

SECOND YEAR B.D.S. DEGREE EXAM
(Common to First Year Paper III - Modified Regulation III Candidates)

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: 180 Minutes

Maximum: 70 Marks

I. Elaborate on: **(2 x 10 = 20)**

1. Classify Elastomeric impression materials. Write in detail about addition silicone.
2. Explain in detail about Dentin Bonding agents.

II. Write Notes on: **(10 x 5 = 50)**

1. Lost wax Technique.
2. Biocompatibility.
3. Implant Materials.
4. Fluid resin Technique.
5. Polymerization Cycle.
6. Coupling Agent.
7. Cavity Liners.
8. Calcium Hydroxide.
9. Admixed Alloys.
10. Pit and Fissure Sealants.

SECOND YEAR B.D.S. DEGREE EXAM
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PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: 180 Minutes

Maximum: 70 Marks

I. Elaborate on: **(2 x 10 = 20)**

1. Impression materials - Give the composition, physical and mechanical properties of silicon rubber base impression material, add note on other elastic impression material used in dentistry.
2. Dental waxes - Give the composition, properties, manipulation, techniques of Inlay casting waxes and explain various causes for wax distortion and the remedies.

II. Write Notes on: **(10 x 5 = 50)**

1. Hygroscopic expansion.
2. Surface Hardness.
3. Micro filled light cure composite resins.
4. Zinc Polycarboxylate cement.
5. Sprue.
6. Electrolytic polishing.
7. Dual cure composites.
8. Eames technique.
9. Separating media.
10. Cavity liners and Bases.

SECOND YEAR B.D.S. DEGREE EXAM
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PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: 180 Minutes

Maximum: 70 Marks

I. Elaborate on: **(2 x 10 = 20)**

1. Explain the term Biocompatibility of Dental materials and describe briefly adverse effects from Dental Materials.
2. Describe the High Copper Silver amalgam alloys, their amalgamation, micro structure and their advantages.

II. Write Notes on: **(10 x 5 = 50)**

1. Epoxy Resin Dies.
2. Inlay waxes.
3. Divestment.
4. 18 - 8 Stainless Steel.
5. Die Hardener.
6. Anti- Cariogenic.
7. Organic Fillers.
8. Implant materials.
9. Cavity Varnishes.
10. Gold Foil.

[LM 706]

FEBRUARY 2018

Sub. Code: 4208

SECOND YEAR B.D.S. DEGREE EXAM
(Common to First Year Paper III - Modified Regulation III Candidates)

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: 180 Minutes

Maximum: 70 Marks

I. Elaborate on: (2 x 10 = 20)

1. Classify the denture base materials. Describe the ideal requirements of denture base materials.
2. Describe the compositions of various types of Resins and their functions and uses.

II. Write Notes on: (10 x 5 = 50)

1. Soldering and welding.
2. Syneresis and imbibitions.
3. Separating Media.
4. CAD CAM.
5. Electroformed Dies.
6. Lost wax technique.
7. Hot spot Porosity.
8. Dycal.
9. Coupling agent.
10. Frozen glass Techniques.

SECOND YEAR B.D.S. DEGREE EXAM
(Common to First Year Paper III - Modified Regulation III Candidates)

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: 180 Minutes

Maximum: 70 Marks

I. Elaborate on: **(2 x 10 = 20)**

1. Dental ceramics – definition, properties and classification, add a note on strengthening of ceramics.
2. Definition, classification and ideal requirements of dental cements and add a note on agents used for pulp protection.

II. Write Notes on: **(10 x 5 = 50)**

1. Annealing.
2. Injection molding technique.
3. Coefficient of thermal expansion.
4. Delayed expansion.
5. Flux and anti flux.
6. Sprue former.
7. Dentine bonding agents.
8. Dentifrices.
9. Types of gypsum products.
10. Dental inlay casting wax.

SECOND YEAR B.D.S. DEGREE EXAM
(Common to First Year Paper III - Modified Regulation III Candidates)

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: 180 Minutes

Maximum: 70 Marks

I. Elaborate on: **(2 x 10 = 20)**

1. Define impression and add notes on the ideal properties, applications and classification of impression materials.
2. Definition, requirements and classification of dental casting investments and a note on setting expansion.

II. Write Notes on: **(10 x 5 = 50)**

1. Artificial denture teeth material.
2. Dimensions of colour.
3. Cement bases.
4. Low copper alloys.
5. All ceramic restorations.
6. Viscosity of dental materials.
7. Forms of direct filling gold.
8. Strain hardening of wrought alloys.
9. Room temperature vulcanizing silicones.
10. Thermal properties of inlay waxes.

