

**Federal State Budgetary Educational Institution North Ossetian State Medical  
Academy of the Ministry of Health of the Russian Federation**

**Department of Dentistry No. 1**

**APPROVED**

By the Central Coordinating  
Educational and Methodological Council  
"May 23, 2023 No. 5

**FOND OF ESTIMATED FUNDS**

in the discipline **Dentistry: Stom Materials**

basic professional educational program of higher education –  
specialty programs in the specialty 31.05.03 Dentistry, approved by the Ministry of  
Health of the Russian Federation. 24.05.2023 г.

For students specialty 31.05.03 Dentistry

Reviewed and approved at the meeting of the  
Department on May 19, 2023, Protocol No. 9  
Head of the Department MD,



signature

Associate Professor  
M. G. Dzgoeva

**Vladikavkaz 2023г.**

## **STRUCTURE OF EVALUATION MATERIALS**

1. Title page
2. Structure of evaluation materials
3. Reviews of evaluation materials
4. Passport of evaluation materials
5. Set of evaluation materials:
  - questions for the module
  - questions for the test
  - exam questions
  - a bank of situational tasks/practical tasks/business games
  - standards of test tasks (with title page and table of contents)
  - examination tickets/test tickets

FEDERAL STATE BUDGETARY EDUCATIONAL INSTITUTION OF HIGHER  
EDUCATION "NORTH OSSETIAN STATE MEDICAL ACADEMY" OF THE  
MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION

REVIEW  
of evaluation materials

in the discipline Dentistry: Stom Materials  
For 2 st year students in the specialty 31.05.03 Dentistry

The evaluation materials were compiled at the Department of Dentistry No. 1 on the basis of the work program of the discipline approved on 05/24/2023 and meet the requirements of the Federal State Educational Standard for the specialty 31.05.03 Dentistry, approved by the Ministry of Education and Science of the Russian Federation on 08/19/2020, No. 984.

Evaluation materials include a bank of test tasks, exam tickets (test tickets).

The bank of test tasks includes the following elements: test tasks, variants of test tasks, answer templates. All tasks correspond to the work program of the discipline Dentistry: Stom Materials and cover all its sections. The complexity of the tasks varies. The number of tasks for each section of the discipline is sufficient to carry out knowledge control and eliminates the repeated repetition of the same question in different versions. The bank contains answers to all test tasks and tasks.

The number of examination tickets is 35, which is enough for the exam and excludes the repeated use of the same ticket during the exam in one academic group on the same day. Examination tickets are made on the forms of a single sample in a standard form, on paper of the same color and quality. The exam ticket includes 4 questions. The wording of the questions coincides with the wording of the list of questions submitted for the exam. The content of the questions of one ticket relates to various sections of the program, which allows you to more fully cover the material of the discipline.

The complexity of the questions in the examination tickets is evenly distributed.

There are no comments to the reviewed evaluation materials.

In general, evaluation materials on the discipline discipline Dentistry: Stom Materials contribute to a qualitative assessment of the level of students' proficiency in general cultural and professional competencies.

Peer-reviewed evaluation materials can be recommended for use for intermediate certification at the Faculty of Dentistry for 2 st year students.

Reviewer:

Chairman of the Central Committee of Dental  
Disciplines with the subcommittee on the  
examination of evaluation tools, MD,  
Associate Professor



G.V. Toboev

ПОДПИСЬ

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Reviewer:

