

**Q.P. CODE:421-NR/402-OR**

DR. NTR UNIVERSITY OF HEALTH SCIENCES::AP::VIJAYAWADA-520 008

B.D.S. DEGREE EXAMINATION – JANUARY, 2019

FIRST BDS EXAMINATION(OR) SECOND BDS EXAMINATION(NR)

**DENTAL MATERIALS**

Time : 3 Hours

Max. Marks: 70

Note: Answer all questions.

Draw neat labeled diagrams wherever necessary.

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1) Classify Impression Materials. Discuss composition, manipulation and properties of Agar Impression Material. 3+2+2+2=9

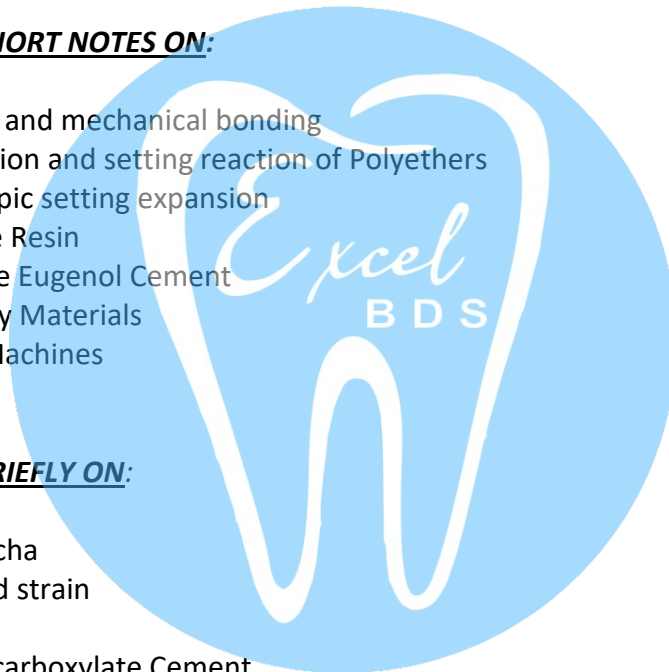
2) Discuss the casting defects that can arise and describe in detail how to avoid them. 5+4=9

**WRITE SHORT NOTES ON:** 8x4=32

- 3) Adhesion and mechanical bonding
- 4) Composition and setting reaction of Polyethers
- 5) Hygroscopic setting expansion
- 6) Dual Cure Resin
- 7) Zinc Oxide Eugenol Cement
- 8) Refractory Materials
- 9) Casting Machines
- 10) Gold Foil

**WRITE BRIEFLY ON:** 10x2=20

- 11) Guttaparcha
- 12) Stress and strain
- 13) Die Stone
- 14) Zinc Polycarboxylate Cement
- 15) Firing in Porcelain
- 16) Sticky Wax
- 17) Galvanism
- 18) Frozen Slab Technique
- 19) Carat and Fineness
- 20) Gillmore Needle



DR. NTR UNIVERSITY OF HEALTH SCIENCES::AP::VIJAYAWADA-520 008  
 B.D.S. DEGREE EXAMINATION - JUNE/JULY, 2018  
 FIRST BDS EXAMINATION(OR) SECOND BDS EXAMINATION(NR)  
**DENTAL MATERIALS**

Time : 3 Hours

Max. Marks: 70

Note: Answer all questions.

Draw neat labeled diagrams wherever necessary.

1) State the ideal requisites of denture base resins. Describe the composition and polymerization (curing) cycle of heat cure acrylic denture base resins. 3+3+3=9

2) Classify dental amalgam alloys. Describe the strength and creep of dental amalgam restorative material. 4+3+2=9

**WRITE SHORT NOTES ON:** 8x4=32

- 3) Castable glass ceramics
- 4) Bonding Agents
- 5) Dental plaster Vs. Dental stone
- 6) Factors affecting cutting efficiency of dental burs
- 7) Incomplete casting
- 8) Metal modified glass ionomer cements
- 9) Wetting and contact angle
- 10) Alginate Impression Material

**WRITE BRIEFLY ON:** 10x2=20

- 11) Pickling
- 12) Casting ring liners
- 13) Flux
- 14) Dentin primers
- 15) Ideal requisites of inlay waxes
- 16) Polishing
- 17) Die Materials
- 18) Syneresis and imbibition
- 19) EBA cements
- 20) Yield strength

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FIRST BDS EXAMINATION(OR) SECOND BDS EXAMINATION(NR)

**DENTAL MATERIALS**

Time : 3 Hours

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Note: Answer all questions.

Draw neat labeled diagrams wherever necessary.

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1) Types of Gypsum product. Setting reaction, properties and uses of plaster of paris. 3+2+2+2=9

2) Classification, composition and advantages of light activated composite resins. 3+3+3=9

**WRITE SHORT NOTES ON:**

8x4=32

3) Mercury Toxicity

4) Electrochemical corrosion

5) Stages of Annealing

6) Stoichiometric setting reaction of high copper amalgam. Add a note on Gamma two ( $\gamma_2$ ) phase.

7) Classify Elastomeric Impression Materials

8) Porosity in dental casting alloys

9) Pit and Fissure Sealants

10) Soldering and Welding

**WRITE BRIEFLY ON:**

10x2=20

11) Pseudo Elasticity

12) Abrasion

13) Laminates

14) Calcium Hydroxide

15) Mat Gold

16) Surface Tension

17) Zinc Oxide Eugenol Paste

18) Marginal Ditching

19) Pulp Liners

20) Gutta Percha

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**DENTAL MATERIALS**

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14) Calcium Hydroxide

15) Mat Gold

16) Surface Tension

17) Zinc Oxide Eugenol Paste

18) Marginal Ditching

19) Pulp Liners

20) Gutta Percha

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**DENTAL MATERIALS**

Time : 3 Hours

Max. Marks: 70

Note: Answer all questions.

Draw neat labeled diagrams wherever necessary.

- 1) Classify impression materials. Describe the composition, setting reaction and properties of irreversible hydrocolloid impression materials. 2+2+2+3=9

- 2) State the ideal qualities of luting cements. Describe the composition, bonding reaction and biological considerations of glass ionomer cements 3+2+2+2=9

**WRITE SHORT NOTES ON:**8x4=32

- 3) Acid etching technique  
 4) Creep of dental amalgam  
 5) Curing cycles of heat cure acrylic denture base resins  
 6) Dental stone  
 7) Dentifrices  
 8) Localized shrinkage porosity  
 9) Modulus of elasticity  
 10) Strengthening of dental ceramics by residual compressive stresses

**WRITE BRIEFLY ON:**10x2=20

- 11) Any two abrasive agents  
 12) Causes for distortion of inlay wax pattern  
 13) Classification of dental casting alloys  
 14) Zones of Flame  
 15) Ductility and malleability  
 16) Multiple mix impression technique of elastomers  
 17) Non-cohesive gold  
 18) Requirements of dental solders  
 19) Sensitization of 18 - 8 stainless steel wire  
 20) Flux and Antiflux

**DENTAL MATERIALS**

Time : 3 Hours

Max. Marks: 70

Note: Answer all questions.

Draw neat labeled diagrams wherever necessary.

1) Discuss in detail composition, classification and properties of Porcelain. Add a note on CAD CAM ceramics. 2+2+3+2=9

2) Define tarnish and corrosion. Explain causes and types of corrosion. 2+3+4=9

**WRITE SHORT NOTES ON:** 8x4=32

3) Evaluation tests for biocompatibility of dental materials.

4) Failure of Hydrocolloid impressions

5) Fillers in composite resin.

6) Classify direct filling gold

7) Hygroscopic setting expansion

8) Phosphate bonded investments

9) Mercury toxicity

10)  $\beta$  – Titanium Alloys

**WRITE BRIEFLY ON:**

10x2=20

11) Calcium Hydroxide

12) Contact angle

13) Sprue Former

14) Advantages of Glass Ionomers

15) Solidification defects

16) Three body abrasion

17) Varnish

18) Delayed expansion

19) Co polymer

20) Smear layer

DR. NTR UNIVERSITY OF HEALTH SCIENCES::AP::VIJAYAWADA-520 008

B.D.S. DEGREE EXAMINATION JUNE/JULY, 2016  
FIRST BDS EXAMINATION(OR) SECOND BDS EXAMINATION(NR)  
**DENTAL MATERIALS**

Time : 3 Hours

Max. Marks: 70

Note: Answer all questions.

