

APRIL - 2001

[KD 654]

Sub. Code : 4133

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations)

Paper III — MATERIALS USED IN DENTISTRY

Time : Three hours

Maximum : 100 marks

Two and a half hours

Sec. A & Sec. B : 70 marks

for Sec. A and Sec. B

Section C : 30 marks

Answer Sections A and B in the same Answer Book.

Answer Section C in the Answer Sheet provided.

SECTION A — (2 × 15 = 30 marks)

1. Classify dental ceramics and write in detail about Metal ceramic restorations.
2. Define casting procedure and write in detail about the steps involved in it.

SECTION B — (8 × 5 = 40 marks)

3. Write short notes on :

- (a) Ring liners
- (b) Acid etching
- (c) Ring less castings
- (d) Phosphate bonded investments

(e) Ferritic stainless steel

(f) Advantages and disadvantages of zinc polycarboxylate cements

(g) Sensitization

(h) Electroformed dies.

[KE 654]

Sub. Code : 4133

NOVEMBER - 2001

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations)

Paper III — MATERIALS USED IN DENTISTRY

Time : Three hours Maximum : 100 marks

Two and a half hours Sec. A & Sec. B : 70 marks

for Sec. A and Sec. B Section C : 30 marks

Answer Sections A and B in the same Answer Book.

Answer Section C in the Answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

1. What are the ideal requirements of denture base materials? Describe the composition, setting reaction and curing cycle of heat cure denture base acrylic resins.

2. Classify the dental casting alloys.

Explain the composition, uses, advantages and disadvantages of chromium cobalt alloys used in dentistry.

SECTION B — (8 × 5 = 40 marks)

3. Write short notes on :

(a) Aluminous porcelain and its advantages

(b) Hygroscopic setting expansion of casting investment

(c) Polycarboxylate cement

(d) Dental implant materials

(e) Hybrid composite resins

(f) Wrought gold alloy

(g) Casting machines

(h) Localized shrinkage porosity.

SEPTEMBER - 2002

[KH 654]

Sub. Code : 4133

SECTION B — (8 × 5 = 40 marks)

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulation)

Paper III — MATERIALS USED IN DENTISTRY

Time : Three hours

Maximum : 100 marks

Two and a half hours

Sec. A & Sec. B : 70 marks

for Sec. A and Sec. B

Section C : 30 marks

Answer Sections A and B in the SAME Answer Book.

Answer Section C in the Answer Sheet provided.

SECTION A — (2 × 15 = 30 marks)

1. Mention the requisites of Impression material. Describe the composition and manipulation of Addition Silicone Impression material.

2. Define Porosity. Write the causes of porosity while using an Polymethyl methacrylate Acrylic resin and the methods to prevent the same.

3. Write short notes on :

- (a) Surface tension
- (b) Copper amalgam
- (c) Manipulation of inlay casting wax
- (d) Polishing of metal
- (e) Phosphate bonded investment
- (f) Amalgam capsule
- (g) Cavity liners
- (h) Uses of composite resin.

APRIL - 2003

[KI 654]

Sub. Code : 4133

SECTION B — (8 × 5 = 40 marks)

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations)

Paper III — MATERIALS USED IN DENTISTRY

Time : Three hours Maximum : 100 marks

Two and a half hours Sec. A and Sec. B : 70 marks
for Sec. A and Sec. B Section C : 30 marks

Answer Sections A and B in the same answer book.

Answer Section C in the answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

1. Describe the ideal requirements of denture-base materials. Explain the chemical stages of polymerisation and the curing cycles of heat cure acrylics.

2. Mention the various casting defects. Explain the causes and remedies for solidification shrinkage porosities and incomplete castings.

3. Write short notes on :

- (a) Thermal expansion.
- (b) Normal and hygroscopic setting expansions.
- (c) Polysulphides.
- (d) Mercury health hazards.
- (e) Microfilled VLC composite resins.
- (f) Implant materials
- (g) Phosphate bonded investments.
- (h) Metal – Ceramics.

OCTOBER - 2003

[KJ 654]

Sub. Code : 4133

SECTION B — (10 × 5 = 50 marks)

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations)

Paper III — MATERIALS USED IN DENTISTRY

Time : Three hours

Maximum : 100 marks

Two hours and forty minutes

for Sec. A and Sec. B

Sec. A & Sec. B : 80 marks

Twenty minutes for Sec. C

Section C : 20 marks

Answer Sections A and B in the SAME Answer Book.

Answer Section C in the Answer Sheet provided.

SECTION A — (2 × 15 = 30 marks)

1. Identify the different gypsum products with reference to their properties and setting characteristics.
2. Mention the various types of Dental waxes. Describe in detail the ideal requirements, composition and properties of inlay casting waxes.

