NOOTAN DENTAL COLLEGE & HOSPITAL, VISNAGAR

Terminal Examination
First B.D.S.
Dental Materials

8th March, 2007

Time: 9:00 A.M. To 11:00 A.M

Instructions: 1) Total Marks: 50
2) Figures on right of each question indicate full marks.
3) Draw diagrams wherever necessary.

Q.1 State ideal requirements of Denture base material. How far an acrylic resin fulfills them?

OR

Q.1 What do you understand by polymerization? Discuss in brief Stages of polymerization.

Q.2 Classify impression materials. Give composition, role of each ingredient and manipulation of irreversible hydrocolloid impression materials.

OR

Q.2 What is Gypsum? Explain different manufacturing procedures and applied uses of Gypsum Products in detail.

Q.3 Wright Short notes on (Any Three)

(A) Blue inlay Casting wax
(B) Hardness
(C) Accelerators and retarders
(D) Ductility and malleability
(E) Zinc oxy phosphate Cement
Nootan Dental College and Hospital, Visnagar
Preliminary Examination
Subject:- Dental Materials
Date:-23/8/08 Time:- 8.30 to 11.30
[Marks:- 100]

Section-I

Q-1. Classify impression materials. Describe Composition. Role of each ingredient and Setting reaction of Zinc Oxide Eugenol Impression materials. (16)
Q-2. Classify Dental Cements. Give Composition. Manipulation and Uses of Glass Ionomer Cement. (16)

OR
Q-2. Describe the Requirements of an Ideal Denture Base Material. How far Acrylic resin fulfills these requirements. (18)
Q-3. Short Notes (Any Three)
   (1) Hardness
   (2) Gold Foil
   (3) ADA Specification and its importance
   (4) Ductility and Malleability
   (5) Separating Media

Section-II

Q-4. What is Gypsum? Describe the methods used for measuring initial and final setting time of Plaster of Paris. How will you control its Setting time? (16)
Q-5. Classify Composite Resins. Give Its Composition and Properties of each in detail. (16)

OR
Q-5. What are the Causes of defects in Casting? Describe what care should be taken to prevent such defects. (18)
Q-6. Short notes (Any Three)
   (1) Blue Inlay Wax
   (2) Sprue
   (3) Trituration
   (4) Syncresis and Imbition
   (5) Color
Nootan Dental College & Hospital,
Visnagar

First Terminal Examination

Dental Materials
Total Marks: 100

Time: 9.00 am to 12.00 pm

SECTION-I

Q.1 Classify impression materials. Give Composition, role of each in gradients, advantages, disadvantages & uses of zinc oxide-aide, eugenol impression material.

Q.2 Classify Gypsum products. Describe how they are manufactured.

Q.3 Write Short Note on any three
   (1) Stress & Strain
   (2) Polysulphide impression materials.
   (3) Ductility and malleability
   (4) Hygroscopic setting expansion

SECTION-II

Q.4 Give composition, role of each ingredient, manipulation and setting reaction of irreversible hydrocolloid impression materials.

Q.5 Give difference between $\alpha$ and $\beta$ hemihydrats.

Q.6 Write Short Note on any three
   (1) Hardness
   (2) Synergies and imbibition.
   (3) Creep & flow
   (4) Setting time of Gypsum products.
   (5) Wetting.
(1) In one sentence, state the main idea of the text.

(2) Let's analyze the main argument and supporting evidence.

(3) Explain the relevance of the main idea to the topic.

(4) Identify any metaphors or similes used in the text.

(5) Describe the author's tone and perspective.

(6) Discuss the implications of the main idea.

(7) Summarize the text in your own words.

(8) What questions or further research do you have about the main idea?

(9) Reflect on the impact of the main idea on your own life or society.

(10) Infer the possible consequences of adopting the main idea.

(11) Discuss any ethical considerations raised by the main idea.

(12) Evaluate the strengths and weaknesses of the main idea.

(13) Consider different perspectives on the main idea.

(14) Reflect on any implications for policy or practice.

(15) Discuss the potential for future research on the main idea.

(16) Evaluate the effectiveness of the supporting evidence.

(17) Reflect on the author's writing style.

(18) Consider the influence of societal or cultural factors on the main idea.

(19) Reflect on the impact of the main idea on other texts or disciplines.

(20) Evaluate the persuasiveness of the main idea.

(21) Consider the implications for personal or professional development.

(22) Reflect on the significance of the main idea in the broader context.

(23) Discuss the potential for interdisciplinary research on the main idea.

(24) Evaluate the extent to which the main idea is supported by evidence.

(25) Reflect on the implications for individual or collective action.

(26) Consider the potential for the main idea to inspire new ideas.

(27) Evaluate the extent to which the main idea addresses a real-world problem.

(28) Reflect on the potential for the main idea to lead to new discoveries.

(29) Consider the implications for future generations.

(30) Evaluate the extent to which the main idea is likely to be accepted by different audiences.
1. The primary function of a T gage is to measure:

a) thickness of a metal sheet  
   b) angle of a metal container

2. Which of the following is a non-destructive test?

a) Vickers hardness test  
   b) Brinell hardness test

3. Which of the following metals is most commonly used for making a T gage?

a) Brass  
   b) Stainless steel

4. Which of the following metals is known for its high melting point?

a) Iron  
   b) Copper

5. Which of the following is used to measure the hardness of metals?

a) Vickers hardness test  
   b) Brinell hardness test

6. Which of the following is a type of metal that is used in making T gages?

a) Brass  
   b) Stainless steel

7. Which of the following is a type of metal that is not commonly used in making T gages?

a) Iron  
   b) Copper
Nootan Dental College & Hospital
Visnagar

First BDS Preliminary Examination

Dental Materials

[Date: 17/04/2008] [Time: 9:30 A.M. To 12:30 P.M.] [Total Marks: 100]

Instructions: 1. Write legibly
2. Write two sections in separate answer books
3. Figures to the right indicates full marks
4. Draw diagrams wherever necessary

SECTION – I


2. Describe the requirements of an ideal denture base material. How far acrylic resin fulfills these requirements.

OR

Name Different types of waxes used in Dentistry. Describe composition and properties of blue inlay wax.