The chief doctor of the dental  
polyclinic of SOGU, PhD



D.Z. Choniashvili

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ПОДПИСЬ

**Passport of the Department of assessment tools for the discipline  
Dentistry: Materials Science**

<b>n /</b>	<b>a Name of the supervised section (topic) of the discipline / module</b>	<b>Code of the formed competence(stage)</b>	<b>Name of the evaluation tool</b>
1	2	3	4
<b>Type of control</b>	<b>Intermediate</b>		
<b>1</b>	Subject of dental materials science. Classification of dental materials. Properties of materials.	OPK7	Standards of test tasks; exam tickets
<b>2</b>	Basic construction materials in orthopedic dentistry	OPK7	Standards of test tasks; exam tickets
<b>3</b>	Auxiliary materials in dentistry.	OPK7	Standards of test tasks; exam tickets
<b>4</b>	Basic requirements for dental materials used in the clinic of therapeutic dentistry.	OPK7	Standards of test tasks; exam tickets
<b>5</b>	Dental amalgam.	OPK7	Standards of test tasks; exam tickets
<b>6</b>	Dental cements.	OPK7	Standards of test tasks; exam tickets
<b>7</b>	Polymer materials for dental restoration. Polymer composites, general characteristics and classification. Adhesives and sealants.	OPK11	Standards of test tasks; exam tickets
<b>8</b>	Dental materials used for filling root canals.	OPK11	Standards of test tasks; exam tickets
<b>9</b>	Materials for surgical dentistry. General characteristics of materials for reconstructive surgery of the face and dental implants.	OPK11	Standards of test tasks; exam tickets
<b>10</b>	Temporary materials in dentistry	OPK11	Standards of test tasks; exam tickets

### Table of contents

#	Name of the supervised section (topic) of the discipline / module	Number of tests (total)	Code of the competencies being formed	page from __ to __
1	2	3	4	5
<b>Type of control</b>	<b>Intermediate</b>			
1.	Subject of Dental Materials Science. Classification of dental materials. Properties of materials.	7	OPK7	p. 9
2.	Basic construction materials in orthopedic dentistry	7	OPK7	p. 9-10
3.	Auxiliary materials in dentistry.	7	OPK7	p. 10-11
4.	Basic requirements for dental materials used in the clinic of therapeutic dentistry.	7	OPK7	p. 11-12
5.	Dental amalgam.	7	OPK7	p. 13-14
6.	Dental cements.	7	OPK7	p. 14-15
7.	Polymer materials for dental restoration. Polymer composites, general characteristics and classification. Adhesives and sealants.	7	OPK11	p. 16-17
8.	Dental materials used for filling root canals.	7	OPK11	p. 17-18
9.	Materials for surgical dentistry. General characteristics of materials for reconstructive surgery of the face and dental implants.	7	OPK11	p. 18-19
10.	Temporary materials in dentistry	7	OPK11	p. 19-20

## Section 1

### **1. Which of the named material properties is considered physical:**

1. density
2. hardness
3. strength

### **2. Which of the named material properties is considered mechanical:**

1. strength
2. thermal conductivity
3. thermal expansion

### **3. Which of the material properties is considered chemical:**

1. solderability
2. erasability
3. oxidation

### **4. Which of the material properties is considered technological:**

1. malleability
2. fatigue
3. resilience

### **5. Fluidity is:**

1. the ability of the material to fill out the form
2. the ability of the material to melt
3. the ability of the material to take shape under pressure

### **6. The main types of deformations are:**

1. stretching
2. compression
3. shift
4. torsion
5. bend
6. all of the above

### **7. Abrasive materials belong to :**

1. basic structural elements
2. auxiliary services
3. clinical experience

## Section 2

### **1. Melting point of stainless steel:**

1. 700 ° C;
2. 1100 ° C;
3. 1400 ° C;

### **2. What metal is the basis of CCS:**

1. iron

2. cobalt
3. chrome

**3. What is the main purpose of silver in a gold alloy:**

1. increasing the alloy's resistance to acids
2. lowering the melting point
3. improving the thermal conductivity of the alloy

**4. What sample of gold alloy is used for the manufacture of stamped crowns:**

1. 750
2. 900
3. 999

**5. What is the purpose of copper in a gold alloy:**

1. increasing the hardness of the alloy
2. giving a nice color
3. improving the casting properties of the alloy

**6. Casting -**

1. the process of heating at a given temperature and slow cooling of alloys
2. the process of manufacturing castings by filling pre-prepared molds with liquid metal
3. the process of heating, holding at a given temperature and rapid cooling