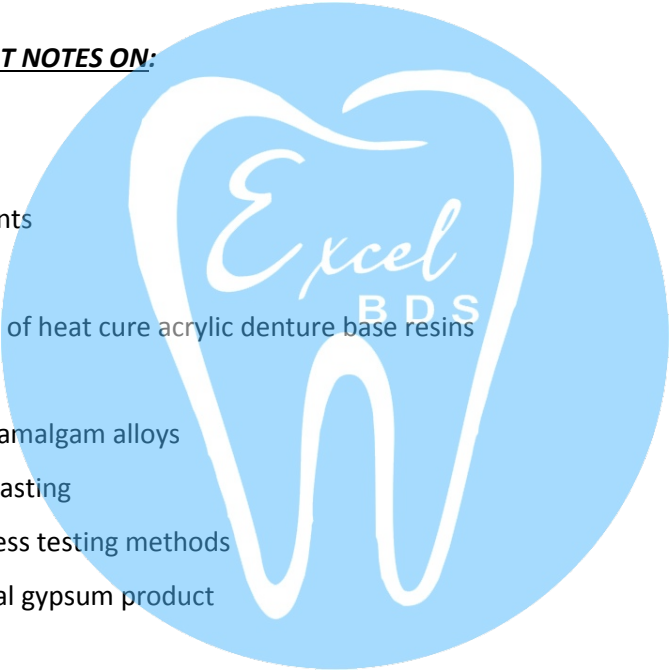
Draw neat labeled diagrams wherever necessary.

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- 1) Classify impression materials. Describe the composition, gelation reaction and properties of irreversible hydrocolloids. 3+2+2+2=9

- 2) What are dental composites? Write in detail about the composition and properties of hybrid composite resins. 1+5+3=9

**WRITE SHORT NOTES ON:**8x4=32

- 
- 3) Bonding Agents  
4) Gold Foil  
5) Curing cycles of heat cure acrylic denture base resins  
6) Dentifrices  
7) High copper amalgam alloys  
8) Incomplete casting  
9) Micro hardness testing methods  
10) Type III dental gypsum product

**WRITE BRIEFLY ON:**10x2=20

- 11) Classification of dental casting alloys  
12) Composition of Zinc Oxide Eugenol Impression Pastes  
13) Ductility and Malleability  
14) Contact angle of wetting  
15) Die materials  
16) Rouge  
17) Manipulation of Zinc Phosphate Cement  
18) Metamerism  
19) Titanium implant material  
20) Welding

Time : 3 Hours

Max. Marks: 70

Note: Answer all questions.

**Draw neat labeled diagrams wherever necessary.**

- 1) Define setting time of Gypsum products. Mention and explain different methods of measuring setting time. Add a note on theories of setting time and disinfection of Gypsum products. **2+3+2+2=9**
- 2) Name the various anterior esthetic restorative materials used, write the composition, properties and manipulation of glass ionomer cement. Add a note on sandwich technique. **2+2+2+1+2=9**

**WRITE SHORT NOTES ON:****8x4=32**

- 3) Pit and Fissure sealant
- 4) Composition and manipulation of inlay wax
- 5) Compare wrought and cast alloys
- 6) Back pressure porosity
- 7) 18-8 stainless steel
- 8) Dental solders
- 9) Microfilled composite resin
- 10) Calcium Hydroxide cement

**WRITE BRIEFLY ON:****10x2=20**

- 11) Cavity varnish
- 12) Coupling agent
- 13) Sprue former
- 14) Flux
- 15) Trituration
- 16) Strengthening of Dental Porcelain
- 17) Gutta percha
- 18) Tray Adhesive
- 19) Tarnish and Corrosion
- 20) Denture relining



DR. NTR UNIVERSITY OF HEALTH SCIENCES::AP::VIJAYAWADA-520 008

**B.D.S. DEGREE EXAMINATION JUNE/JULY, 2015**  
**FIRST BDS EXAMINATION(OR) SECOND BDS EXAMINATION(NR)**  
**DENTAL MATERIALS**

Time : 3 Hours

Max. Marks: 70

Note: Answer all questions.

Draw neat labeled diagrams wherever necessary.

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- |    |   |             |
|----|---|-------------|
| 1) | Classify dental ceramics. Write the composition of dental porcelain. Discuss the methods of condensation of dental porcelain and uses of porcelain. | 3+2+2+2=9   |
| 2) | Write the composition, properties, advantages and disadvantages of amalgam alloys. Add a note on classification of amalgam alloys.                  | 2+2+1+1+3=9 |

**WRITE SHORT NOTES ON:**

8x4=32

- |     |                                     |  |
|-----|-------------------------------------|--|
| 3)  | Zinc oxide Eugenol impression paste |  |
| 4)  | Syneresis and Imbibition            |  |
| 5)  | Gold Foil                           |  |
| 6)  | Light cure composites               |  |
| 7)  | Dustless alginate                   |  |
| 8)  | Zinc phosphate cement               |  |
| 9)  | Soldering and Welding               |  |
| 10) | Dental implant materials            |  |

**WRITE BRIEFLY ON:**

10x2=20

- |     |                              |  |
|-----|------------------------------|--|
| 11) | Chemical adhesion            |  |
| 12) | Pumice                       |  |
| 13) | Inlay Wax                    |  |
| 14) | Localised shrinkage porosity |  |
| 15) | Die materials                |  |
| 16) | Rake angle                   |  |
| 17) | Sandwich Technique           |  |
| 18) | Etching                      |  |
| 19) | Rouge                        |  |
| 20) | Creep                        |  |

**B.D.S. DEGREE EXAMINATION - JANUARY, 2015**  
**FIRST BDS EXAMINATION(OR) SECOND BDS EXAMINATION(NR)**  
**DENTAL MATERIALS**

**Time : 3 Hours**

**Max. Marks: 70**

**Note: Answer all questions.**

**Draw neat labeled diagrams wherever necessary.**

- 1) Classify waxes used in Dentistry. Describe the composition, manipulation and uses of Inlay wax. 3+2+2+2=9
- 2) State the ideal requisites of luting cements. Give the composition, chemistry of setting and properties of glass ionomer cements 2+2+2+3=9

**WRITE SHORT NOTES ON:**

8x4=32

- 3) Addition poly silicone impression material
- 4) Delayed expansion
- 5) Ductility and Malleability
- 6) Factors affecting cutting efficiency of dental burs
- 7) Hybrid composite resins
- 8) Ni – Ti orthodontic wire
- 9) Sprue former
- 10) Tissue conditioners

**WRITE BRIEFLY ON:**

10x2=20

- 11) Advantages of Gypsum bonded investment materials
- 12) Eames Technique
- 13) Colour parameters
- 14) Composition of impression compound
- 15) Diamond abrasives
- 16) Functions of separating medium
- 17) Non cohesive gold
- 18) Porcelain condensation techniques
- 19) Soldering flux
- 20) Stages of annealing heat treatment

**B.D.S. DEGREE EXAMINATION JUNE, 2014**  
**FIRST BDS EXAMINATION(OR) SECOND BDS EXAMINATION(NR)**  
**DENTAL MATERIALS**

1) Describe the composition, stages of mixing and curing cycles of heat cure acrylic denture base resins. 3+3+3=9

2) Classify gypsum materials. Discuss in detail dental stone. 3+6=9

WRITE SHORT NOTES ON:

8x4=32

3) Acid etching technique

4) Castable glass ceramics

5) Manipulation of reversible hydrocolloids

6) Zinc phosphate cement

7) Metal modified glass ionomer cements

8) Modulus of elasticity

9) Casting shrinkage

10) Conventional composites

WRITE BRIEFLY ON:

10x2=20

11) Baseplate wax

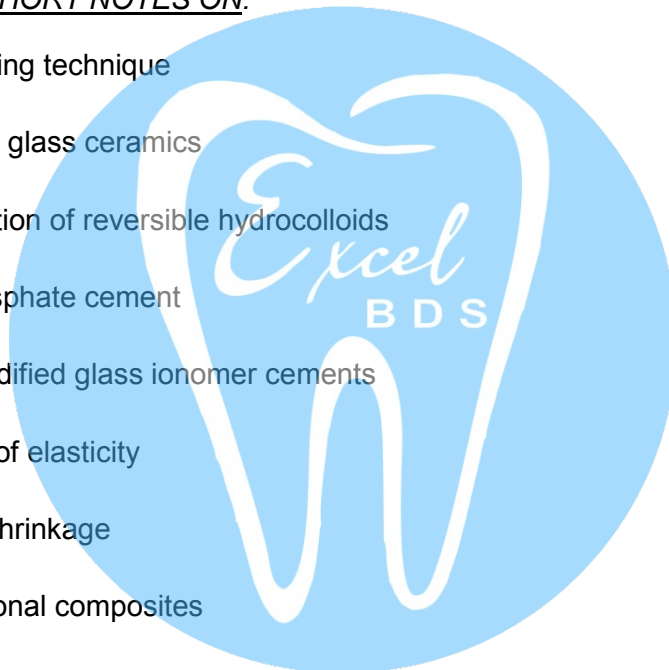
12) Composition of polyether impression material

13) Description of DFG (Direct Filling Gold)

14) Distinguish between abrasion and polishing

15) Galvanic corrosion

16) Trituration



- 17) Polyacrylic acid
- 18) Requirements of dental solders
- 19) Types of copolymers
- 20) Rouge

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**B.D.S. DEGREE EXAMINATION JUNE, 2013**  
**FIRST BDS EXAMINATION(OR) SECOND BDS EXAMINATION(NR)**  
**DENTAL MATERIALS**

- 1) Classify dental impression materials. Write the composition and setting mechanism of reversible hydrocolloids. 9
- 2) Classify dental cements. Write the composition, setting reactions and properties of zinc polycarboxylate cements 3+2+2+2=9

WRITE SHORT NOTES ON:

8x4=32

- 3) Toxicity tests
- 4) Bonding agents
- 5) Casting defects.
- 6) Abrasives and polishing agents
- 7) Methods of strengthening ceramics
- 8) Cavity liners and bases
- 9) Factors affecting success of amalgam restorations
- 10) Hygroscopic setting expansion

WRITE BRIEFLY ON:

10x2=20

- 11) Creep and flow
- 12) Soft liners
- 13) Internal porosity of denture base
- 14) Yield strength
- 15) Dental plaster

- 16) Tarnish
- 17) Forms of direct filling gold
- 18) Divestment
- 19) Dental burs
- 20) Implant materials

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**B.D.S. DEGREE EXAMINATION – DECEMBER, 2012**  
**FIRST BDS EXAMINATION(OR) SECOND BDS EXAMINATION(NR)**  
**DENTAL MATERIALS**

- 1) Discuss in detail the composition, setting reaction, properties and uses of Alginate impression materials. 3+2+2+2=9
- 2) Classify composite resins. Write the composition, properties and uses of hybrid composites. 3+2+2+2=9

**WRITE SHORT NOTES ON:**

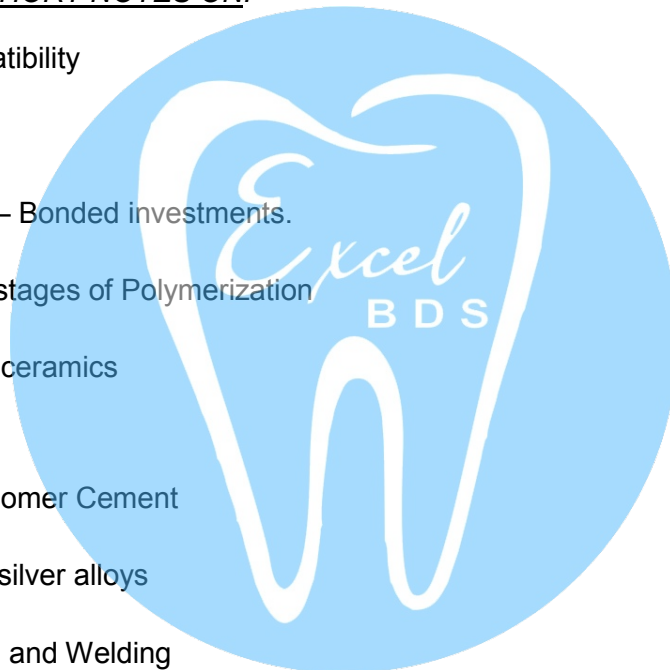
8x4=32

- 3) Biocompatibility
- 4) Diffusion.
- 5) Gypsum – Bonded investments.
- 6) Physical stages of Polymerization
- 7) Castable ceramics
- 8) Glass Ionomer Cement
- 9) Types of silver alloys
- 10) Soldering and Welding

**WRITE BRIEFLY ON:**

10x2=20

- 11) Dimensions of color
- 12) Etching
- 13) Zones of Flame
- 14) Proportional Limit
- 15) Dental Stone



- 16) Cavity Varnishes
- 17) Pit and Fissure sealants
- 18) Karat and fineness
- 19) Types of casting machines
- 20) Sandwich Technique

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**B.D.S. DEGREE EXAMINATION – JUNE, 2012**  
**SECOND BDS EXAMINATION421NR**

**DENTAL MATERIALS**

1) Classify Dental Cements. Discuss the Composition, setting reaction and uses of zinc phosphate Cement. 9

2) Classify Investment Materials. Discuss in Brief about Gypsum Bonded Investment Material. 9

WRITE SHORT NOTES ON:

8x4=32

3) Polycarboxylate Cement

4) Admixed Alloys.

5) Casting Shrinkage

6) Impression Compound

7) Advantage of Acrylic Resin as a Denture Base Material

8) Condensation and Firing of Porcelain

9) Hygroscopic setting expansion

10) Flow and Creep

WRITE BRIEFLY ON:

10x2=20

11) Annealing

12) Gutta percha

13) Dental Implant Materials

14) Rouge

15) Flux

16) Powdered Gold

17) Galvanism

18) Gama – 2 Phase

19) Epoxy Resin Dies



**0 B.D.S. DEGREE EXAMINATION – DECEMBER ,2011/JANUARY,2012**

**FIRST & SECOND BDS EXAMINATION**

**DENTAL MATERIALS**

**(NR & OR) PART - A - PATHOLOGY**

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1.What is biocompatibility ? Describe the biological considerations of dental materials  $2+7=9$

2.Discuss in detail the composition, properties, setting reaction, advantages and disadvantages of Glass Ionomer  $2+2+2+2+1=9$

WRITE SHORT NOTES ON:

$8 \times 4 = 32$

3.High Fusing alloys. 4.Alginate impression material. 5.Composition of Ceramics. 6.Trituration.

7.Cobalt Chromium Alloys. 8.Degassing and compaction procedures in Direct Filling Gold. 9.Physical stages of polymerization. 10.18/8 stainless steel.

WRITE BRIEFLY ON:

$10 \times 2 = 20$

11.Die materials. 12.Sticky Wax. 13.Zones of flame. 14.Hue, value and Chroma. 15.Delayed expansion.

16.Pickling. 17.Calcium Hydroxide. 18.Carat and Fineness.

19.Advantages of EBA cements.

20.Ductility and Malleability.

**B.D.S. DEGREE EXAMINATION – DECEMBER – JUNE - 2011**

**FIRST & SECOND BDS EXAMINATION**

**DENTAL MATERIALS**

**(NR & OR) PART - A - PATHOLOGY**

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1. Classify composite Resins and describe in detail the composition, properties and uses of hybrid composites.

3+3+2+2=9

2. Classify waxes in dentistry. Write the composition of inlay waxes. Explain the procedures for obtaining the wax pattern for an inlay restoration.

3+3+3=9

WRITE SHORT NOTES ON:

8X4=32

3. Types and causes of casting defects. 4. Resin modified glass ionomer.

5. Composition and setting reaction of polyethers. 6. Tissue conditioners. 7. Bonding Agents.

8. Define stress and strain. Mention different types of tests for testing hardness. 9. Soldering and types of Dental Soldering techniques.