3. Write Short notes on any Three:
   a. Hardness
   b. Carat & Fineness
   c. Copper Amalgam
   d. Composite resins

SECTION-II

4. What is gypsum ?. Describe the methods used for measuring initial & final Setting time of plaster of paris. How will you control its setting time.

5. Describe composition, uses, advantages, disadvantages of Dental Porcelain.

OR

Classify Dental Cements. Give Composition manipulation and uses of glass ionomer Cement.

6. Short Notes:
   a. Abrasive and polishing agents
   b. Ductility and malleability
   c. Trituration
   d. Wrought metal alloys
Section-I

Q-1. Classify impression materials. Describe Composition. Role of each ingredient and Setting reaction of Zinc Oxide Eugenol Impression materials. (16)

Q-2. Classify Dental Cements. Give Composition. Manipulation and Uses of Glass Ionomer Cement. (16)

OR

Q-2. Describe the Requirements of an Ideal Denture Base Material. How far Acrylic resin fulfills these requirements.

Q-3. Short Notes (Any Three)
   (1) Hardness
   (2) Gold Foil
   (3) ADA Specification and its importance
   (4) Ductility and Malleability
   (5) Separating Media

Section-II

Q-4. What is Gypsum? Describe the methods used for measuring initial and final setting time of Plaster of Paris. How will you control its Setting time? (16)

Q-5. Classify Composite Resins. Give Its Composition and Properties of each in detail. (16)

OR

Q-5. What are the Causes of defects in Casting? Describe what care should be taken to prevent such defects.

Q-6. Short notes (Any Three)
    (1) Blue Inlay Wax
    (2) Sprue
    (3) Trituration
    (4) Syneresis and Imbibition
    (5) Color

(18)
Q-1: Classify General Products and Services via Back-Prop: calculation theory and赞同 Principle Discussion: 12

Q-2: Classify Shrink Assessment: Description of processes for manipulation techniques, in 2011. 14

Q-3: Given the answers in single choice only, what.

- A. D. 3243
- B. 3243
- C. 3243
- D. 3243

Q-4: Emotional Balance, which is

a. Very Positive
b. Positive
c. Neutral
d. Negative

Q-5: Common搭配 in medicine: the concept.

a. Disease
b. Diagnosis
c. Therapy
d. Treatment
Nootan Dental College & Hospital,
Visnagar
Subject: - Dental Materials

[3 Hours] [100 Marks]

Section-I

Q-1 Describe the requirements of an ideal denture base materials. How Acrylic resins fulfill these requirements. (18)

Q-2 Write Short Note on any three
(1) Syneresis and Imbibition
(2) Soldering and Welding
(3) ADA
(4) Composite Resins
(18)

Q-3 Multiple choice questions

(1) Contact angle should be ideally ________ degree for proper wetting
   (a) 0 Degree  (b) 45 Degree  (c) 60 Degree  (d) 90 Degree

(2) The most malleable and ductile metal is
   (a) Gold  (b) Silver  (c) Platinum  (d) Copper

(3) Amount of water of reaction of stone compared to plaster is
   (a) Greater  (b) Lesser  (c) Same  (d) Variable

(4) The most effective way of controlling setting time of gypsum product is
   (a) Alteration of water powder ratio  (b) Addition of gypsum pieces during mixing
      (c) Increased spatulation  (d) Addition of Accelerators and Retarders

(5) Alginate sets by reaction involving
   (a) Soluble alginate and calcium ions  (b) Soluble alginate and Trisodium Phosphate
      (c) Insoluble alginate and calcium ions  (d) Insoluble alginate and Phosphate

(6) Amalgam is designated as zinc containing if concentration exceed ________%
   (a) 0.01  (b) 0.02  (c) 0.03  (d) 0.2

(7) Maximum flow permitted for Type-B inlay wax at 37 degree temperature
   (a) 1%  (b) 2%  (c) 5%  (d) 10%
Section-II

Q-1 What is Ceramic? Describe in detail the types, composition, uses, advantages and disadvantages of dental ceramics. (18)

Q-2 Write Short Note on any three

   (1) Agar Agar
   (2) Trituration
   (3) Casting defects
   (4) Zinc Poly carboxylate cement

Q-3 Short questions
   (i) Define Stress
   (ii) What is initiator and what is activator in Light cure resin
   (iii) What is Gamma phase
   (iv) Composition of Glass ionomer cement
   (v) What is the role of Gum dammar in wax?
   (vi) What is the use of hydroquinone in acrylic resin?
   (vii) Density of direct filling gold is?
SECOND YEAR B.D.S. EXAMINATION

DENTAL MATERIALS

PRELIMINARY EXAMINATION (OCTOBER BATCH)

QUE.1. What are different casting defects? Discuss in detail how it affects the final prosthesis.

QUE.2. Write short notes on

(1) Tarnish and corrosion
(2) Biocompatibility
(3) Die materials

QUE 3: Answer in short:

1. What is finishing?
2. Classify abrasives.
3. What is an implant?
4. What is iatrogenesis?
5. What is patch test?
6. What is syneresis and imbibition?
8. What is osseointegration.
SECTION- 1

QUE 1: What is ceramic? Describe composition, uses, advantages and Disadvantages of dental ceramics. 16

QUE 2: Write short notes on:
   (1) Abrasive and Polishing agents.
   (2) ADA
   (3) Cating Defects. 18

QUE 3: Answer shortly
   1. What is gamma phase.
   2. Composition of polycarboxylate cement
   3. What is syneresis.
   4. Name non-aqueous elastomeric impression materials.
   5. What is hygroscopic setting expansion.
   6. What is stress?
   7. What is mechanism of action of cold mould seal?
   8. What is hardness? 16
SECTION- 2

QUE 1: What is irreversible hydrocolloid? Discuss in detail composition, setting reaction, advantages and disadvantages of the same.

QUE 2: Write short notes on:
(1) Dental waxes
(2) Tarnish and corrosion
(3) Gold foil

QUE3: Answer shortly
1. What is contact angle?
2. What is trituration
3. What is soldering and welding.
4. What is reservoir.
5. What is carat and fineness.
6. What is accelerator and retarders.
7. What is what is inhibitor and what is activator in acrylic resin.
8. What is investment material?
NARSHINHBHAI PATEL DENTAL COLLEGE
SECOND YEAR B.D.S. EXAMINATION
DENTAL MATERIALS
PRELIMINARY EXAMINATION (NOVEMBER BATCH) 2010-11

Time: 3 hours 100 marks

SECTION-1

QUE 1: What is ceramic? Describe composition, uses, advantages and disadvantages of dental ceramics.