SECOND YEAR B.D.S. DEGREE EXAM
(Common to First Year Paper III - Modified Regulation III Candidates)

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: 180 Minutes

Maximum: 70 Marks

I. Elaborate on: **(2 x 10 = 20)**

1. Classify gypsum products. Discuss in detail about their setting reaction.
2. Finishing and polishing agents used in dentistry.

II. Write Notes on: **(10 x 5 = 50)**

1. Soldering and welding.
2. Inlay waxes.
3. Pit and fissure sealants.
4. Dimensional changes of amalgam.
5. Fluoride releasing cements.
6. Stages in addition polymerization.
7. Biocompatibility of dental materials.
8. Dicor.
9. Zinc phosphate cement.
10. Syneresis and Imbibition.

SECOND YEAR B.D.S. DEGREE EXAM
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PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: 180 Minutes

Maximum: 70 Marks

I. Elaborate on: **(2 x 10 = 20)**

1. Dental implants – definition, classification and notes on implant materials and surface coatings.
2. Define abrasion and polishing, notes on desirable characteristics of an abrasive and abrasive instrument designs.

II. Write Notes on: **(10 x 5 = 50)**

1. Stainless Steel.
2. Compression molding technique.
3. Acid etching technique.
4. Admixed alloys.
5. Impression compound.
6. Soft Liners.
7. Galvanic corrosion.
8. Separating media.
9. Miracle Mix.
10. Co- Cr- Ni alloys.

[LR 706]

**DECEMBER 2020
(AUGUST 2020 SESSION)**

Sub. Code: 4208

**SECOND YEAR B.D.S. DEGREE EXAM
(Common to First Year Paper III - Modified Regulation III Candidates)**

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: 180 Minutes

Maximum: 70 Marks

I. Elaborate on: **(2 x 10 = 20)**

1. Syneresis and Imbibition.
2. Classify Dental Cements. Discuss in detail about Glass Ionomer Cement.

II. Write Notes on: **(10 x 5 = 50)**

1. Principles of Adhesion.
2. Classification of Dental Amalgam.
3. Acid Etching Technique.
4. Classification of Dental Composites.
5. Calcium Hydroxide Cement.
6. Dimensional Stability of Impression Materials.
7. Tarnish and Corrosion.
8. Shape Memory of Nickel Titanium Alloys.
9. Impression Compound.
10. Methods of Strengthening Ceramics.

[BDS 0921]

**SEPTEMBER 2021
(FEBRUARY 2021 SESSION)**

Sub. Code: 4208

**SECOND YEAR B.D.S. DEGREE EXAM
(Common to First Year Paper III - Modified Regulation III Candidates)**

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: 180 Minutes

Maximum: 70 Marks

I. Elaborate on: (2 x 10 = 20)

1. Classify Impression Materials. Discuss in detail about Hydrocolloids.
2. Classify and discuss Dentin Bonding Agents. Add a note on Acid Etching Technique.

II. Write Notes on: (10 x 5 = 50)

1. Soft Liners.
2. Hygroscopic Expansion.
3. Tarnish and Corrosion.
4. Composition and Requirements of Inlay Wax.
5. Classification and Forms of Direct Filling Gold.
6. Setting Reaction of High Copper Amalgam.
7. Agents for Pulp Protection.
8. Shape Memory of Nickel Titanium Alloys.
9. Coefficient of Thermal Expansion.
10. Methods of Strengthening Ceramics.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[BDS 1221]

**DECEMBER 2021
(AUGUST 2021 SESSION)**

Sub. Code: 4208

**SECOND YEAR B.D.S. DEGREE EXAM
(Common to First Year Paper III - Modified Regulation III Candidates)**

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: 180 Minutes

Maximum: 70 Marks

I. Elaborate on: **(2 x 10 = 20)**

1. Define and classify Noble Metals. Write in detail the classification, composition, properties, manipulation, technical considerations and uses of Direct Filling Gold.
2. Write in detail the reasons casting failures and methods to avoid them.