10. Zinc oxide Eugenol impression pasts.

WRITE BRIEFLY ON:

10X2=20

11. EAMES' Technique. 12. Sensation and Stabilization. 13. Rake angle.

14. Pit and fissure sealants.

15. Biological effects of mercury. 16. Cavity liners. 17. Composition of Dentifrices. 18. Sandwich technique.

19. Syneresis and Imbibition. 20. Cement base.

**B.D.S. DEGREE EXAMINATION – DECEMBER – JUNE - 2011**

**FIRST & SECOND BDS EXAMINATION**

**DENTAL MATERIALS**

**(NR & OR) PART - A - PATHOLOGY**

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1. Classify and give the ideal requirements of the denture base materials and discuss various

modes of polymerization of denture base resins

9

2. Enumerate various base metal alloys and write in detail about stainless steel. 9

WRITE SHORT NOTES ON:

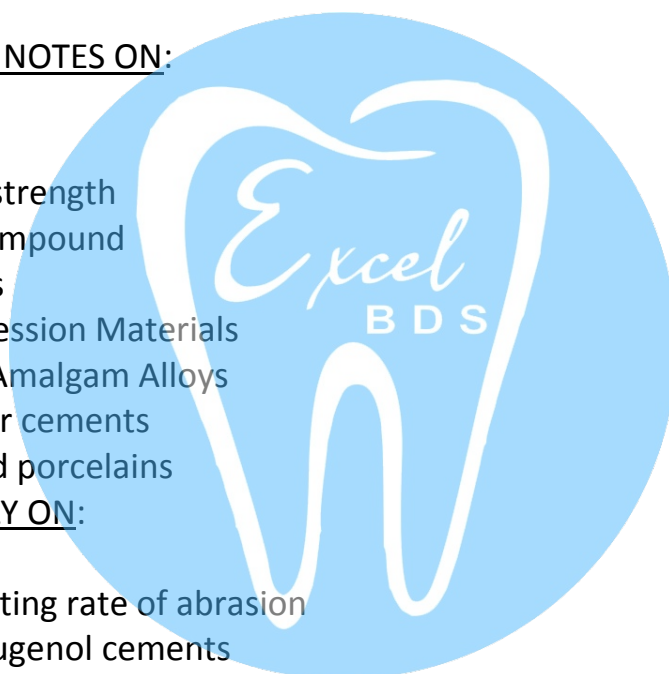
8X4=32

3. Die stone
4. Compressive strength
5. Impression compound
6. Fillers in liners
7. Fillers in impression Materials
8. High copper Amalgam Alloys
9. Glass Ionomer cements
10. Vacuum fired porcelains

WRITE BRIEFLY ON:

10X2=20

11. Factors affecting rate of abrasion
12. Zinc Oxide Eugenol cements
13. Flux and anti flux
14. Electropolishing
15. Residual Monomer
16. Wet Corrosion
17. 18-8 stainless steel
18. Annealing
19. Sodium Alginate solution
20. Welding and soldering



**BDS DEGREE EXAMINATION-JUNE,2010**  
**SECOND BDS EXAMINATION**  
**DENTAL MATERIALS**

1. Classify gypsum products. Write the setting reaction of dental plaster.

9

2. Classify dental cements. Write the composition, properties and manipulation of zinc

Polycarboxylate.

WRITE SHORT NOTES ON 8x4=32

3. Three dimensions of color      4. stages in addition polymerization

5. Casting defects      6. Hybrid composites      7. pressable glass-ceramics

8. Optimal spure design      9. Syneresis and imbibition

10. Cavity liners and cement bases.

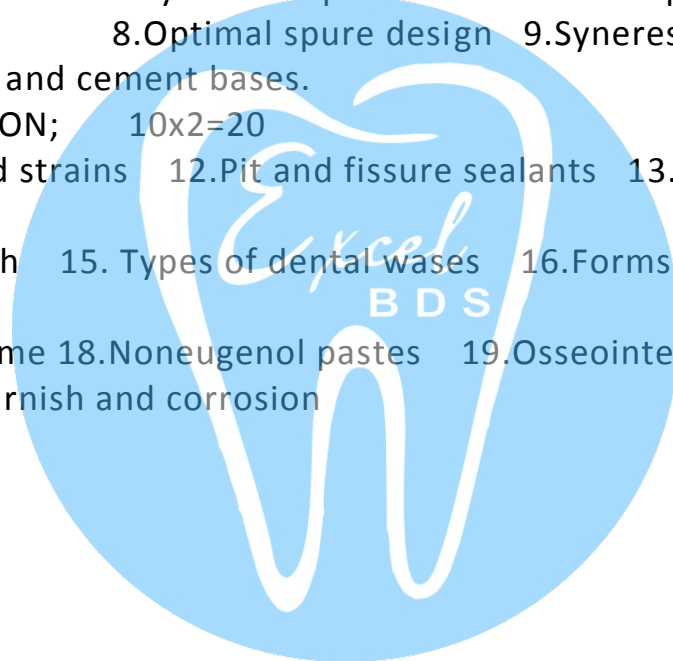
WRITE BRIEFLY ON;      10x2=20

11. Stresses and strains      12. Pit and fissure sealants      13. Laminate technique

14. Grain growth      15. Types of dental waxes      16. Forms of direct filling gold

17. Zones of flame      18. Noneugenol pastes      19. Osseointegration

20. Causes of tarnish and corrosion



**SECOND BDS EXAMINATIONS -JANUARY 2010**  
**DENTAL MATERIALS (NEW REGULATIONS)**

1) Classify impression material. Write the composition and setting reaction of zinc oxide eugenol impression paste 2) Write the composition and manipulation of glass ionomer cement.

WRITE SHORT NOTES ON:

3) Creep and flow 4) physical properties of polymers 5) Accelerators and retarders 6) Microfilled composites 7) Types of dental ceramics 8) Casting machines 9) Tissue conditioners 10) Zinc phosphate cement

WRITE BRIEFLY ON:

11) Ductility and malleability 12) Bonding agents 13) Acid etch technique  
14) Twinning 15) Measurement of setting time 16) Soldering and welding  
17) Composition of admix alloys 18) casting ring liner 19) Biocompatibility  
20) Stress corrosion



**SECOND BDS EXAMINATIONS- JANUARY 2010**

**ORAL ANATOMY ORAL PHYSIOLOGY & ORAL HISTOLOGY (OLD REGULATIONS)**

**PART-A(35 MARKS)**

1) Describe the morphology of the permanent mandibular 1<sup>st</sup> molar .write the difference between permanent mandibular and maxillary 1<sup>st</sup> molar

WRITE SHORT NOTES ON:

2) Cells of PDL 3) Denture hyper sensitivity (theories of) 4) Development of palate 5) Deficiency of vitamin c

WRITE BRIEFLY ON:

6) Bennett movement of mandible 7) Zsigmondy –palmer notation 8) Thyroxine 9) Line and point angles 10) Tomes process

**PART-B(35 MARKS)**

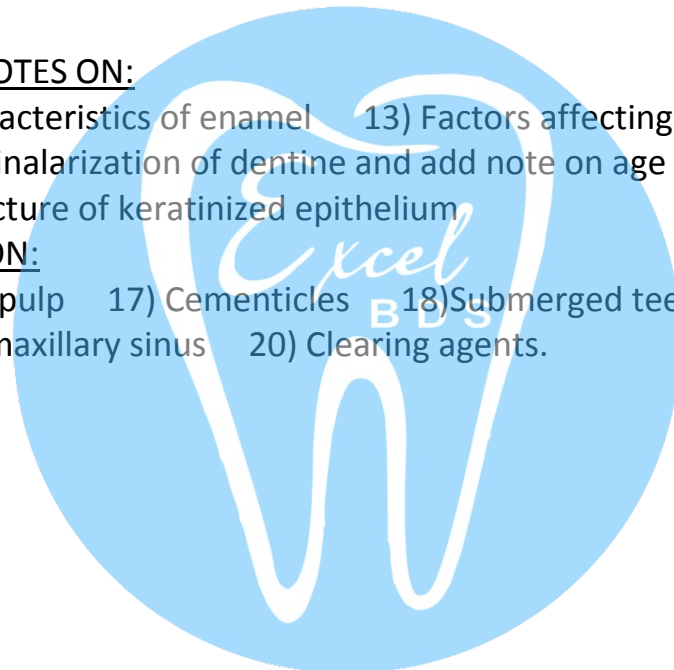
11) Write in details composition and functions of saliva

WRITE SHORT NOTES ON:

12) Physical characteristics of enamel 13) Factors affecting occlusion 14) pattern of mineralization of dentine and add note on age changes of dentine 15) Structure of keratinized epithelium

WRITE BRIEFLY ON:

16) Functions of pulp 17) Cementicles 18) Submerged teeth 19) Histology of maxillary sinus 20) Clearing agents.