QUE 2: Write short notes on:
   [2] ADA

QUE 3: Answer shortly
   1. What is gamma phase.
   2. Composition of polycarboxylate cement
   3. What is syneresis.
   4. Name non-aqueous elastomeric impression materials.
   5. What is hygroscopic setting expansion.
   6. What is stress?
   7. What is mechanism of action of cold mould seal?
   8. What is hardness?

SECTION-2

QUE 1: What is irreversible hydrocolloid? Discuss in detail composition, setting reaction, advantages and disadvantages of the same.

QUE 2: Write short notes on:
   [1] Dental waxes
   [2] Tarnish and corrosion

QUE 3: Answer shortly
   1. What is contact angle?
   2. What is trituration
   3. What is soldering and welding.
   4. What is reservoir.
   5. What is carat and fineness.
   6. What is accelerator and retarders.
   7. What is what is inhibitor and what is activator in acrylic resin.
   8. What is investment material?
QUE: 1: Classify impression materials. Discuss zinc oxide eugenol impression paste in detail.

QUE: 2: Short notes (any three)

1) Hardness
2) High fusing compound
3) Hygroscopic setting expansion
4) Syneresis and imbibition

QUE: 3: One line answer

1) What is contact angle?
2) What is hydrocolloid?
3) What is stress and strain?
4) Uses of α-hemihydrates.
5) Accelerators and retarders in gypsum products.
Narsinhbhai Patel Dental College and Hospital
2nd internal exam-Dental Material
2nd year B.D.S:2011-2012(Regular Batch)

(50 marks)

1. Classify Silver Amalgam. Describe all phases and manipulation technique in detail 16

2. Short notes(any three) 24
   a) Wrought metal alloys
   b) Zinc phosphate cement
   c) Generation of composite resin
   d) Investment material

3. Short Answer 10
   a) What is Reservoir?
   b) What is Carat and Fineness?
   c) Uses of GIC cement
   d) Inhibitor and Activator in acrylic resin
   e) What is Tarnish and corrosion?
Narsinhbhai Patel Dental College

3rd Internal examination 2012

2nd year B.D.S.

Dental Material

Section 1

Q.1 What is Ceramic? Describe composition, uses advantages & disadvantages of dental ceramics.

Q.2 Write Short notes on:
   1. Soldering & Welding
   2. ADA
   3. Stress & Strain

Q.3 Answer shortly
   1. What is Gamma Phase?
   2. What is internal separating media?
   3. Name Non Aqueous Elastomeric Impression Material.
   4. What is Activator & Initiator?
   5. Give composition of Irreversible Hydrocolloid
Section 2

Q.4 Classify Dental Waxes. Give composition & ideal requirements of Blue Inlay Wax.

Q.5 Write Short notes on:

1. Co-polymerization
2. Luting Cements
3. Hygroscopic Setting Expansion

Q.6 Answer Shortly

1. What is gelation?
2. What is Eutectic alloy?
3. What is Reservoir
4. What are two distinguish properties of GIC which no other cement has?
5. What is the cause of Fins in casting procedure?
Narsinhbhai Patel Dental College and Hospital Visnagar

Second Year B.D.S. (Regular Batch)

I" Internal Exam 2012-2013

Dental Material

[Time: 2 Hours]  [Total Marks 50]

Q.1 What is Amalgam? Describe in detail Silver Amalgam.  16

Q.2 Write Short Notes On:
   a. Syneresis & Imbibitions
   b. Blue Inlay Wax
   c. Poly Methyl Methacrylate
   d. Dental Implants

   6x4=24

Q.3 Answer Shortly:
   a. What is Luting?
   b. What is Carat & Fineness?
   c. What is Sprue?
   d. Give composition of Base Plate Wax.
   e. What is Co-Polymerization?

   5x2=10
NARSHIBHAI PATEL DENTAL COLLEGE & HOSPITAL, VISNAGAR

SECOND BDS – DENTAL MATERIALS - THIRD INTERNAL

DATE : 04/06/2013                      MAX MARKS : 100
Answer section – A & B in separate answer booklets DURATION : 03 hrs

SECTION A

LONG ESSAY : 10 marks each

1. Explain in detail dental amalgam
2. Write GIC cement in detail

SHORT ESSAY : any 4 questions; 4 marks each

3. Mercury toxicity
4. Acid etching
5. Zinc phosphate cement
6. Calcium hydroxide
7. Direct filling gold

Short answer : any 3 questions ; 3 marks each

8. Explain tarnish and corrosion
9. Delayed expansion
10. Composition & classification of composites
11. classify dental cements
Multiple choice: any 5 questions; 1 mark each

12. Percentage of copper present in high copper single composition alloys
   a) 0-6%
   b) 12-28%
   c) 10-12%
   d) 12-25%

13. Purpose of burnishing the amalgam after condensation is to
   a) Reduce surface microporosites
   b) Smoothen the surface to prevent plaque accumulation
   c) Improves the marginal seal of the restoration
   d) All of the above

14. Composite is retained by the phenomena of
   a) Cohesion
   b) True bonding
   c) Mechanical interlocking
   d) Atomic forces

15. Main ingredient of zinc phosphate cement liquid is
   a) Phosphoric acid
   b) Polyacrylic acid
   c) Citric acid
   d) Mallec acid

16. Anticariogenic activity is present in which cement
   a) ZOE
   b) GIC
   c) Calcium hydroxide
   d) Zinc phosphate

17. ADA specification number of dental mercury is
   a) 1
   b) 4
   c) 6
   d) 8
Section - B

I. **Long essay: 10 marks each**
   1) Enumerate gypsum products used in dentistry. Describe the composition of gypsum bonded investment material & explain how thermal expansion of mould takes place.
   2) Define & classify dental ceramics. Discuss methods of strengthening dental ceramic.