3. Write short notes on :

- (a) Adhesive bonding
- (b) Strain hardening
- (c) Hardness tests
- (d) Corrosion
- (e) Ideal requirements of Impression materials
- (f) Electro formed die
- (g) Dental bur design
- (h) Porosity in acrylic resin
- (i) Trituration
- (j) Selection of sprue former.

AUGUST - 2004

[KL 654]

Sub. Code : 4133

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations)

Paper III — MATERIALS USED IN DENTISTRY

Time : Three hours

Maximum : 100 marks

Sec. A & B : Two hours and forty minutes

Sec. A & Sec. B : 80 marks

Section C : Twenty minutes

Section C : 20 marks

Answer Sections A and B in the SAME Answer Book.

Answer Section C in the answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

1. Define and classify impression materials. Discuss in detail, the composition, gelation process, manipulation and properties of agar agar. (15)
2. Classify direct filling gold and explain its physical properties, manipulation and advantages. (15)

SECTION B — (10 × 5 = 50 marks)

3. Write short notes on :
- (a) Composition of alginate.
 - (b) Factors affecting hygroscopic expansion.
 - (c) Ozokerite.

- (d) Benefits and drawbacks of metal-ceramics.
- (e) Stages of annealing.
- (f) Chemical stages in addition polymerisation.
- (g) Shape memory and super elasticity.
- (h) Ductility and its measurement.
- (i) Die materials.
- (j) Curing.

FEBRUARY - 2005

[KM 654]

Sub. Code : 4133

SECTION B — (10 × 5 = 50 marks)

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations)

Paper III — MATERIALS USED IN DENTISTRY

Time : Three hours

Maximum : 100 marks

**Sec. A & B : Two hours and
forty minutes**

Sec. A & B : 80 marks

Section C : Twenty minutes

Section C : 20 marks

Answer Sections A and B in the SAME Answer Book.

Answer Section C in the answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

1. Classify Gypsum Products and explain how each one is manufactured. Discuss the properties, composition and manipulation of Gypsum Bonded Investment. (15)

2. Discuss the composition, types, physical properties, manipulation, advantages and disadvantages of Dental Porcelain. (15)

3. Write short notes on :

- (a) Terra Alba.**
- (b) Poly ether.**
- (c) Factors controlling the setting time of plaster.**
- (d) Mercury Toxicity.**
- (e) Laminate Technique.**
- (f) Requirements of Inlay Wax.**
- (g) DICOR.**
- (h) Cast structure versus wrought structure.**
- (i) Types of stainless steel.**
- (j) Brazing.**

AUGUST - 2005

[KN 654]

Sub. Code : 4133

SECTION B — (10 × 5 = 50 marks)

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations)

Paper III — MATERIALS USED IN DENTISTRY

Time : Three hours

Maximum : 100 marks

**Sec. A & B : Two hours and
forty minutes**

Sec. A & B : 80 marks

Sec. C : Twenty minutes

Sec. C : 20 marks

Answer Sections A and B in the SAME answer book.

Answer Section C in the answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

1. Classify gold alloys for dental use. Mention the defects in casting and their cause. (15)
2. What are Elastomers? Write in detail about the types composition, properties and manipulation of addition silicone impression material. (15)

3. Write short notes on :

- (a) Interatomic bonds.
- (b) Dimensions of colour.
- (c) Objects of alloying.
- (d) Flux and antflux.
- (e) Requirements of denture base resin.
- (f) Tissue conditioners.
- (g) Setting reaction of dental amalgam.
- (h) Cermets.
- (i) Thermal expansion of investment materials.
- (j) Base plate wax.

FEBRUARY - 2006

[KO 654]

Sub. Code : 4133

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations)

Paper III — MATERIALS USED IN DENTISTRY

Time : Three hours

Maximum : 100 marks

Sec. A & B : Two hours and

Sec. A & B : 80 marks

forty minutes

Section C : Twenty minutes

Section C : 20 marks

Answer Sections A and B in the SAME Answer Book.

Answer Section C in the answer sheet provided.

Answer ALL questions.

SECTION A — (2 × 15 = 30 marks)

1. Write in brief the basis of selecting solders, types of solders used in Dentistry and the practical steps in soldering. (15)

2. What is an investment material? Write in brief the composition, properties, setting reaction of Gypsum bonded investment material. (15)

SECTION B — (10 × 5 = 50 marks)

3. Write short notes on :

(a) Surface hardness test.

(b) Viscosity of dental materials.

(c) Manufacturing method of gypsum products.

(d) Solidification phenomena of metals.

(e) Electroplated dies.

(f) Admixed high copper alloys.

(g) Thermal expansion of investment material.

(h) Control of setting time of Zinc phosphate cement.

(i) Glazing of Dental porcelain.

(j) Adhesive cements.

