1. Describe the classification and application of optical communication

systems

1. Describe the principle of operation of a digital optical communication

system

3. Describe linear regenerators and optical amplifiers

4. Describe the sources of optical radiation

5. Write the definition of a laser diode and its composition

6. Write a Light Emitting Diode (LED) and its working principle

7. Compare laser and light emitting diodes

8. Tell us about radiation modulation

9. Write about external modulation of optical radiation

10. Describe direct modulation

11. Write a comparative characteristic of direct and external modulation

12. Tell us about the receiving optoelectronic module

13. Describe p-i-n photodiodes

14. Tell us about the avalanche photodiode

15. Explain the technical characteristics of photodetectors (PPR)

16. Describe optical amplifiers and regenerators

17. Give the classification of optical amplifiers

18. Describe dopant fiber amplifiers.

19. Write the main methods of sealing FOCL and give their schemes

20. Describe the temporal compaction and give the main scheme

21. Describe the spatial compaction and give the main scheme

22. Describe frequency division multiplexing and give the main circuit

23. Describe the spectral (wave) compression and give the main scheme

24. Describe the linear codes of FOTS and their classification

25. Give the characteristics of the codes used in FOTS

26. Describe modern technologies and equipment of an optical

communication system

27. Give the classification and design of fiber optic cables.

28. Explain Maxwell's equations

29. Explain transparency windows

30. Describe the main characteristics and parameters of antennas

31. Explain the Doppler effect.

32. Describe the multiplexer and its principle of operation

33. STM-1 layer multiplexer and give its block diagram

34. Write about the multiplexer and its main blocks

35. Describe the multiplexer layers in the SDH network.

36. Describe the Layered SDH Model

37. Describe the Input/Output Multiplexer (ADM) in SDH

38. Describe Regenerators in an SDH network

39. Describe the technology (SDH) of Synchronous Digital Hierarchies

40. Tell us about Selective WDM

41. What are the benefits of SWDM?

42. Describe DWDM technology?

43. Write the difference between DWDM and SWDM technologies

44. Talk about WDM and draw a block diagram where WDM is used

45. Classification and types of WDM

46. ​​Describe the model of interaction of transport technologies?

47. Consider the basic circuits of multiplexers

48. Describe the main elements of the network

49. Consider a WDM multiplexing scheme based on a diffraction grating on

an array of waveguides.

50. Consider WDM multiplexing scheme based on 3D optical multiplexing

51. Describe the principle of operation of passive optical networks.

52. List the varieties of PON technology

53. Give comparative characteristics of the three types of PON

54. Give advantages and disadvantages of WDM technology

55. Describe how the PON standard works

56. Describe the main functions of the PON standard.

57. Describe the modulation of radiation

58. Give the geometric parameters of optical fibers

59. Describe the main elements of the network

60. Characteristics of optical cables with single-mode fibers