) Filter
d) All of these
- (ix) Choose, which of the following are the main components in satellite communication?
a) Uplink
b) Downlink
c) Transponder
d) All of these
- (x) Satellite communication services are classified into how many types?

- a) One
c) Three
- b) Two
d) Four
- (xi) Choose, which of the following are the advantages of satellite communication?
a) Covers maximum bandwidth
c) Reliability
- b) It provides elasticity property
d) All of these
- (xii) Choose, which of the following is the own satellite of India?
a) Rohini D1
c) Dong Fang Hong I
- b) Ohsumi
d) GSAT
- (xiii) Justify, which of the following are the units of data rate?
a) Bits/seconds
c) Centimeters
- b) Meters
d) Bits
- (xiv) Justify, which of the following is true when the data rate is reduced?
a) Duty cycles are increased
c) There will be compression in data
- b) Duty cycles are increased
d) All of these
- (xv) Select, Which of the following are the algorithms used in satellite communication?
a) MHA- minimum hops algorithm
c) Dijkstra shortest algorithm
- b) MCA- Minimum cost Algorithm
d) All of these

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Discuss about the GEO satellite. (3)
3. Illustrate Orbit Control System of a satellite. (3)
4. Explain ground based and space based remote sensing. (3)
5. Explain dilution of precision? (3)
6. Write down, what kind of satellites are placed in (LEO) low earth orbit? (3)

OR

Express the Kepler's laws of satellite communication? (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. The Apogee and Perigee distance of an elliptical satellite orbit are 3000Km and 200Km. Examine the eccentricity, semi-major and semi-minor axes of the elliptical path of the satellite. (5)
8. State Kepler's laws of planetary motion. Relate involving time period of rotation of the satellite, length of semi-major axis of the orbit, the mass of the planet and universal constant of gravitation. (5)
9. Illustrate Apogee and Perigee. Distinguish between Solar day and Sideral day. Write down the possible causes of orbit perturbations. (5)
10. explain the actions of Sonar (5)
11. Explain the actions of Lidar (5)
12. Calculate the Apogee and Perigee heights for the orbital parameters given as $E=0.00115$, $a=7192.3$ Km. Assume mean radius of the earth as 6371 Km. (5)

OR

estimate the different wavelength bands which are used in remote sensing. What is atmospheric window? (5)