**DENTAL MATERIALS JUNE-2009**  
**B.D.S 2<sup>ND</sup> YEAR**

1. Classify impression materials. Write the composition and setting reaction of alginate.

2. Write the composition and manipulation of zinc phosphate cement

WRITE SHORT NOTES ON:

3. Adhesion and bonding      4. Acrylic dental resins-physical properties.

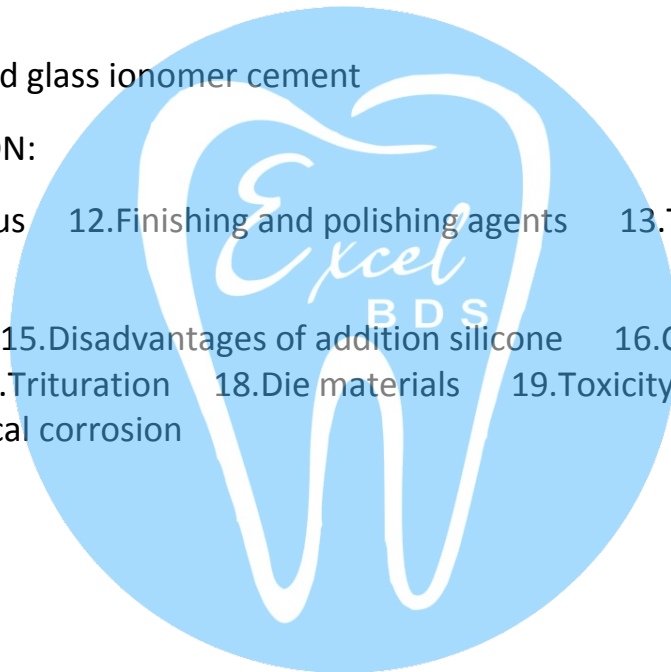
5. Hygroscopic setting expansion      6. Traditional composites      7. Castable glass-ceramics      8. Causes of defective castings      9. Compression molding technique

10. Resin-modified glass ionomer cement

WRITE BRIEFLY ON:

11. Elastic modulus      12. Finishing and polishing agents      13. Type of stainless steel

14. Annealing      15. Disadvantages of addition silicone      16. Classification of casting alloys      17. Trituration      18. Die materials      19. Toxicity tests  
20. Electrochemical corrosion



## DENTAL MATERIALS & METALLURGY

### FIRST BDS EXAMINATION JUNE, 2009. (Old Regulations)

#### PART-A (35MARKS)

1. What are adhesive cements? Describe the composition, manipulation and uses of type I Glass Ionomer Cement (GIC).

#### WRITE SHORT NOTES ON:

2. Calcium Hydroxide. 3. Galvanism 4. Dual Core Resin 5. Polyether rubber base impression material.

#### WRITE BRIEFLY ON:

6. Abrasion and polishing 7. Plaster of Paris 8. Bonding Agents 9. Flux

10. Sandwich Technique

#### PART-B(35 MARKS)

11. Classify Dental amalgam alloys and discuss the composition, setting reaction and advantages of High Copper amalgam alloy.

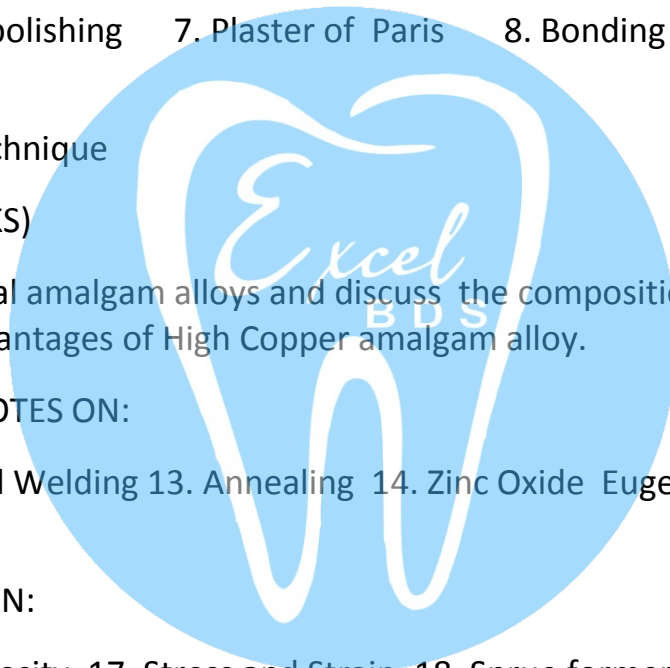
#### WRITE SHORT NOTES ON:

12. Soldering and Welding 13. Annealing 14. Zinc Oxide Eugenol 15. Base plate Wax

#### WRITE BRIEFLY ON:

16. Suck back porosity. 17. Stress and Strain. 18. Sprue former 19. Tissue conditioner.

20. Gutta Percha.



## DENTAL MATERIALS & METALLURGY

### FIRST BDS EXAMINATION –JANUARY- 2009. (Old Regulations)

#### PART-A (35MARKS)

1. Classify impression materials . Write about composition Manipulation and properties of the Zinc Oxide Eugenol Impression pastes.

9 marks

WRITE SHORT NOTES ON:

2. Curing Cycle 3. Imbibition and syneresis 4. Acid Etch technique 5. Addition silicone Impression Material

WRITE BRIEFLY ON:

6. Types of Stress & Strain 7. Pit and fissure sealant 8. Non eugenol pastes 9. Composition of Impression Compound 10. Tissues Conditioners

#### PART-B

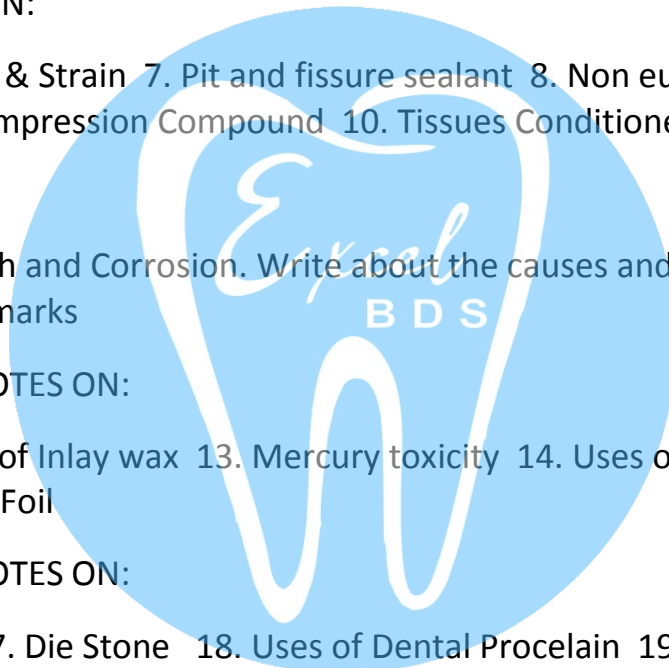
11. Define Tarnish and Corrosion. Write about the causes and types of Tarnish and corrosion 9 marks

WRITE SHORT NOTES ON:

12. Composition of Inlay wax 13. Mercury toxicity 14. Uses of zinc Phosphate cement 15. Gold Foil

WRITE SHORT NOTES ON:

16. Trituration 17. Die Stone 18. Uses of Dental Procelain 19. Rouge 20. Pumice



**DENTAL MATERIALS & METALLURGY-JUNE,2008**

**1<sup>ST</sup> B.D.S (OLD REGULATIONS)**

**PART-A**

1. Classify Gypsum products. Write the composition, setting reaction of dental plaster and dental stone.

WRITE SHORT NOTES ON:

2. Bonding Agent 3. Heat cure Acrylic Resin. 4. Accelerators and Retarders for Gypsum products 5. Condensation silicone impression Material.