II. Write Notes on: **(10 x 5 = 50)**

1. Induction casting machine.
2. Pressable ceramics.
3. Mercury toxicity.
4. Metal modified Glass Ionomer Cements.
5. Co-efficient of thermal expansion.
6. Elastomeric impression materials.
7. Inlay wax.
8. Cavity liners.
9. Rubber abrasives.
10. Delayed expansion.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[BDS 0522]

**MAY 2022
(FEBRUARY 2022 SESSION)**

Sub. Code: 4208

**B.D.S. DEGREE EXAM
(Common to First Year Paper III Modified Regulation III Candidates)**

**SECOND YEAR
PAPER III – DENTAL MATERIALS**

Q.P Code: 544208

Time: 180 Minutes

Maximum: 70 Marks

I. Elaborate on: **(2 x 10 = 20)**

1. Classify Impression Materials. Write in detail the Composition, Properties, setting reaction, Manipulation and uses of Irreversible Hydrocolloid Impression Materials.
2. Classify Investments Materials. Write in detail the Composition, Properties, Manipulation, Technical considerations and uses of Gypsum bonded Investments.

II. Write Notes on: **(10 x 5 = 50)**

1. CAD – CAM Procedure.
2. Metal Ceramic Bond.
3. Die Stone.
4. Gamma – 2 Phase.
5. Resin modified Glass Ionomer Cements.
6. Casting Ring Liners.
7. Zinc – Oxide Eugenol Impression Paste.
8. Resin Cements.
9. Denting Bonding Agents.
10. Cavity Varnish.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[BDS 1222]

**DECEMBER 2022
(AUGUST 2022 EXAM SESSION)**

Sub. Code: 4208

**B.D.S. DEGREE EXAM
(Common to First Year Paper III Modified Regulation III Candidates)
SECOND YEAR
PAPER III – DENTAL MATERIALS**

Q.P Code: 544208

Time: 180 Minutes

Maximum: 70 Marks

I. Elaborate on: (2 x 10 = 20)

1. Classify impression materials. Write the composition, manipulation and uses of zinc oxide Eugenol impression paste.
2. Classify Direct Filling Gold. Discuss the technique for removal of surface impurities. Add a note on compaction of Direct Filling Gold.

II. Write Notes on: (10 x 5 = 50)

1. Difference between Acrylic and Porcelain teeth.
2. Hue, Chroma and Value importance in shade selection.
3. Phosphate bonded investment.
4. Porosities in dental casting.
5. Methods of strengthening ceramics.
6. Newer developments of glass Ionomer cement.
7. Mercury hygiene recommendations in dental operator room.
8. Inlay wax.
9. Hybrid layer. Mechanism of bonding in Resin modified glass ionomer cement.
10. Dental burs.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[BDS 0323]

**MARCH 2023
(SEPTEMBER 2022 EXAM SESSION)**

Sub. Code: 4208

**B.D.S. DEGREE EXAMINATION
(Common to First Year Paper III Modified Regulation III Candidates)**

SECOND YEAR

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: 180 Minutes

Maximum: 70 Marks

I. Elaborate on: **(2 x 10 = 20)**

1. Classify Gypsum products. Write in detail about their setting reaction.
2. Explain in detail about the Generations in Dentin Bonding agents. Write a note on acid etching.

II. Write Notes on: **(10 x 5 = 50)**

1. Types of waxes.
2. Glass ionomer cements.
3. Syneresis and Imbibitions.
4. Admixed alloy.
5. Tarnish and corrosion.
6. Methods of strengthening ceramics.
7. Elastomeric impression materials.
8. Casting ring liners.
9. Shape memory of Nickel Titanium Alloys.
10. Hybrid composite.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[BDS 0723]

JULY 2023

Sub. Code: 4208

**B.D.S. DEGREE EXAMINATION
(Common to First Year Paper III Modified Regulation III Candidates)**

SECOND YEAR

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: 180 Minutes

Maximum: 70 Marks

I. Elaborate on: (2 x 10 = 20)

1. Classify Impression materials. Explain in detail about the composition and setting reaction, manipulation, physical and mechanical properties of irreversible Hydrocolloid.
2. Discuss in detail about the various generation of Dentin Bonding Agents.

II. Write Notes on: (10 x 5 = 50)

1. Biocompatibility of Dental Implants.
2. Atraumatic Restorative Technique.
3. Micro filled composites.
4. Glazing of Dental Ceramics.
5. Casting porosity.
6. Electroformed dies.
7. Zinc polycarboxylate cement.
8. Nickel Titanium Alloys.
9. Eames technique.
10. Accelerator and retarders of Gypsum.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[BDS 0224]

FEBRUARY 2024

Sub. Code: 4208

B.D.S. DEGREE EXAMINATION

(Common to First Year Paper III Modified Regulation III Candidates)

SECOND YEAR

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: Three Hours

Maximum: 70 Marks

Answer All Questions in the same order

Draw suitable Diagrams wherever necessary

I. Elaborate on:

(2 x 10 = 20)

1. Classify Dental Cements. Write in detail about composition, uses, manipulation and properties of Glass Ionomer Cement.
2. Explain in detail about the various Dental Alloys, its composition, uses, properties, advantage and disadvantage.