II. **Short essay: any 4 question; 4 marks each**
   3) Denture cleansers.
   4) Pressable ceramics.
   5) Young’s modulus of elasticity.
   6) Tissue conditioners.
   7) Physical stages of polymerization.

III. **Short answer: any 3 questions; 3 marks each**
   8) Pickling.
   9) Low fusing impression compound.
   10) Hygroscopic setting expansion
   11) Dental application of waxes.

IV. **Multiple choice: any 5 questions; 1 mark each**
   12) The heat treatment of DICOR core is termed as .........................
        A) ceramming  B) pickling  C) annealing  D) soldering
   13) Resin material should be packed into the mould cavity
        a) rubbery stage  b) early stages of dough stage  c) sticky stage  d) late stages of dough stage
   14) The materials used in laminate impression technique are
        a) Alginate & agar  b) Light body & putty  c) Light body & regular  d) light body & heavy
15) Cold mold seal is ..............
   a) additive  b) binder  c) investment material
d) separating media

16) Type of infiltrated glass core ceramic is ...........
   a) Inceram alumina  b) Inceram spinell  c) Inceram zirconia  d) all the above

17) If hydrocolloid is placed in water, they absorb water by a property called ..............
   a) absorption  b) imbibition  c) adsorption  d) syneresis
First Year B. D. S. Examination
June - 2007
Dental Materials

Instructions:
(1) Write legibly.
(2) Draw diagrams where necessary.
(3) Separate answer book for each section.
(4) Figures to the right indicate full marks.

SECTION - I

1 Name different non-aqueous elastomeric impression materials. Discuss the composition, role of individual ingredients, manipulation, advantages and disadvantages of Addition Poly Silicone impression materials. 

2 What are different investment materials? Give composition and method of manipulation of any one type of investment material.

OR

2 Classify Dental Waxes. Give composition and ideal requirement of Blue inlay Wax.

[Contd...]
3 Write short notes on any four:
(a) Soldering
(b) Syneresis and Imbition
(c) Cavity Varnish
(d) Creep and Flow
(e) Abrasive and Polishing agents.

SECTION - II

4 Discuss the composition, role of individual ingredient and physical properties of Silver Amalgum Alloy.

5 Describe all the stages the mixture passing through from the time Acrylic Polymer and monomer are mixed until it is packed in the flask for curing.

OR

5 Describe various casting defects its causes and how will you do a casting to avoid such defects.

6 Write short notes on any four:
(a) Stress and Strain
(b) Hygroscopic expansion
(c) Difference between $\alpha$ and $\beta$ hemihydrates
(d) Separating media
(e) Gold alloys.
First Year B.D.S. Examination
October / November - 2008
Dental Materials

Time : 3 Hours] [Total Marks : 80

Instructions:
(1) Write legibly.
(2) Draw diagrams where necessary.
(3) Separate answer book for each section.
(4) Figures to right indicate full marks.

SECTION - I

1. Classify impression materials. Describe composition, role of each ingredients, and the setting reaction of zinc Oxide Eugenol impression material. 12

2. Describe the requirements of an ideal Denture base material. How for acrylic resin fulfills these requirements? 12

OR

2. Name different types of composite resins, its composition and properties of each in detail. 12

3. Write short notes on any four:
   (a) A.D.A. specification
   (b) Blue inlay wax
   (c) Gold foil

D-8053] 1 [Contd....
(d) Hardness
(e) Sprue

SECTION - II

4 Classify Dental Cements. Give composition, manipulation and uses of Glass ionomer cement. 12

5 What is Gypsum? Describe the methods used for measuring initial and final setting time of Plaster of Paris. How will you control its setting time?

OR

5 Describe composition, uses, advantages and disadvantages of dental porcelain. 12

6 Write short notes on any four:
   (a) Accelerators and Retarders
   (b) Tarnish and Corrosion
   (c) Ductility and Malleability
   (d) Trituration
   (e) Separating media


D-8053] 2 [ 100 ]
First Year B. D. S. Examination
May / June – 2008
Dental Materials

Time : 3 Hours] [Total Marks : 80

Instructions : (1) Write legibly.
(2) Draw diagrams where necessary.
(3) Use separate answer book for each section.
(4) Figures to the right indicate full marks.

SECTION - 1

1 What is hydrocolloids? Discuss the composition of irreversible hydrocolloid materials. Describe the role of each ingredient. How will you manipulate the same?

2 Classify Dental Cements. Compare the composition properties and uses of Glass ionomer cement and silicate cement. OR

2 Describe composition, uses, advantages and disadvantages of Dental Porcelain.

3 Write short notes on any four:
   (a) Proportional limit
   (b) Casting defects
   (c) Die materials
   (d) Stress and strain
   (e) Wrought metal alloys.

DF-5503] 1 [Contd...
4 Give the names of different gypsum products. Explain different manufacturing procedures and applied uses of gypsum products in detail.

5 What is polymerization? Describe the stages the mixture passes through during mixing of heat activated polymer and monomer up to the stage of packing.

OR

5 Classify Dental Waxes. Describe the composition of Inlay Casting Wax and its properties.

6 Write notes on any four:
(a) Composite resins
(b) Carat and fineness
(c) Abrasive and polishing agents
(d) Copper amalgam
(e) Tarnish and Corrosion.
Second Year B. D. S. Examination
April/May - 2010
Dental Materials

Time: 3 Hours [Total Marks: 70]

SECTION - I

1. Describe various tooth coloured resorative materials and give composition and uses of composite resin material. 14

2. Classify impression materials and describe composition, manipulation and uses of Alginate material. 14

3. Short notes: (any three) 12
   (1) Luting Agents
   (2) Ductility and Malleability
   (3) Hygroscopic setting expansion
   (4) Reservoir.

SECTION - II

1. Classify denture base materials and how far the acrylic resin fulfils the same? 14

2. What is silver Amalgam? Give composition, role of each ingredients, properties and uses of the same. 14

3. Short notes: (any three) 12
   (1) Aluminous porcelain
   (2) Glass Ionomer cement
   (3) Contact Angle
   (4) Inlay wax.
SECTION - I

1 Define Impression. Discuss about ideal properties and classification of Impression materials. Describe in detail about Zinc Oxide Eugenol impression paste in detail.