WRITE BRIEFLY ON:

6. Modulus of Elasticity. 7. Wet Field Technique. 8. Copolymerization.  
9. Porosity in denture base. 10. Fusion Temperature.

**PART-B**

11. Classify Dental elements according to the use and give in detail the composition, setting reaction and properties of zinc polycarboxylate cements.

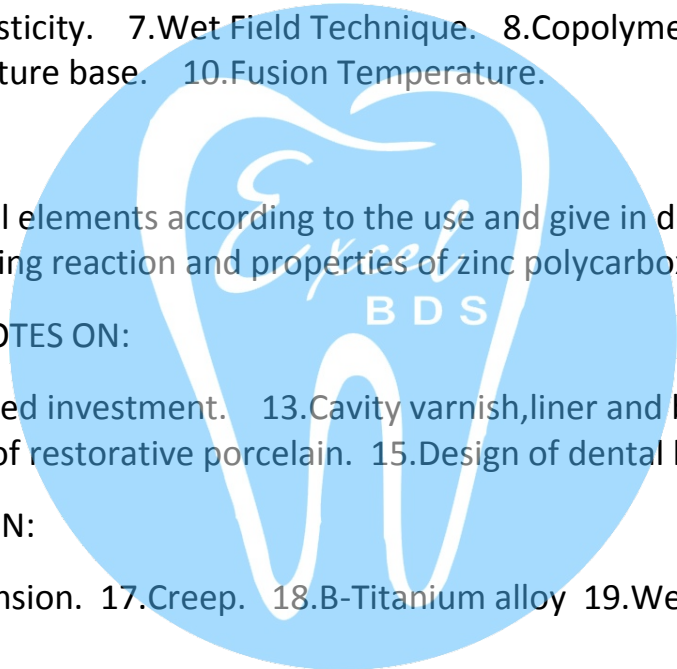
WRITE SHORT NOTES ON:

12. Gypsum Bonded investment. 13. Cavity varnish, liner and base.  
14. Composition of restorative porcelain. 15. Design of dental bur.

WRITE BRIEFLY ON:

16. Delayed Expansion. 17. Creep. 18. B-Titanium alloy 19. Welding and soldering.

20. Dentifrices.



**B.D.S. FIRST YEAR - FEBRUARY – 2008**

**DENTAL MATERIALS & METALLURGY**

**PART – A**

1. Classify Impression Materials . Describe the Composition, setting reaction, Manipulation of Impression Compound.

9

WRITE SHORT NOTES ON:

4X4=16

2. Light cure Composite resin    3. Hygroscopic setting Expansion  
4. Composition of Alginate Impression material    5. Duplicating Materials

WRITE BRIEFLY ON:

5X2=10

6. Crosslinking agents for Acrylic resin    7. Separating Media  
8. Polyurethane polymer    9. Soft liner    10. Ductility and Malleability

**PART – B**

11. Classify Dental Cements. Add a note on Glass ionomer Cement.

9

12. Zinc Oxide Eugenol Cement    13. Stages of firing of Dental Porcelain  
14. Metal – Ceramics    15. Ductility and Malleability

**PART – B**

16. Annealing    17. Mechanical Trituration    18. Divestment

19. Flux    20. Nitinol

**FIRST BDS – APRIL – 2007**

**PART – A**

1. Classify gypsum materials. Discuss in detail the Dental plaster. 9
2. Write short notes on:  
4x4=16
  - a) Dimensions of colour
  - b) Corrosion
  - c) Filled resins
  - d) Describe the properties of dental wax
3. Write briefly on: 5x2=10
  - a) Refractory materials
  - b) Describe the composition of dental ceramics
  - c) Syneresis and Imbibition
  - d) Role of plasticizer in acrylic resins
  - e) Rrsiliency
4. Classify dental easting alloys. Describe the mechanical properties 9  
Of casting gold alloys. Add a note on heat treatments.
5. Write short notes on: 4x4=16
  - a) Micro filled composite resins
  - b) Zinc poly carboxylate cement
  - c) Setting reaction of high copper amalgam alloys
  - d) Cavity liners and bases
6. Write briefly on: 5x2=10
  - a) Frozen glass slab method
  - b) Casting ring liner
  - c) Solders
  - d) 18-8 stainless steel
  - e) Laminate technique

**FIRST BDS – AUGUST– 2007**

**PART – A**

1. Classify Impression materials. Describe the composition, setting reaction and uses of Irreversible Hydrocolloid impression material.  
9

WRITE BRIEFLY ON: 4x4=16

2. Stress and strain                      3. Hygroscopic setting expansion  
4. Physical stages of polymerization    5. Electroformed dies

WRITE BRIEFLY ON: 5X2=10

6. Hysteresis and its significance    7. Synthetic gypsum  
8. Residual monomer                      9. Sodium alginate solution

10. Micro PART – B

11. Write the Skinners classification of Dental cements. Describe the Zinc Phosphate cement.  
9

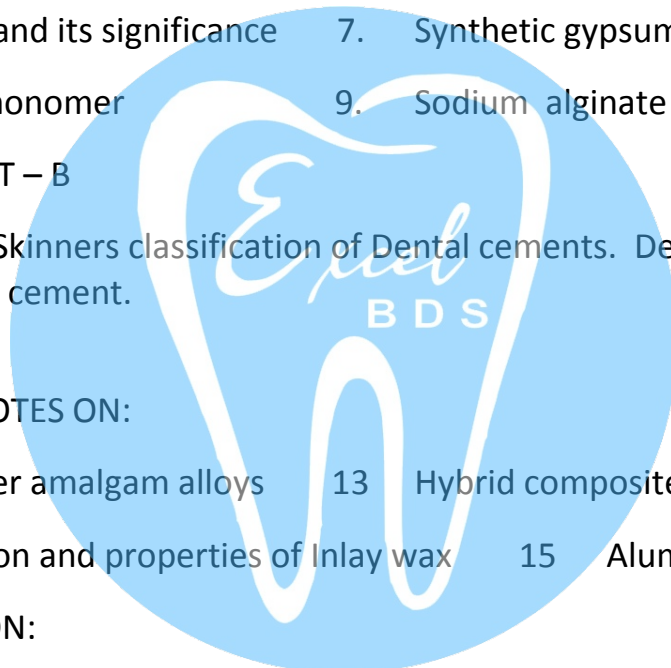
WRITE SHORT NOTES ON: 4X4=16

12. High copper amalgam alloys    13. Hybrid composite resins  
14. Composition and properties of Inlay wax    15. Aluminous porcelain

WRITE BRIEFLY ON: 5x2=10

16. Gold foil    17. Wet corrosion    18. Incomplete casting

19. Pumice    20. Enumerate dental implant materials



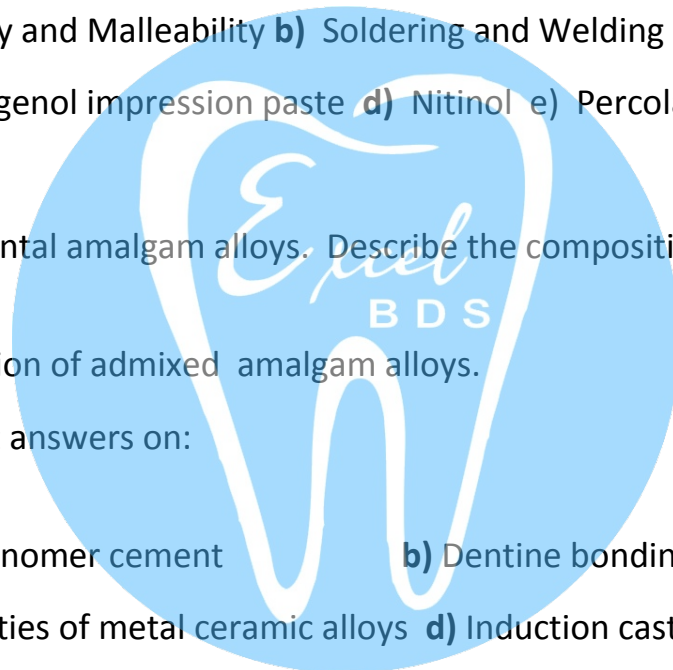
**SEPTEMBER – 2006**

**PART-A**

1. Classify denture base materials. Describe the compression molding technique. 9
2. Write short answers on: 4x4=16
  - a) Gypsum bonded investment material
  - b) Hardness c) Die stone d) Manipulation of rubber base impression material
3. Write briefly on: 5x2=10
  - a) Ductility and Malleability b) Soldering and Welding
  - c) Non eugenol impression paste d) Nitinol e) Percolation.