II. Write Notes on:

(10 x 5 = 50)

1. Dental implant materials.
2. Direct filling gold.
3. Flux and antflux.
4. Liners and bases.
5. Syneresis and imbibition.
6. Dimensions of colour.
7. 18-8 stainless steel.
8. Dimensional changes of Amalgam restoration.
9. Pit and fissure sealants.
10. Classification of Dental Ceramics.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[BDS 0824]

AUGUST 2024

Sub. Code: 4208

B.D.S. DEGREE EXAMINATION

SECOND YEAR

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: Three Hours

Maximum: 70 Marks

Answer All Questions in the same order

Draw suitable Diagrams wherever necessary

I. Elaborate on:

(2 x 10 = 20)

1. Classify Dental amalgam. Discuss the composition, setting reaction and advantages of High Copper alloys.
2. Discuss the Casting procedure in detail. Enumerate Casting failures.

II. Write Notes on:

(10 x 5 = 50)

1. Hardness tests.
2. Biocompatibility of dental materials.
3. Classify Gypsum products, write in detail about accelerators and retarders.
4. Compensation of casting shrinkage.
5. Enumerate the cause of corrosion and methods to protect against it.
6. Discuss in detail about cavity liners and add a note on calcium hydroxide.
7. Methods of strengthening ceramics.
8. Write about hybrid composites.
9. Mercury toxicity.
10. Pit and fissure sealants.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[BDS 1224]

DECEMBER 2024

Sub. Code: 4208

B.D.S. DEGREE EXAMINATION

SECOND YEAR

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: Three Hours

Maximum: 70 Marks

Answer All Questions in the same order

Draw suitable Diagrams wherever necessary

I. Elaborate on:

(2 x 10 = 20)

1. Classify Dental waxes. Explain in detail about composition, types, properties and uses of Inlay wax.
2. What are Dental Composite Resin and discuss in detail about its types, composition, uses, advantage and disadvantage.

II. Write Notes on:

(10 x 5 = 50)

1. Tissue conditioners.
2. Strengthening of Ceramics.
3. Pulp capping agents.
4. CAD-CAM.
5. Laminate Impression Technique.
6. Micro leakage.
7. Hazards of Mercury.
8. Induction casting.
9. Types of Stainless Steel.
10. Annealing of Gold.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[BDS 0225]

FEBRUARY 2025

Sub. Code: 4208

B.D.S. DEGREE EXAMINATION

**New Modified Revised Regulation (August 2016 Examination Session onwards)
and New Modified Regulation {Candidates admitted from 2008-2009 onwards}**

SECOND YEAR

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: Three Hours

Maximum: 70 Marks

Answer All Questions in the same order

Draw suitable Diagrams wherever necessary

I. Elaborate on:

(2 x 10 = 20)

1. Discuss Casting failures. Write about the Investment Materials.
2. Define Composite Resins. Classify composite Resins. Write a note on Smear layer.

II. Write Notes on:

(10 x 5 = 50)

1. Types and properties of Inlay wax.
2. High copper silver amalgam.
3. Hybrid layer.
4. Direct filling gold.
5. CAD – CAM Technology.
6. Methods of strengthening ceramics.
7. Divestment.
8. Soldering and Brazing.
9. Syneresis and Imbibitions.
10. Dimensions of colour.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[BDS 0625]

JUNE 2025

Sub. Code: 4208

B.D.S. DEGREE EXAMINATION

New Modified Revised Regulation (August 2016 Examination Session onwards)

SECOND YEAR

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: Three Hours

Maximum: 70 Marks

**Answer All Questions in the same order
Draw suitable Diagrams wherever necessary**

I. Elaborate on:

(2 x 10 = 20)

1. Classify Dental Cements. Explain in detail composition, setting reaction and biological properties of Glass Ionomer Cement.
2. Classify Gypsum products. Describe in detail about dental plaster and dental stone. Add a note on Hygroscopic setting expansion.

II. Write Notes on:

(10 x 5 = 50)

1. Enumerate the mechanical properties of dental materials. Discuss stress-strain curve.
2. Stage of polymerization in acrylic resin.
3. Define and classify dental ceramics.
4. Gypsum bonded investments.
5. Materials used for dental implants.
6. Contact angle and wetting angle.
7. Classify inlay waxes and mention its composition.
8. Cavity liners and bases.
9. Rake angle and clearance angle.
10. Mechanism of bonding composite resin to enamel and dentin.