2 Write short notes on: (any three) 15
   (i) Glass Ionomer cement
   (ii) Chemical stages of Polymerization
   (iii) Type I Gypsum Product
   (iv) Bjie Inlay Wax

3 Fill in the blanks:
   (i) Chemically dental stone is calcium sulphate_______.
   (ii) Contact angle should be ideally _____ degrees for proper wetting.
   (iii) _____ is retarder in composition of Alginate.
   (iv) _____ is used as acid for acid etch technique in restorative resins.
(vi) Dental porcelains are classified as medium fusing if the temperature is _____ to

(vii) Boiling point of monomer is _____°C.

SECTION - II

4 Define and classify Alloys. Discuss the Base Metal Alloys in detail.

5 Write short notes on: (any three)
   (i) Stress and strain
   (ii) Dental Amalgam composition and function of each constituent.
   (iii) Tarnish and Corrosion
   (iv) Hygroscopic Setting Expansion.

6 MCQ:
   (i) Commonly used hardening solution for Hydrocolloids is
       (a) Sodium Sulphate
       (b) Potassium Sulphate
       (c) Citrate
       (d) Zinc acetate
   (ii) Universal Bonding agent is
       (a) HEMA
       (b) NPG-GMA
       (c) META
       (d) EDTA

[Contd...]
(iii) Softening heat treatment is also called as
   (a) Annealing
   (b) Work hardening
   (c) Age hardening
   (d) All of the above

(iv) Fineness of the gold used for direct filling is
   (a) 22 carats
   (b) 18 carats
   (c) 24 carats
   (d) 20 carats

(v) Which of the following is not found in flux for soldering stainless steel?
   (a) Borax
   (b) Boric acid
   (c) Magnesium Carbonate
   (d) Potassium fluoride

(vi) Sprues can be fabricated from
   (a) Wax
   (b) Acrylic
   (c) Metal
   (d) All of the above
SECTION - I

1. What are different investment materials? Give composition and methods of manipulation of any one type of investment material. 14

2. Short notes: (any three) 15
   (a) Annealing
   (b) Abrasives and polishing agents
   (c) Gold alloys
   (d) Composite resins.

3. Fill in the blanks: 6
   (i) Maximum flow permitted for Type-B inlay wax at 37°C temperature is________.
   (ii) _______ phase is the weakest phase of amalgam.
   (iii) The process of changing rubber base product or liquid polymer to rubber like material is generally known as________.
   (iv) pH of freshly mixed glass ionomer cement is________.
   (v) Etching is done with________.
   (vi) Under trituration of Amalgam results in________.
SECTION - II

1 Classify silver amalgam. Describe all phases and manipulation techniques in detail.

2 Short notes: (any three)
(a) Luting agents
(b) Zinc-phosphate cement
(c) Blue inlay wax
(d) Accelerators and Retarders.

3 Give answer in single line or single word:
(i) Shrinkage-free ceramic is called_______.
(ii) Define stress.
(iii) Sprues can be fabricated from_______.
(iv) Softening heat treatment is also called as_______.
(v) Dental porcelains are classified as medium fusing if temperature is_______°C to _______°C.
(vi) Chemically dental stone is calcium sulphate_______.

PF-5526] 2 [150]
SECTION - I

1 What is hydrocolloids? Discuss the composition of irreversible hydrocolloid materials. Describe the role of each ingredient. How will you manipulate the same?

2 Write short notes (any three)
   (a) High Copper Amalgam
   (b) Glass ionomer cement
   (c) Gold foil
   (d) Ductility and malleability.

3 Fill in the blanks:
   (i) Contact angle should be ideally ________ degree for proper wetting.
   (ii) Impression compound should be placed at ________ temperature in the mouth.
   (iii) Boiling point of monomer is ________.
   (iv) Over-spatulation of Plaster of Paris results in ________.
   (v) Boxing wax is also called ________.
   (vi) Metallic oxide which forms on noble metal is ________.
Describe composition, uses, advantages and disadvantages of Dental porcelain in detail.

Write short notes (any three)
(a) Tarnish and corrosion
(b) Hygroscopic setting expansion
(c) Reservoir
(d) Composition of composite resin.

Fill the blanks
(i) ______ material is used to take wash impression for edentulous patient.
(ii) ______ is a universal bonding agent.
(iii) ______ causes greatest warpage in acrylic denture.
(iv) ______ is used as acid for etching in restorative resins.
(v) ______ fineness of gold is used for direct filling.
(vi) Most malleable and ductile metal is ______.
K-9711

Second Year B. D. S. Examination
June / July – 2012
Dental Materials

Time : 3 Hours] [Total Marks : 70

SECTION - I

1 Classify impression materials. Describe composition, role of each ingredients and the setting reaction of Zn OE impression materials. 14

2 Write short notes : (any three) 15
(a) Copper Amalgam
(b) Abrasive and polishing agents
(c) Soldering
(d) Cavity Varnish
(e) Separating media

3 Multiple choice questions:
   (I) Which is the best method to prolong setting time of ZOE paste ? 6
       (a) Changing ratio of base and catalyst
       (b) Cooling the mixing slab and spatula
       (c) Addition of retarders while mixing

K-9711] 1 [Contd...
(2) Which is plasticizer?
   (a) Dibutyl phthalate
   (b) Glycol dimethacrylate
   (c) Hydroquinone
   (d) Ethyl acrylate

(3) Boxing wax is also called as
   (a) Inlay wax
   (b) Carding wax
   (c) Baseplate wax
   (d) Sticky wax

(4) The most malleable and ductile metal is
   (a) Gold
   (b) Silver
   (c) Platinum
   (d) Copper

(5) Amalgam is called zinc-containing if zinc is
   ......%  
   (a) 0.01  
   (b) 0.02  
   (c) 0.03  
   (d) 0.2  

(6) Universal bonding agent is
   (a) HEMA  
   (b) NPG-GMA  
   (c) META  
   (d) EDTA
1 Classify Dental waxes. Give composition and ideal requirements of Blue inlay wax.

