GOVERNMENT POLYTECHNIC CHAPRA

MORHOWRAH, BIHAR

DEPARTMENT OF ELECTRONICS ENGINEERING

DIPLOMA - 6TH SEMESTER – ASSIGNMENT – 2020

SUBJECT CODE: **1621602**

SUBJECT NAME: **ADVANCE COMMUNICATION SYSTEM**

1. Define AM and derive the expression for AM wave.
2. Define FM and derive the expression for FM wave.
3. Define PM and derive the expression for PM wave.
4. Define reflection and refraction of radio waves.
5. What is propogation of waves and write its different types.
6. Briefly explain ground wave, sky wave and space wave.
7. Derive the range of space wave propogation.
8. Define skip distance and what skip distance depends upon.?
9. Define critical frequency and derive its expression.
10. Define Maximum Usable Frequency and derive its expression.
11. What is duct propogation and explain it.
12. Explain about fading and composition of ionosphere.
13. The antenna current of an AM transmitter is 95A when it is modulated to depth 50% by an audio signal. It is increased to 115A when another signal modulates the carrier signal. What will be the modulation index due to second signal.
14. A sinusoidal carrier has amplitude of 5V frequency 20khz it is amplitude modulated by sin voltage of amplitude 1V and frequency 1khz – modulated voltage is developed across 50l.
15. Write the equation for modulated wave.
16. Determine the modulation index.
17. Determine FUSB & FLSB.
18. Draw spectrum of modulated wave.
19. Define virtual height and skip zone.? What is the characteristic of ionosphere?
20. Define noise and write its different types.
21. Differentiate between internal noise and external noise.
22. Explain thermal noise and shot noise.
23. Explain about noise in communication system.
24. Define noise figure and noise temperature.
25. Explain about noise figure measurement.
26. Draw the block diagram of basic components of satellite communication system and explain about all the blocks.
27. What is satellite communication system? And write the application of satellite.
28. Explain the different types of satellite according to orbits.
29. Explain the different types of communication satellite.
30. Write short notes on apogee, perigee, orbital velocity, orbit, escape velocity, posigrade orbit, retrograde orbit, uplink, downlink, frequency band.
31. Derive the expression for orbital velocity.
32. Derive the expression for height of satellite.
33. Explain about remote sensing satellite.
34. Explain about the history of development of satellite communication in India.
35. What is optical communication system.
36. Explain the optical fibre construction with the help of diagram and also its modes of operation.
37. Explain the working principle of optical fibre and write its advantages and applications.
38. Explain about numerical aperature and losses in optical fibre.
39. What is RADAR and write its different types.
40. Draw the block diagram of pulse RADAR and explain it.
41. Write the advantage and disadvantage of RADAR.
42. Brief on Duplexer.
43. What is MTI and explain the block diagram of moving target indicator.
44. What is Doppler effect.
45. Explain about pulse position indicator.
46. Determine the RADAR range equation.
47. Briefly describe about RADAR beacons.
48. Explain the basic information theory.
49. Explain about the channel capacity.
50. What is discrete channel and redundancy.
51. State Hartley sanon’s law.
52. What is bandwidth and signal to noise ratio.
53. Explain about cellular mobile communication system
54. What is the concept of cells.
55. Explain the basic cellular mobile radio system.
56. Define cell phone and FAX
57. Write the important features and application of FAX and Cell phone.
58. Brief about VSAT and radio paging system.
59. Write the short notes on wi-fi, pager, 3G, 4G, 5G, MODEM, VOD.
60. Explain about the IPTV.