**7. Stainless steel formula:**

1. 20X18H9T
2. Ca CO<sub>2</sub>
3. 90Cu10Al

### Section 3

**1. The group of alginate impression materials includes:**

1. U-pin 2. Gypsum 3. Speedex

**2. The group of silicone impression materials includes:**

1. Stomalgin 2. Stomaflex 3. Gypsum

**3. What impression materials does gypsum belong to:** 1. Silicone 2. Alginate 3. Crystallizing

**4. Group of impression materials:**

1. Thermoplastic 2. Elastic 3. Polymerizable 4. True 1 2 5. True 1 2 3

**5. What are the deadlines for obtaining a plaster model from stomalgin:**

1. 20 minutes 2. Within one hour 3. During the day

**6. Which of the impression materials is classified as thermoplastic:** 1. Algix 2. Altex 3. Orthokor



## 7. Silicone materials are mainly used:

1.

For removing impressions from toothless jaws 2. For removing impressions in the manufacture of cermets 3. For repairing dentures

## Section 4

### 1. Temporary filling materials must be

- 1) ensure tight closure of the tooth cavity
- 2) be resistant to abrasion
- 3) match the appearance of natural teeth
- 4) easy to enter and exit the cavity

### 2. Materials for insulating gaskets must be

- 1) resist the pressure force
- 2) increase dentin permeability
- 3) prevent the movement of fluid in the dentinal tubules and seal them tightly
- 4) be a temperature and chemical insulator
- 5) break down under the action of gingival and dentinal fluid

### 3. Materials for medical pads should

- 1) provide anti-inflammatory, antimicrobial, odontotropic effect
- 2) ensure a strong sealing of the underlying dentin, communication with tooth tissues, padding and permanent fillings materials
- 3) irritate the tooth pulp
- 4) break down under the influence of gingival and dentinal fluid

*Set a match*

### 4. Classification of permanent filling materials

<b>Група</b>	<b>Representatives Group</b>
A) cements	1) silver amalgam
B) plastics	2) copper amalgam
C) metal	3) zinc-phosphate cement
	4) silico-phosphate cement
	5) silicate cement
	6) polycarboxylate cement
	7) filled plastics
	8) unfilled plastics
	9) glass ionomer cement

**5. The therapeutic pad has the following effects:**

1. indifferent ones.
2. proteolytic properties.
3. anti-inflammatory;
4. necrotizing drugs.
5. mummifying.

**6. The treatment pad covers:**

1. bottom and walls.
2. bottom;
3. walls.
4. bottom and walls up to the enamel-dentine border;
5. contact surface.

**7. Времы Dentin paste hardening times:**

1. 2-3 minutes.
2. 3-5 minutes.
3. 40 minutes.
4. 2-3 hours.
5. 10-12 hours.

**Section 5**

**1. Temporary filling materials must be**

- 1) ensure tight closure of the tooth cavity
- 2) be resistant to abrasion
- 3) match the appearance of natural teeth
- 4) easy to enter and exit the cavity

**2. Materials for insulating gaskets must be**

- 1) resist the pressure force
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#### *Set a match*

### 4. Classification of permanent filling materials

#### Група

#### Representatives Group

- |                            |                          |
|----------------------------|--------------------------|
| A) cements                 | 1) silver amalgam        |
| B) plastics                | 2) copper amalgam        |
| C) metal                   | 3) zinc-phosphate cement |
| 4) silico-phosphate cement |                          |
| 5) silicate cement         |                          |
| 6) polycarboxylate cement  |                          |
| 7) filled plastics         |                          |
| 8) unfilled plastics       |                          |
| 9) glass ionomer cement    |                          |

### 5. The therapeutic pad has the following effects:

6. indifferent ones.
7. proteolytic properties.
8. anti-inflammatory;
9. necrotizing drugs.
10. mummifying.