2 Write short-notes : (any three)
   (a) Tarnish and Corrosion
   (b) Sprue and Sprue former
   (c) Hardness
   (d) Hygroscopic setting expansion
   (e) Co-polymerization

3 Answer following questions :
   (1) What is modulus of elasticity ?
   (2) What is syneresis ?
   (3) Boiling point of monomer is ?
   (4) What is stress ?
   (5) What is pH of freshly mixed Zn\(\text{PO}_4\) cement ?
   (6) Define contact angle.
SECTION - A


2. Short notes: (any 3 out of 5) $3 \times 5 = 15$
   (a) Give composition and role of each ingredient or zinc oxide eugenol paste. How will you control its setting time?
   (b) What are the different denture base materials? What should be the requirements of an ideal denture base material?
   (c) Compare and contrast the following materials:
      (i) Acrylic and porcelain teeth
      (ii) Alpha and Beta hemi hydrate
   (d) What do you understand by term polymerization? Discuss the stages of polymerization.
   (e) What is porosity in acrylic resin? What causes it and how to eliminate it in denture processing?
Multiple choice questions:

(i) Which of the following is present in the powder of acrylic resin?
(a) Methyl Methacrylate
(b) Benzyl Peroxide
(c) Hydroquinone
(d) Methylparatoluoludine

(ii) Which of the following is not an elastomeric impression material?
(a) Polysulfide
(b) Silicones
(c) Polyether
(d) Agar-Agar

(iii) Which of the following components act as refractory material in dental ceramics?
(a) Feldspar
(b) Soda-Ash
(c) Kaolin
(d) Silica

(iv) Phenomenon in which porcelain appears different under varying light condition is
(a) Translucency
(b) Refractive optics
(c) Chameleon like effect
(d) Pacification

(v) Gypsum in the investment acts as:
(a) Filler
(b) Binder
(c) Refractory
(d) Reactor

(vi) Eugenol has an adverse reaction with acrylic materials, so material use for temporary cement is
(a) Glass ionomer cement
(b) Zinc oxide non eugenol cement
(c) Zinc phosphate cement
(d) Composite resin
1 Classify the dental cements. Give the composition, properties and uses of glass ionomer cement.

2 Short notes : (any 3 out of 5) \[3 \times 5 = 15\]
   (a) Compare and contrast the properties of Zinc oxide eugenol cement with Zinc phosphate cement.
   (b) Classify casting alloys and a note on wrought base casting alloy.
   (c) Finishing and polishing agents in dentistry.
   (d) Biocompatibility of dental materials
   (e) Dentifrices.

3 Multiple choice questions : \[1 \times 6\]
   (i) Which of the following passivating element in casting alloy?
       (a) Cobalt
       (b) Chromium
       (c) Iron
       (d) Silver
   (ii) The particle size in microfilmed composite is
        (a) 0.02 to 0.04 mm
        (b) 0.5 to 1.0 microns
        (c) 0.01 to 0.1 microns
        (d) 0.3 to 0.4 mm
   (iii) The setting time of zinc phosphate may be retarded by:
        (a) Increase in ratio of power to liquid
        (b) Diluting liquid with water
        (c) Increase the rate of addition of power to liquid
        (d) Decrease the rate of addition of power to liquid
(iv) PH of fully set zinc phosphate cement is:
(a) 3.4
(b) 4.5
(c) 6.7
(d) 7.8

(v) The carat for gold foil used for restoration is:
(a) 18
(b) 20
(c) 22
(d) 24

(vi) Which of the following elastomeric impression can be multiple poured?
(a) Poly sulfide
(b) Condensation silicone
(c) Polyvinyl silicone
(d) Polyether.
K-4171  Seat No._______
Second Year B. D. S. Examination
June - 2013
Dental Materials

Time : 3 Hours] [Total Marks : 70

SECTION - A

1 Classify Denture base materials and how far the Acrylic resin fulfils the same. 14

2 Short notes : (any three) 3×5=15
   (a) Syneresis and imbibition
   (b) Aluminous Porcelain
   (c) Ductility and Malleability
   (d) Blue inlay wax
   (e) Impression compound.

3 Answer shortly : 1×6=6
   (a) What is Hardness ?
   (b) What is carat and fineness ?
   (c) What is calcination ?
   (d) Accelerators and Retarders in Gypsum products.
   (e) What is Hydro colloid ?
   (f) Uses of Type-I Gypsum product.

K-4171] 1 [Contd....
SECTION - B


2. Short notes: (any three) \(3 \times 5 = 15\)
   (a) Tarnish and corrosion
   (b) Casting defects
   (c) Abrasive and Polishing agents
   (d) Difference between \(\alpha\)-hemihydrate and \(\beta\)-hemihydrates
   (e) Base Metal Alloys.

3. Answer shortly: \(1 \times 6 = 6\)
   (a) What is stress?
   (b) What is mechanism of action of cold mould seal?
   (c) What is gamma phase?
   (d) What is investment material?
   (e) Name of non-aqueous elastomeric impression materials.
   (f) What is proportional limit?
NARSHIBHAI PATEL DENTAL COLLEGE & HOSPITAL, VISNAGAR
SECOND BDS – DENTAL MATERIALS - THIRD INTERNAL

DATE : 04/06/2013

Answer section – A& B in separate answer booklets

MAX MARKS :100
DURATION :03 hrs

SECTION A

LONG ESSAY : 10 marks each

1. Explain in detail dental amalgam

2. Write GIC cement in detail

SHORT ESSAY : any 4 questions; 4 marks each

3. Mercury toxicity

4. Acid etching

5. Zinc phosphate cement

6. Calcium hydroxide

7. Direct filling gold

Short answer : any 3 questions ; 3 marks each

8. Explain tarnish and corrosion

9. Delayed expansion

10. Composition & classification of composites

11. classify dental cements
Multiple choice: any 5 questions; 1 mark each

12. Percentage of copper present in high copper single composition alloys
   a) 0-6%
   b) 12-28%
   c) 10-12%
   d) 12-25%

13. Purpose of burnishing the amalgam after condensation is to
   a) Reduce surface microporosites
   b) Smoothen the surface to prevent plaque accumulation
   c) Improves the marginal seal of the restoration
   d) All of the above

14. Composite is retained by the phenomena of
   a) Cohesion
   b) True bonding
   c) Mechanical interlocking
   d) Atomic forces

15. Main ingredient of zinc phosphate cement liquid is
   a) Phosphoric acid
   b) Polyacrylic acid
   c) Citric acid
   d) Maleic acid

16. Anticariogenic activity is present in which cement
   a) ZOE
   b) GIC
   c) Calcium hydroxide
   d) Zinc phosphate

17. ADA specification number of dental mercury is
   a) 1
   b) 4
   c) 6
   d) 8
Section - B

I. Long essay: 10 marks each
1) Enumerate gypsum products used in dentistry. Describe the composition of gypsum bonded investment material & explain how thermal expansion of mould takes place.
2) Define & classify dental ceramics. Discuss methods of strengthening dental ceramic.