AUGUST - 2006

[KP 654]

Sub. Code : 4133

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations)

Paper III — MATERIALS USED IN DENTISTRY

Time : Three hours

Maximum : 100 marks

**Descriptive : Two hours and
forty minutes**

Descriptive : 80 marks

Objective : Twenty minutes

Objective : 20 marks

Answer ALL questions.

Write Essay on :

1. Define impression materials and classify them. Write in detail about composition, uses, manipulation, properties, advantages and disadvantages of reversible impression materials. (20)

2. What is base metal alloy? Write in detail about dental implant materials. (15)

3. Define tarnish and corrosion. Write in detail about the different types. (15)

4. Write short notes on : (6 × 5 = 30)

(a) Hygroscopic setting expansion.

(b) Annealing.

(c) Mercury Toxicity.

(d) Investments for base metal alloy casting.

(e) Porosities in acrylics.

(f) Allergies in dental materials.

FEBRUARY - 2007

[KQ 654]

Sub. Code : 4133

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations)

Paper III — MATERIALS USED IN DENTISTRY

Time : Three hours Maximum : 100 marks

Descriptive : Two hours and Descriptive : 80 marks
forty minutes

Objective : Twenty minutes Objective : 20 marks

Answer ALL questions.

1. Mention the desirable qualities of impression materials. Classify the impression materials. Write in detail about the composition, chemistry and manipulation of alginate impression material. (20)

2. Describe the casting defects and how these defects can be successfully avoided. (16)

3. What are the uses of cements in dental restoration? Write in detail about Glass Ionomer Cements. (15)

4. Write short notes on : (6 × 5 = 30)

- (a) Dental porcelain.
- (b) Separating media.
- (c) Abrasive and polishing agents.

- (d) Classification of Non precious alloys.
 - (e) Cavity bases.
 - (f) Root canal sealants.
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AUGUST 2007

[KR 654]

Sub. Code : 4133

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations)

Paper III — MATERIALS USED IN DENTISTRY

Time : Three hours Maximum : 100 marks

**Descriptive : Two hours and Descriptive : 80 marks
forty minutes**

Objective : Twenty minutes Objective : 20 marks

Answer ALL questions.

Essays : (2 × 15 = 30)

1. What are non-aqueous elastomers and write any one of its composition, properties, advantages and disadvantages. (15)

2. Write in detail about definition, classification composition, manipulation, advantages, disadvantages and uses of DENTAL AMALGAM. (15)

3. Write short notes on : (10 × 5 = 50)

- (a) Casting shrinkage.**
 - (b) Cavity Varnishes.**
 - (c) Ideal requirements of inlay wax.**
 - (d) Tests for evaluation of biocompatibility.**
 - (e) Types of Gypsum products.**
 - (f) Eames Technique.**
 - (g) Pit and fissure sealants.**
 - (h) Zinc polycarboxylate cements.**
 - (i) Accelerators and retarders.**
 - (j) Gold foils.**
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FEBRUARY 2008

[KS 654]

Sub. Code : 4133

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations – III)

Paper III — MATERIALS USED IN DENTISTRY

Q.P. Code : 544133

Time : Three hours

Maximum : 100 marks

**Descriptive : Two hours and
forty minutes**

Descriptive : 80 marks

Objective : Twenty minutes

Objective : 20 marks

Answer ALL questions.

I. Essay :

(1) Write in brief about the setting reaction of both low and high copper amalgam alloy. What are the phases formed during the reaction with a note on factors effecting its strength. (15)

(2) Mention the composition and the role of each ingredient of heat cure denture base resin. Describe its properties. (15)

II. Write short notes on : (10 × 5 = 50)

- (1) Requirement of metal ceramic alloy.
- (2) Karat and fineness.
- (3) Electrolytic polishing.
- (4) Modified zinc oxide eugenol cement.
- (5) Casting ring liners and their functions.
- (6) Hygroscopic expansion.
- (7) Requirement of solder.
- (8) Impression waxes.
- (9) Chrome cobalt alloy.
- (10) Dual-cured composites.

August 2008

[KT 654]

Sub. Code: 4133

FIRST B.D.S DEGREE EXAMINATION

(Modified Regulations – III)

Paper III– MATERIALS USED IN DENTISTRY

Q.P. Code: 544133

Time: Three hours

Maximum: 100 Marks

ANSWER ALL QUESTIONS

I. Essays:

2 x 20 = 40 Marks

1. Define and classify impression materials. Give the ideal requirements of impression materials. Add a note on Zinc Oxide Eugenol impression paste.
2. Give the composition and biological properties of Glass ionomer cement. Explain its bonding action to the enamel and dentin. Add a note on the recent modifications of glass ionomer cement.