### 11. The treatment pad covers:

1. bottom and walls.
2. bottom;
3. walls.
4. bottom and walls up to the enamel-dentine border;
5. contact surface.

## **12. ВремыDentin paste hardening times:**

1. 2-3 minutes.
2. 3-5 minutes.
3. 40 minutes.
4. 2-3 hours.
5. 10-12 hours.

## **Section 6**

### **1. Classification of permanent filling materials**

<b>Группа</b>	<b>Representatives Group</b>
A) cements	1) silver amalgam
B) plastics	2) copper amalgam
C) metal	3) zinc-phosphate cement
	4) silico-phosphate cement
	5) silicate cement
	6) polycarboxylate cement
	7) filled plastics
	8) unfilled plastics
	9) glass ionomer cement

### **2. The therapeutic pad has the following effects:**

13. indifferent ones.
14. proteolytic properties.
15. anti-inflammatory;
16. necrotizing drugs.
17. mummifying.

### **3. The treatment pad covers:**

1. bottom and walls.
2. bottom;
3. walls.
4. bottom and walls up to the enamel-dentine border;
5. contact surface.

**4. ВремыDentin paste hardening times:**

1. 2-3 minutes.
2. 3-5 minutes.
3. 40 minutes.
4. 2-3 hours.
5. 10-12 hours.

**5. Glass ionomer cement is used**

- 1) for aesthetic filling
- 2) for filling temporary teeth
- 3) for fixing pin structures
- 4) to create a tooth stump for the crown

**6. For the treatment of deep caries, therapeutic pads are used**

- 1) formaldehyde-containing pastes without resorcinol
- 2) formalin-resorcinol paste
- 3) preparations based on calcium hydroxide

**7. As an insulating gasket in cavities of class II according to Black for composite materials, use**

- a) water dentin
- b) dentin paste
- c) silicophosphate cement
- d) glass ionomer cement
- e) silicate cement

**Section 7**

**1. To repair significant defects in hard molar tissues restoration is shown**

- a) tabs
- b) cements of the silicophosphate group
- c) with a computer
- d) microphilic composite material
- e) cements of the silicate group

**2. Indications for filling carious cavities with silver**

**The following Black classes are an amalgam**

- a) I ,II, V class in the area of chewing teeth
- b) Class I, III, IV
- c) Class II, IV
- d) I , III, V class
- e) II, III, V class

**3. As an insulating gasket in полостях II Black Class II cavities for composite materials, use**

- a) glass ionomer cement
- b) dentin paste
- c) silicophosphate cement
- d) water dentin
- e) silicate cement

**4. Etching of hard tissues of teeth is carried out in order to**

- a) to improve the adhesive properties of the filling material
- b) remineralizing effect on enamel
- c) for the diagnosis of dental caries in the spot stage
- d) improving the aesthetic properties of the filling material
- e) for anesthesia of hard tooth tissues

**5. Концентрация Acid concentration for etching enamel before filling**

- a) 37%
- b) 10%
- c) 20%
- d) 5%
- e) 40%

**6. The term "total etching" means**

- a) etching of enamel and dentin
- b) dentin etching
- c) pulp etching
- d) etching of enamel
- e) etching of enamel, dentin, pulp

**7 As an insulating pad when filling a carious cavity cavities cements are used**

- a) glass ionomers
- b) silicophosphate
- d) silicate

**Section 8**

**1 Contraindications to the use of amalgam are**

- a) a class III cavity with access to the vestibular surface
- b) class II cavity
- c) class I cavity
- d) class IV cavity
- e) Class V cavity in molars

**2 Materials used for making tabs**

- a) metal alloys, composites
- b) composites
- c) cements
- d) compomers

**3 Materials for insulating gaskets must be**

- 1) resist the force of pressure, be a temperature and chemical insulator
- 2) increase dentin permeability
- 3) prevent the movement of fluid in the dentinal tubules and seal them tightly
- 4) break down under the influence of gingival and dentinal fluid