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[BDS 0825]

AUGUST 2025

Sub. Code: 4208

B.D.S. DEGREE EXAMINATION

**New Modified Revised Regulation (August 2016 Examination Session onwards)
and New Modified Regulation {Candidates admitted from 2008-2009 onwards}**

SECOND YEAR

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: Three Hours

Maximum: 70 Marks

**Answer All Questions in the same order
Draw suitable Diagrams wherever necessary**

I. Elaborate on:

(2 x 10 = 20)

1. Describe the High copper silver amalgam alloys. Write in detail their amalgamation reaction, micro structure, advantages and their manipulation.
2. Finishing and polishing agents in dentistry.

II. Write Notes on:

(10 x 5 = 50)

1. Pulp protection agents.
2. Dicor.
3. Miracle mix.
4. Acid etching.
5. Condensation silicones.
6. Impression compound.
7. Porosities in dental casting.
8. Fillers in composites.
9. Hydrocolloids.
10. Delayed expansion.

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[BDS 1225]

DECEMBER 2025

Sub. Code: 4208

B.D.S. DEGREE EXAMINATION

New Modified Revised Regulation (August 2016 Examination Session onwards)

Candidates admitted for the Academic Year 2022-2023 Batch only

SECOND YEAR

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: Three Hours

Maximum: 70 Marks

Answer All Questions in the same order

Draw suitable Diagrams wherever necessary

I. Elaborate on:

(2 x 10 = 20)

1. Classify and discuss about Dentin bonding agents. Add a note on Acid etching technique.
2. Classify Elastomeric impression materials. Write in detail about Addition silicones.

II. Write Notes on:

(10 x 5 = 50)

1. Separating media.
2. Inlay wax.
3. Hygroscopic setting expansion.
4. Tarnish and corrosion.
5. Mercury toxicity.
6. Classification of Gypsum products.
7. Glass ionomer cement.
8. Direct filling gold.
9. Suck Back Porosity.
10. Divestment.

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[BDS 0226]

FEBRUARY 2026

Sub. Code: 4208

B.D.S. DEGREE EXAMINATION

**{New Modified Revised Regulation (August 2016 Examination Session onwards)
And New Modified Regulation (Candidates admitted from 2008-2009 onwards)}**

SECOND YEAR

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: Three Hours

Maximum: 70 Marks

**Answer All Questions in the same order
Draw suitable Diagrams wherever necessary**

I. Elaborate on: **(2 x 10 = 20)**

1. Classify Dental Cements. Write in detail about Glass Ionomer Cement.
2. Enumerate the ideal properties of Impression Materials. Classify Impression Materials. Discuss advantages and disadvantages of the different materials.

II. Write Notes on: **(10 x 5 = 50)**

1. Nickel Titanium alloys.
2. Mercury Hygiene.
3. Types of Abrasives.
4. Gypsum bonded investments.
5. Syneresis and Imbibition.
6. Galvanism
7. Forms of direct filling gold.
8. Modifications of Zinc Oxide Eugenol Cement.
9. Dual cure composites.
10. Dimensions of colour.

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[BDS 0626]

JUNE 2026

Sub. Code: 4208

B.D.S. DEGREE EXAMINATION

New Modified Revised Regulation (August 2016 Examination Session onwards)

Candidates admitted for the Academic Year 2022-2023 Batch only

SECOND YEAR

PAPER III – DENTAL MATERIALS

Q.P Code: 544208

Time: Three Hours

Maximum: 70 Marks

Answer All Questions in the same order

Draw suitable Diagrams wherever necessary

I. Elaborate on:

(2 x 10 = 20)

1. Classify rubber base impression materials. Write in detail about condensation silicones. Add a note on disinfection of the same.
2. Classify Dental amalgam. Write in detail about manipulation of dental amalgam. Add a note on mercury toxicity.

II. Write Notes on:

(10 x 5 = 50)

1. Modifications of Glass Ionomer Cement.
2. Nickel – titanium alloys and its uses in dentistry.
3. Methods to strengthen ceramics.
4. Acid etch technique.
5. Injection molding technique for dentures.
6. Classification and uses of abrasives in dentistry.
7. Adverse effects of dental materials – Biocompatibility issues.
8. Classification and types of gypsum products.
9. Phosphate bonded investments.
10. Cavity varnishes in restorative dentistry.