II. WRITE SHORT NOTES ON:

10 X 6 = Marks

1. Implant materials and Types of implants.
 2. Hybrid composite.
 3. Cavity liners.
 4. Polishing agents.
 5. Eutectic alloys.
 6. Shape memory alloy.
 7. Stages of polymerization.
 8. Modulus of elasticity.
 9. Soldering.
 10. Porosity of alloys.
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February 2009

[KU 654]

Sub. Code : 4133

FIRST B.D.S DEGREE EXAMINATION
(Modified Regulations – III)
Paper III– MATERIALS USED IN DENTISTRY

Q. P. Code : 544133

Time : Three hours

Maximum: 100 Marks

Answer ALL questions.

I. Essays : **(2 x 20 = 40)**

1. Define polymerization of denture base resins and discuss its composition, physical and chemical stages.
2. Define a casting and discuss various types and mention the defects in casting.

II. Write Short notes on : **(10 x 6 = 60)**

1. Colloidal state.
2. Mercurial Toxicity.
3. Classification of alloy system.
4. Setting reaction of gypsum product.
5. Zinc Phosphate Cement.
6. Condensation Silicone.
7. Eutectic mixture.
8. Dentin bonding.
9. Cavity varnish.
10. Solid solution.

August 2009

[KV 654]

Sub. Code : 4133

FIRST B.D.S DEGREE EXAMINATION
(Modified Regulations – III)
Paper III– MATERIALS USED IN DENTISTRY

Q. P. Code : 544133

Time : Three hours

Maximum: 100 Marks

Answer **ALL** questions.

I. Essays : **(2 x 20 = 40)**

1. Discuss in detail strength of amalgam and factors affecting it.
What technical consideration will you have when using silver amalgam?
2. Classify ceramics. Write composition, methods of condensation and its recent advances.

II. Write Short notes on : **(10 x 6 = 60)**

1. Electroplated dies.
2. Luting cements.
3. Methods of soldering.
4. Poly ether.
5. Classify waxes and its various uses.
6. Dental ceramics.
7. Titanium.
8. Dental implants.
9. Gypsum bonded investments.
10. Eutectic alloys.

February 2010

[KW 654]

Sub. Code : 4133

FIRST B.D.S DEGREE EXAMINATION
(Modified Regulations – III)
Paper III– MATERIALS USED IN DENTISTRY

Q. P. Code : 544133

Time : Three hours

Maximum: 100 Marks

Answer **ALL** questions.

I. Essays :

(2 x 20 = 40)

1. Classify primary impression materials. Write in detail about the composition and manipulation of impression compound.
2. Classify Dental cements. Write the composition, manipulation and modifications of Zinc oxide Eugenol cement.

II. Write Short notes on :

(10 x 6 = 60)

1. Investment materials.
2. Tray adhesives.
3. Soldering and welding.
4. Green strength.
5. Rake angle.
6. Tarnish and corrosion.
7. Modifications of glass ionomer cement.
8. Stress and strain.
9. Bisque stages of ceramic.
10. Polyether.

August 2010

[KX 654]

Sub. Code: 4133

FIRST B.D.S DEGREE EXAMINATION

(Modified Regulations – III)

Paper III – MATERIALS USED IN DENTISTRY

Q.P. Code: 544133

Time: Three hours

Maximum: 100 Marks

Answer ALL Questions

I. Essays:

2 x 20 = 40 Marks

1. What is high copper amalgam? Enumerate the advantages over conventional silver amalgam alloy. What are the precautions followed during manipulation of Dental amalgam?
2. What is an Elastomer? Classify Elastomers. Write composition, chemistry of setting reaction and properties of addition silicone impression material.

II. Write Short Notes on:

10 x 6 = 60 Marks

1. Requisites of Solder.
2. Soft Reliners.
3. Cohesive gold foil.
4. Bonding of ceramic to metal.
5. Maxillofacial materials.
6. Uses of Dental Cements.
7. Polishing agents.
8. Casting machines.
9. Investment expansion.
10. 18.8 stainless steel.

February 2011

[KY 654]

Sub. Code : 4133

FIRST B.D.S. DEGREE EXAMINATION.

(Modified Regulations — III)

Paper III - MATERIALS USED IN DENTISTRY

Q.P. Code : 544133

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

I. Essays :

(2 x 20 = 40)

1. Classify casting defects and write in detail of porosity.
2. Define tarnish and corrosion. Explain with dental examples, galvanic corrosion, stress corrosion and concentration cell corrosion. How do you minimize corrosion? Explain with Illustrations.

II. Write short notes on :

(10 x 6 = 60)

1. Material for staining in ceramics.
 2. Phosphate bond investment.
 3. Composition and manipulation of condensation silicone.
 4. Curing cycles of denture base resin.
 5. Bonding agents.
 6. Gold foil.
 7. Composition of ZnO-E paste.
 8. Back pressure porosity.
 9. Stress and stains.
 10. 18.8 stainless steel.
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