**4. Materials for medical pads should**

- 1) provide anti-inflammatory, antimicrobial, odontotropic effect
- 2) ensure a strong sealing of the underlying dentin, communication with tooth tissues, padding and permanent fillings materials
- 3) irritate the tooth pulp
- 4) break down under the influence of gingival and dentinal fluid

**5 The main active substance of preparations for chemical expansion of channels is**

- 1) ethylenediaminetetraacetic acid (EDTA)
- 2) orthophosphoric acid
- 3) hydroxyethylenediphosphonic acid

**6 According to the modern classification materials**

**for filling root canals, they are divided into the following groups:**

- 1) temporary, permanent, primary hard (pins)
- 2) plastic hardening materials
- 3) plastic non-hardening
- 4) permanent, ductile non-solidifying
- 5) primary hard (pins)

**7 Therapeutic pads with long-lasting odontotropic effect and antiseptic effect, contain**

- 1) calcium hydroxide
- 2) antibiotics
- 3) non-steroidal anti-inflammatory drugs
- 4) corticosteroids

**Section 9**

**1 The filling material protecting the dentin must be**

- 1) prevent the movement of fluid in the dentinal tubules and hermetically seal them, be a temperature and chemical insulator
- 2) pass dentine fluid freely
- 3) be a temperature and chemical insulator
- 4) increase dentin permeability

**2 Etching of enamel and dentin is carried out**

- 1) composites to eliminate the smudged layer
- 2) to strengthen the edge fit
- 3) to enhance the bactericidal properties

**3 Restoration filling materials include**

- 1) glass ionomer cement, composite materials, compomers
- 2) zinc-eugenol paste
- 3) potassium hydroxide
- 4) composite materials
- 5) compomers

**4 The composition of the composite material includes**

- 1) resin, filler, silanes
- 2) filler
- 3) silanes
- 4) orthophosphoric acid



**5 Glass ionomer cement is used**

- 1) for aesthetic filling
- 2) for filling temporary teeth, for fixing pin structures
- 3) for fixing pin structures

**6 Groups of composite materials include**

- 1) hybrid, microphylls, macrophylls
- 2) macrophylls
- 3) microphylls
- 4) neutrophils

**7 K Bonded systems include**

- 1) primer
- 2) acid
- 3) polishing paste

**Section 10**

**1 For the restoration of the frontal group of teeth is used**

- 1) microfilled composites
- 2) amalgam
- 3) cement phosphate
- 4) dentin paste

**2 For the sandwich filling technique, the following is used:  
combination of materials**

- 1) glass ionomer cement + composite
- 2) phosphate cement + amalgam
- 3) apexit + dentin paste

**3 For filling cavities of class 1 and 2 according to Black use**

- 1) hybrid composites, packable composites
- 2) microfilled composites
- 3) packable composites

**4 According to the type of polymerization composite materials  
they are divided into**

- 1) light-curing, chemical curing, double curing
- 2) chemical curing
- 3) double cure
- 4) infrared curing

**5 Indications for applying arsenic paste**

- 1) root canal obstruction, myocardial infarction, individual anaesthetic intolerance
- 2) myocardial infarction
- 3) individual anaesthetic intolerance
- 4) enamel hypoplasia

**6 When sealing gutta-percha channels are used  
root sealants**

- 1) apexit
- 2) phosphate cement
- 3) sialapex

**7 For permanent filling of root canals are used  
pins**

- 1) gutta-percha plants
- 2) paper ones
- 3) parapulpar

**Federal Statebudgetary Educational Institution  
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**Department** of Dentistry No. 1  
**Faculty** of Dentistry                      **Course 2**  
**Discipline Dentistry: Materials Science**

**Exam ticket # 1**

1. Classification of dental materials.
2. Dental cements
3. General characteristics of materials for reconstructive surgery of the face and dental implants

**Head of the Department, MD,**

Associate Professor M. G. Dzgoeva