II. Short essay: any 4 question; 4 marks each
3) Denture cleansers.
4) Pressable ceramics.
5) Young’s modulus of elasticity.
6) Tissue conditioners.
7) Physical stages of polymerization.

III. Short answer: any 3 questions; 3 marks each
8) Pickling.
9) Low fusing impression compound.
10) Hygroscopic setting expansion
11) Dental application of waxes.

IV. Multiple choice: any 5 questions; 1 mark each
12) The heat treatment of DICOR core is termed as ......................
   A) ceramming  B) pickling  C) annealing  D) soldering

13) Resin material should be packed into the mould cavity
   a) rubbery stage  b) early stages of dough stage  c) sticky stage  d) late stages of dough stage

14) The materials used in laminate impression technique are
   a) Alginate & agar  b) Light body & putty  c) Light body & regular  d) light body & heavy
15) Cold mold seal is ................
   a) additive   b) binder   c) investment material
   d) separating media

16) Type of infiltrated glass core ceramic is ...........
    a) Inceram alumina  b) inceram spinell  c) inceram zirconia  d) all the above

17) If hydrocolloid is placed in water, they absorb water by a property called .....................
    a) absorption  b) imbibition  c) adsorption  d) syneresis
SECTION A

1. What is hydrocolloids? Discuss the composition of irreversible hydrocolloid materials. Describe the role of each ingredient. How will you manipulate the same.

2. Short Notes: (any three) \(3 \times 5 = 15\)
   (a) Hygroscopic setting expansion
   (b) Gold Foil
   (c) Hardness
   (d) Tarnish and Corrosion
   (e) ADA specification.

3. Answer shortly: \(1 \times 6 = 6\)
   (a) What is calcination?
   (b) Define stress and strain.
   (c) What is soldering and welding?
   (d) What is investment material?
   (e) What is smear layer?
   (f) What is Annealing?
SECTION B

1  Classify Silver Amalgam. Describe all phases and manipulation technique in detail.

2  Short notes : (any three)  \(3 \times 5 = 15\)
   (a) Physical stages of polymerization
   (b) Sprue
   (c) Accelerators and Retarders
   (d) Glass ionomer cement
   (e) Difference between Acrylic and Porcelain teeth.

3  Answer shortly :  \(1 \times 6 = 6\)
   (a) Carat and Fineness
   (b) What is contact angle?
   (c) What is Reservoir?
   (d) Uses of blue inlay wax.
   (e) What is Flux?
   (f) Activators and Inhibitors in Acrylic Resin
Narsinhbhai Patel Dental College & Hospital
Dept of Prosthodontics Crown & Bridge
Mid Term Examination-January 2014

Sub: Dental Material Science
Year: Second B.D.S.
Max marks-100
Duration 3hrs

SECTION -A

I. LONG ESSAY (10 marks each) 10X2

1. What is dental casting investment material? Name the available investment materials & describe the property of setting expansion of gypsum bonded investment material


II. SHORT NOTES (3 marks each) 3X5

3. Cooling curves
4. Glass transition temperature
5. Disinfection of impression materials
6. Add a note on divestments
7. Wet field technique

III. Questions carrying 1 mark each 1X15

8. Accelerator present in ZnoE impression paste
   A. Zinc oxide   C. Calcium chloride
   B. Mineral oil D. Hydroquinone

9. Which of the following has least shelf life?
   A. Condensation silicone   C. Polyether
   B. Addition silicone       D. Polysulphide

10. The role of Benzoyl peroxide in heat activated acrylic resin as
    A. Inhibitor   C. Cross liking agent
    B. Initiator   D. Plasticizer

11. The following are the complete denture processing techniques
    A. Fluid resin technique
    B. Injection molding technique
    C. Compression molding technique
    D. All the above
12. Agar Agar impression material is
   A. Reversible in nature   C. Thermoplastic
   B. Hydrocolloid           D. None of the above

13. Polymer: Monomer ratio for heat cure acrylic resin
   A. 1:1   C. 2:1
   B. 2:1   D. 4:1

14. Platinum salt is a catalyst in which of the following elastomeric material
   A. Addition silicone   C. Polyether
   B. Condensation silicone D. Polysulphide

15. Write the chemical equation of setting reaction for ZnoE impression paste

16. Dental investment material used for gold casting is
   A. Silica       C. Gypsum based
   B. Phosphate based   D. Die stone

17. The average molecular weight for denture base polymer ranges from
   A. 8000-39000   C. 8000-59000
   B. 8000-49000   D. 8000-69000

18. What is condensation polymerization reaction?

19. Methods of manipulation of elastomeric impression material
   A. Single mix technique   C. Reline technique
   B. Multiple mix technique D. All the above

20. Binder used in Gypsum bonded investment material is
   A. Impression plaster   C. Die stone
   B. Dental stone        D. Plaster of Paris

21. Investment material with finer particle size results in
   A. Less surface irregularity
   B. Excess surface irregularity
   C. No effect on the casting
   D. None of the above

22. ADA specification no for Alginate impression material is
   A. 15   C. 17
   B. 16   D. 18
SECTION II

LONG QUESTIONS – (10 marks each)
Q1. Discuss mercury toxicity in detail
Q2. Write in detail dentin bonding agents in detail

SHORT NOTES (5 marks each)
1. Acid etching
2. Composition and reaction of highcopper amalgam in detail
3. Zinc-oxide Eugenol cement
4. Tarnish and corrosion

ANSWER IN SHORT (10 Marks - 1 Mark EACH)
1. Instrument formula for GMT
2. Name two anticariogenic cements
3. Name tooth coloured restorative materials
4. Use of enamel hatchet
5. Define mulling in amalgam restoration
6. Define retention form
7. G V Black class III cavity
8. Organism which causes enamel caries
9. Define operative dentistry
10. Post burnishing
NARSINHBHAI PATEL DENTAL COLLEGE & HOSPITAL, VISNAGAR
Dept of Prosthodontic Crown &Bridge
Second B.D.S. Preliminary Examination-May 2014
Sub: Dental Material Science

Duration-3 hrs

Total Marks-100

SECTION- A (50 Marks)

I. LONG ESSAY

1. What is hydrocolloids? Discuss the composition of irreversible hydrocolloid materials. Describe the role of each ingredients. How will you manipulate the same?

