Перечень вопросов для зачёта
по дисциплине: «Основы материаловедения в стоматологии»
для студентов III курса, обучающихся на английском языке,
по специальности «Стоматология» 2024/2025 учебного года

1. Give a definition of dental materials science as an applied science. Why is dental materials science a separate field of knowledge?
2. What is the "ideal" dental material? Is there a universal "ideal" dental material? Explain your answer.
3. How are dental materials classified? Name the classification and explain on what principle they are based.
4. Tell about the classification of dental materials according to their chemical nature. Why are materials of different chemical nature used in dentistry?
5. Tell us about the basic classification of dental materials. What is the principle underlying this classification?
6. What are the properties of the materials which determine the possibility of their use in different fields of dentistry?
7. What are the characteristics of the physiological properties of dental materials?
8. Methods of physical analysis.
9. What indicators characterize the chemical properties of dental materials? Requirements for structural materials in terms of chemical parameters.
10. What are the indicators that characterize the mechanical properties of dental materials?
11. What are stress concentration and stress concentrator? Describe the relationship between stress concentrator shape and stress magnitude.
12. Compare dental materials of different chemical nature: metals, ceramics, polymers in general terms of their physical and mechanical properties.
13. What is theoretical and practical strength? Why in practice it is impossible to create materials with strength equal to theoretical strength?
14. Why is it necessary to carry out preclinical (technical, biological) tests and why is it impossible to limit oneself to clinical tests (observations)?
15. What types of materials are classified into in terms of their ability to absorb mechanical stress?
16. List the properties of the "ideal" (restorative) dental material.
17. List the requirements for dental materials.
18. Name the main characteristics of restorative materials.
19. What are the characteristics of aesthetic properties of dental materials?
20. Compare in general terms dental materials of different chemical nature: metals, ceramics, polymers on their aesthetic properties.
21. Dental cements. Classification.
22. Zinc-phosphate cements. Composition. Properties. Methods for preparation. Application.
23. Silicate cements. Composition. Properties. Methods for preparation. Application.
24. Silicophosphate cements. Composition. Properties. Methods for preparation. Application.
25. Polycarboxylate cements. Composition. Properties. Methods for preparation. Applications.
26. Glass ionomer cements. Composition. Properties. Methods for preparation. Applications.
27. Classification of modern glass ionomer cements.
28. Different types of glass ionomer cements according to chemical composition and curing mechanism.
29. Dual-curing hybrid glass ionomer cements. Properties.
30. Triple-curing hybrid glass ionomer cements. Properties.
31. Cements for permanent fixation of fixed dentures.
32. Cements for temporary luting of artificial crowns.

33. Aqueous inorganic dental cements. The powder in a zinc-phosphate cement set by composition is…
34. Increasing the amount of liquid when mixing zinc-phosphate cement results in ...
35. The thickness of the cement film in denture luting should be ...
36. The liquid in the silicate cement set is ...
37. The concept of composite materials.
38. The chemical composition of composites.
39. Additional components of composite materials.
40. Classification of composite materials.
41. Macrofilled composite materials. Representatives.
42. Microfilled composite materials. Representatives.
43. Hybrid composite materials. Representatives.
44. Total composites. Representatives.
45. Properties of composite materials.
46. Mechanism of adhesion of composites to enamel and dentin.
47. Physical and chemical properties of chemically cured composites.
48. Preparation of chemically cured composites. Filling.
49. Adhesive systems. Physical and chemical properties.
50. Adhesion to enamel.
51. Adhesion to dentin.
52. Techniques for application of first generation adhesive systems.
53. Techniques for application of II generation adhesive systems.
54. Methods of application of III generation adhesive systems.
55. Methods of application of adhesive systems of IV generation.
56. Methods of application of adhesive systems of V generation.
57. Methods of application of adhesive systems of VI generation.
58. Methods of application of seventh generation adhesive systems.
59. Requirements for materials for root canal filling.
60. Modern classification of materials for root canal filling.
61. Materials for surgical dentistry.
62. General characteristics of materials for restorative facial surgery and dental implants.