**PART-B**

4. Classify dental amalgam alloys. Describe the composition, properties and manipulation of admixed amalgam alloys. 9
5. Write short answers on: 4x4=16
  - a) Glass ionomer cement b) Dentine bonding agents
  - c) Properties of metal ceramic alloys d) Induction casting machine
6. Write briefly on: 5x2=10
  - a) Matgold b) Glaze c) Curing cycles d) Tissue conditioners
  - e) Composition of impression compound





## FEBRUARY-2006

### Part-A

1. Classify composite resins and describe in detail the composition, properties and uses of hybrid composites=9m
2. Write short answers on: 4 x 4 =16m;
  - a) Free radical polymerization
  - b) Composition and properties of alginate impression material
  - c) Setting reaction and chemical stages in setting of gypsum
  - d) Stress-Strain curve
3. Write briefly on: 5 x 2 =10m;
  - a) Significance of fusion temperature of impression compound
  - b) Non-eugenol impression paste
  - c) Fissure conditioners
  - d) Activators and initiator in cold acrylic resins
  - e) Composition of Additions Silicone impression material

### Part-B

4. Classify Dental cements according to the use and give in detail the composition, setting reaction and properties of zinc polycarboxylate cements=9m
5. Write short answers on: 4 x 4 =16m;
  - a) Properties of Dental amalgam
  - b) Types of Direct filling gold
  - c) Stabilization and sensitization of stainless steel
  - d) Porosites in dental casting
6. Write brief answers on: 5 x 2 =10m;
  - a) Sticky wax
  - b) Softening heat treatment
  - c) Uses of Titanium
  - d) Polishing agents for cast restorations
  - e) Giazing

## AUGUST-2005 (New Regulations)

### Part-A

1. Enumerate the final impression materials for edentulous arches and write about composition, manipulation and

properties of the Zinc Oxide Eugenol Impression pastes =9pages

2. Write short answers on: 4 x 4 =16marks; a) Curing cycles for heat cure acrylic resin

b) Biocompatibility of Dental Materials c) Separating media used in dentistry d) Die stone

3. Write briefly on: 5 x 2 =10marks; a) Define Glass transition temperature b) Contents in composite resins

c) Mention activating systems for autopolymerising resins d) Define elasticity and stiffness

e) Drawbacks of alginates

### Part-B

4. Classify silver amalgam alloys. Write in detail composition and setting reaction of high-copper silver alloys=9m

5. Write short answers on: 4 x 4 =16marks;

a) Glass ionomer cement

b) Sprue-formers

c) Ideal requirements of Dental solder

d) Factors affecting rate of abrasion

6. Write brief answers on: 5 x 2 =10marks;

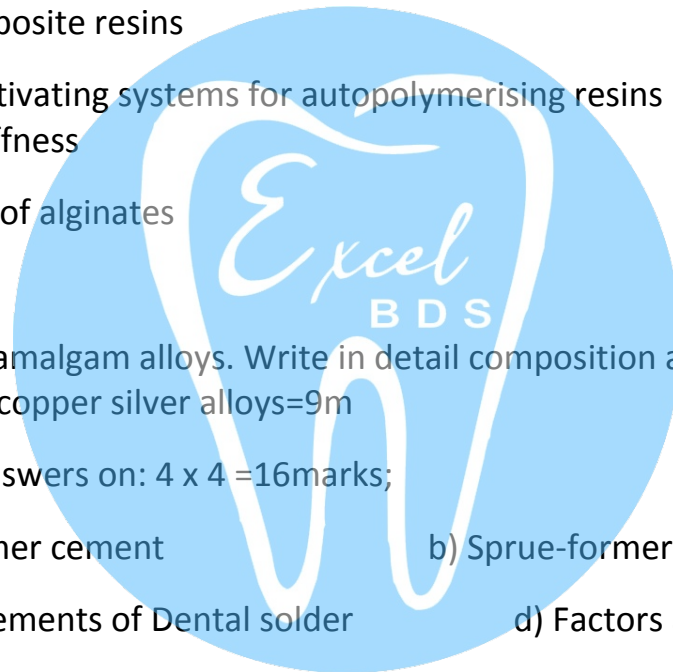
a) Define and give the purpose of degassing gold foil

b) Purpose of condensation of amalgam mass in cavity

c) Contents in Zinc Polycarboxylate cement powder and liquid hardener and die spacer

d) Die

e) Define sensitization and stabilization



**MAR/APR.2005.**

**Part-A**

1. Enumerate various synthetic resins and discuss the composition and manipulation and uses

of Heat-cure acrylic resins=9marks

2. Write short notes on: 4 x 4 =16marks;

a) Polyether rubber base impression material    b) Composition of composite resins

c) Dental stone

d) Pit and fissure sealants

3. Write briefly on: 5 x 2 =10marks;

a) Ductility and Malleability expansion

b) Hygroscopic expansion

c) Setting of polysulphide rubber base material

d) Di-vestment

e) Wet-field technique

**Part-B**

4. Classify Dental amalgam alloys and discuss the composition, setting reaction and

advantages of High-Copper amalgam alloy =9marks

5. Write short answers on: 4 x 4 =16marks;

a) Liners and bases for dental restoration

b) Metal-ceramic bond

c) Abrasive agents used in dentistry

d) Contents in Dental Casting Gold alloys

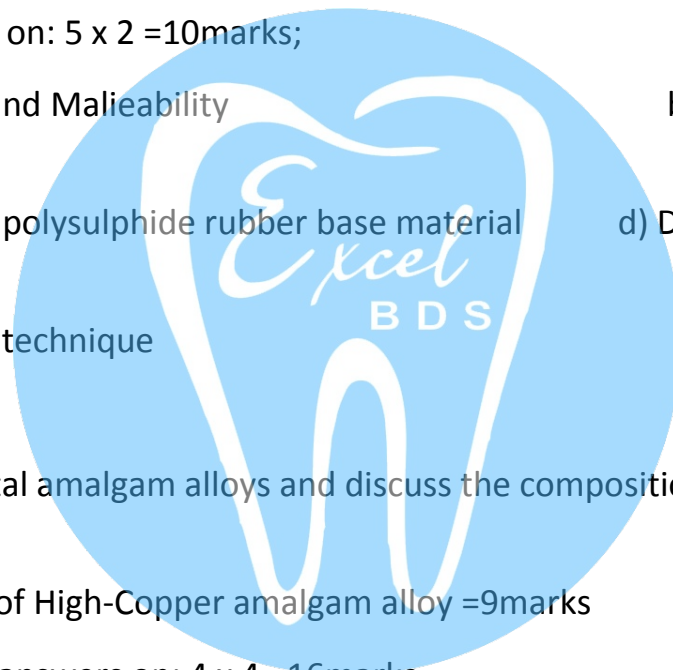
6. Write brief answers on: 5 x 2 =10marks;

a) Composition of inlay wax  
Ceramics

b) Types of Dental

c) Setting reaction of Zn-PO<sub>4</sub> Cement    d) Cohesive Gold

e) Flux and anti flux



**OCTOBER, 2004. (New Regulations)**

**Part-A**

1. Classify impression materials. Describe the composition, setting reaction and factors affecting setting time of Zinc Oxide Eugenol paste =9m

2. Write short answers on: 4 x 4 =16marks;

a) Duplicating materials      b) Die stone   c) Curing cycles      d) Dimensions of colour

3. Write briefly on: 5 x 2 =10marks;

- a) Syneresis and Imbibition                      b) Synthetic Gypsum  
c) Coupling agents in composite resins      d) Reline technique for elastomeric impressions.  
e) Cross linking agents and their role in acrylic resins.