II. SHORT NOTES: (any five)

1. Hygroscopic setting expansion
2. Blue inlay wax
3. Aluminous Porcelain
4. Accelerators ans Retarders
5. Abrasive and Polishing agents
6. Ductility and Malleability
7. Sprue

III. Give short answer

1. Shrinkage free ceramic is called
2. Define stress.
3. Chemically dental stone is calcium sulphate
4. What is Flux?
5. What is calcination?
6. Contact angle should be ideally ________ degrees for proper wetting
7. What is mechanism of action of cold mould seal?
8. What is carat and fineness?
9. The heat treatment of DICOR core is termed is
   a) Ceramming    b) Annealing
   c)Pickling    d)Soldering
10. Gypsum in the investment material acts as : 
   a) Filler    b) Refractory
    c) Binder    d) Reactor
11. What is Metamerism?

✧ Best of Luck ✧
1. LONG ESSAY (14 Marks)
   A. Describe isolation methods and explain rubber dam in detail

2. SHORTNOTES (any five) (5 Marks Each)
   a. Classification and properties and types of Direct filling gold
   b. Wedges, Types and uses
   c. GIC
   d. Classification and properties of Amalgam
   e. ZOE cement Composition and Uses
   f. Calcium Hydroxide
   g. Color

3. SHORT QUESTIONS (11Marks)
   a. A butt joint is a -------degree joint
   b. In which class of cavities amalgam is contraindicated
      Class I     -Class II      - Class V      - Class IV
   c. Universal matrix band retainer is known as --------
   d. Function of base
   e. How many point angles are there in class II-------
   f. Which microorganism causes enamel caries?
   g. Who Discovered Glass Ionomer Cement?
   h. Uses of Varnish
   i. What are class VI Caries?
   j. Miracle Mix
   k. Composite restoration is retained by the means of
      A) Chemical Bonding
      B) Mechanical Bonding
      C) Micro-Mechanical Bonding
      D) None.
1. **Long Essay**
   14 Marks
   
   a) Classify impression materials write in detail about addition silicone elastomeric impression materials

2. **Write short Notes** (Any five) 05 Marks Each 25 Marks
   
   a) Difference between Normal & Hygroscopic setting expansion with diagram
   b) What is syneresis and imbibition, Precautions to prevent both
   c) Composition and uses of Impression compound.
   d) Composition and uses of Alginate
   e) Discuss the types of calcinations
   f) Composition & uses of ZOE Paste.
   g) Theories of Gypsum setting

3. **Short Question/ MCQ/Fill blank 01 Mark each** 11 Marks
   
   a) ADA Specification Number of Gypsum Products is:
      
      (1) 20  (2) 23  (3) 25  (4) 26
   b) ______ Hemihydrate is dental stone
   c) Fusion temperature of Impression compound is ______
   d) Best method to prolong setting time of zinc oxide eugenol paste
      
      1) Changing ratio of base and catalyst paste
      2) Add drops of water while mixing
      3) Cooling glass slab and spatula
      4) Add petroleum jelly while mixing
   e) What is slurry water?
   f) Laminate technique

P.T.O
g) Materials used for putty-reline technique

   (1) Putty & Heavy body       (2) Putty & medium body
   (3) Putty & light body       (4) Putty & regular body

h) Classify Gypsum Products

i) Types of Elastomers based on viscosity

j) Chromatic alginites

k) ______ Types of tray are used for agar impression

★★★★Best of Luck★★★★
(i) Which of the following is a mucostatic

3. MCQ's

[a] ADA specification
[b] Soldering and welding
[c] Porosity
[d] Cavities inter and varises

Discuss modulus of elasticity and elastic limit.

2. Write short notes (any three)

(a) Various stages of maturation of dental porcelain.
(b) Composition, manipulation, properties, and classification of dental porcelain. Give details of

1. SECTION 1

Total Marks: 70

Time: 3 Hours

Dental Materials

June - 2014

Second Year B. D. S. Examination
2. Write short notes (any three):

(i) Expansion (HSE) of Cuspium Producte.
(ii) Presence of Contaminating Hydroscopic Substance
(iii) Presence of Hydrophobic Substance
(iv) Denture Base Resin.
(v) Dental Waxes-Classification and Characteristic
(vi) Dental Amalgam.

3. MCGS:

(a) Acid Vitrification
(b) Kret and Frissos
(c) Expansion (HSE) of Cuspium Producte.
(d) Presence of Contaminating Hydroscopic Substance
(e) Presence of Hydrophobic Substance
(f) Denture Base Resin.
(g) Dental Waxes-Classification and Characteristic
(h) Dental Amalgam.


5. If depends upon the type of wax pattern

(a) Right Angle
(b) Acute Angle
(c) Obtuse Angle
(d) None of above

6. The Spear in the wax pattern should be

(a) Too long
(b) Too small
(c) Proper dimension
(d) None of above

7. Increase in vertical dimension

(a) Loss of vertical dimension
(b) Increase in vertical dimension
(c) Loss of vertical dimension
(d) None of above

8. Poor color stability

(a) Denture base resin results in
(b) Insufficient closure of wax during packing of
(c) 0-00-20.0 microns
(d) 0-01-0.1 microns
(e) 0-10.0 microns
(f) 0-100.0 microns

9. No knife are in range of

(a) Yr phase
(b) Yr phase
(c) Yr phase
(d) Yr phase

10. The strongest component of dental amalgam

(a) Resin
(b) Metal phase
(c) Brittle
(d) Ductile

11. Low tensile strength are classified as

(a) Materials having high compressive strength and