**Part-B**

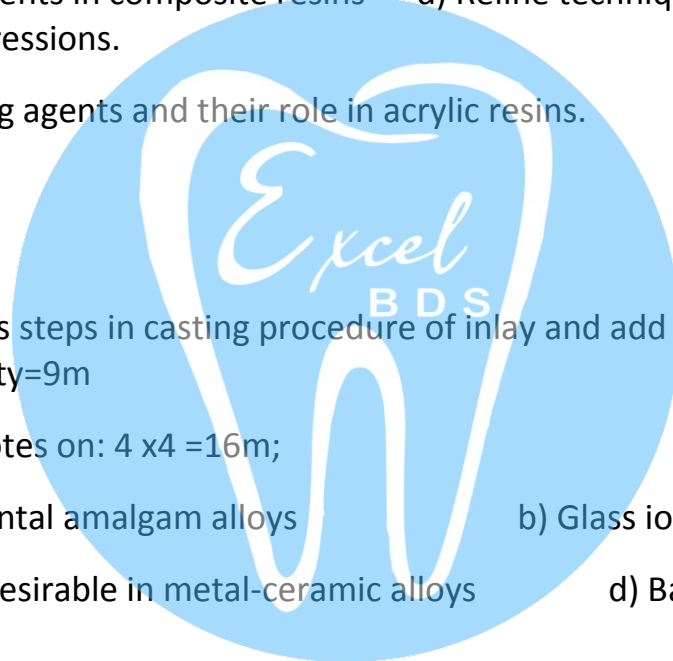
4. Discuss various steps in casting procedure of inlay and add a note on shrinkage porosity=9m

5. Write short notes on: 4 x4 =16m;

- a) Admixed dental amalgam alloys                      b) Glass ionomer cements  
c) Properties desirable in metal-ceramic alloys      d) Baking stages in dental porcelain

6. Write briefly: 5 x 2 =

- a) Baseplate wax    b) Mat gold    c) Advantage of resin cements    d) Nitinol  
e) Diamong.





**OCTOBER, 2003. (N.R.)**

**Part-A**

1. Write in brief about requisites for dental resins and composition, manipulation and processing of the heat cure acrylic resin. =9marks

2. Write short answers on: 4 x 4 =16marks;

- a) Duplicating materials
- b) Pit and fissure sealants
- c) Modulus of elasticity
- d) Classification of resin based composites.

3. Write briefly on: 5 x 2 =10marks;

- a) Mention fillers in Dental Materials
- b) Syneresis and imbibition
- c) Binders for casting investments
- d) Define electroplating and electropolishing
- e) Contents in die stone

**Part-B**

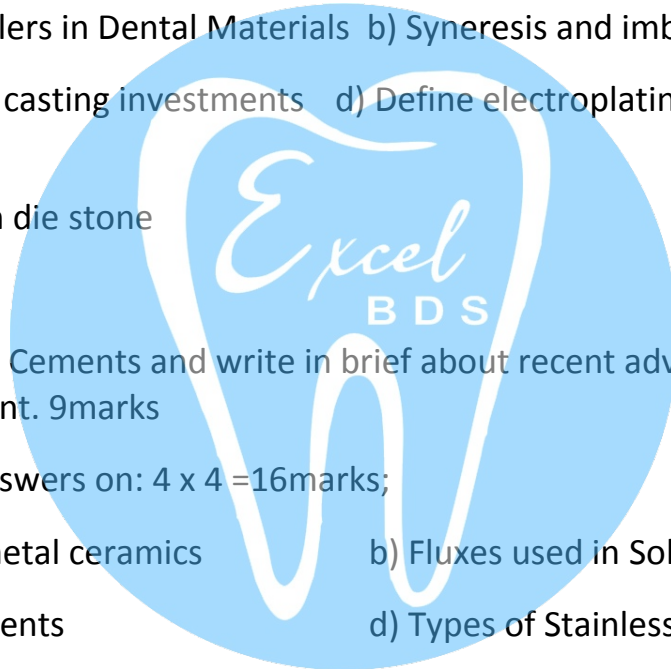
4. Classify Dental Cements and write in brief about recent advances in Zinc Phosphate Cement. 9marks

5. Write short answers on: 4 x 4 =16marks;

- a) Alloys for metal ceramics
- b) Fluxes used in Soldering
- c) Polishing agents
- d) Types of Stainless Steel

6. Write briefly on: 5 x 2 =10marks;

- a) Cavity liners
- b) Back pressure porosity
- c) Contents in admixed silver alloys
- d) Define Trituration and condensation of amalgam.
- e) Uses of Titanium.



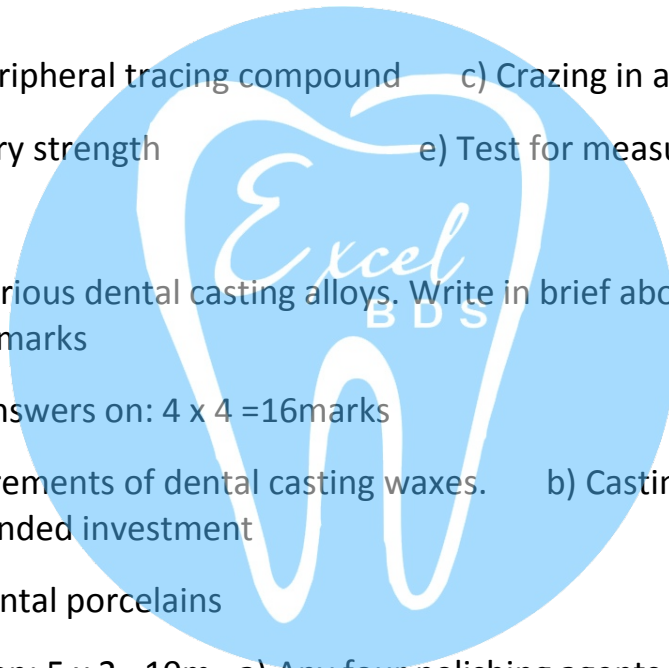
**APRIL,2003. (N.R.)**

**Part-A**

1. Write in detail about composition, manipulation & disadvantages of irreversible hydrocolloid impression materials=9
2. Write short answers on: 4 x 4 =16marks
  - a) Gypsum bonded investments for casting
  - b) Curing cycles
  - c) Soft liners for dentures
  - d) Contents and their role in composite resins
3. Write brief answers on: 5 x 2 =10marks
  - a) Name any two pit and fissure sealants
  - b) Uses of peripheral tracing compound
  - c) Crazeing in acrylic resin
  - d) Wet and dry strength
  - e) Test for measuring setting time

**Part-B**

4. Enumerate various dental casting alloys. Write in brief about content of gold alloys =9marks
5. Write short answers on: 4 x 4 =16marks
  - a) Ideal requirements of dental casting waxes.
  - b) Casting defects
  - c) Phosphate banded investment
  - d) Firing of dental porcelains
6. Write briefly on: 5 x 2 =10m;
  - a) Any four polishing agents
  - b) Define Heat hardening and softening treatment
  - c) Contents of cavity varnishes
  - d) Types of stainless steel
  - e) Direct filling gold various types



**OCTOBER, 2002**

**Part-A**

1. Classify impression materials and describe in detail about contents, setting and properties of silicon rubber base impression material=9marks
2. Write short answers on: 4 x 4 =16 a) Stress and Strain relation b) Die stone  
c) Autopolymerising Acrylic resins d) Causes for porosities in resins
3. Write briefly on: 5 x 2=10m a) Define hygroscopic expansion  
b) Physical stages in mixing of heat cure acrylic resin  
c) Uses of agar-agar d) Define Imbibition & Syneresis e) Mention accelerator & retarder for ZOE paste.

**Part-B**

4. Classify Dental Amalgam alloys and write in detail about admixed Silver alloys =9marks
5. Write short answers on: 4 x 4=16 a) Ideal requirements of Orthodontic wires  
b) Composition of various chrome-cobalt alloys c) Compensation of Casting Shrinkage d) Compomers
6. Write briefly on: 5 x 2 =10marks  
a) Mention methods of melting of dental casting alloys  
b) Define and give the cause of 'Suck back' porosities in casting  
c) Uses of Tungsten Carbide d) Mention types of bond between porcelain and metal  
e) Uses of modelling wax.



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