

APRIL - 1990

008

FIRST B.D.S. EXAMINATION, APRIL 1990

MATERIALS USED IN DENTISTRY

Time : Three hours

Maximum : 100 marks

- (i) Answer ALL the questions.
- (ii) Answer neatly and legibly.
- (iii) Draw diagrams wherever necessary

1. Classify impression materials. Describe the requisites, composition and uses of impression compound. (15 marks)
2. Describe gold inlay casting procedures in detail. (15 marks)
3. Write short notes on :
  - (a) Young's modulus of elasticity.
  - (b) Vinyl resin.
  - (c) Trituration.
  - (d) Cavity varnish. (4×5=20 marks)
4. Define porosity. Write the causes for porosity while using an acrylic resin and the methods to prevent the same. (15 marks)

5. Describe the chemistry of setting of zinc phosphate cement. Explain how you will control its setting time and the technical considerations in its manipulation.

(15 marks)

6. Write short notes on :

- (a) Adhesion and cohesion.
- (b) Burnishing.
- (c) Copper amalgam.
- (d) Silica bonded investment. (4×5=20 marks)

## OCTOBER - 1990

008

FIRST B.D.S. DEGREE EXAMINATION, OCTOBER 1990.

Paper III — MATERIALS USED IN DENTISTRY

Time : Three hours.

Maximum : 100 marks.

Answer ALL the questions.

Answer neatly and legibly.

Draw diagrams wherever necessary.

1. What are irreversible hydrocolloid impression materials? Discuss in detail its chemistry and composition and technical considerations for its use. (15 marks)
2. Describe in detail the dimensional changes that occur in the use of dental amalgam and its control. (15 marks)
3. Write short notes on :
  - (a) Sprue. (5 marks)
  - (b) Porcelain teeth. (5 marks)
  - (c) Denture reliner. (5 marks)
  - (d) Clinical significance of galvanic currents. (5 marks)

4. What are the requisites of an ideal dental resin? Describe the types of polymerisation and the process in detail. (15 marks)

5. Classify alloys. Write in detail of any one alloy used in dentistry. (15 marks)

6. Write short notes on :

- (a) Space lattice. (5 marks)
- (b) Flux and antflux. (5 marks)
- (c) Gutta percha. (5 marks)
- (d) Hygroscopic setting expansion. (5 marks)

APRIL - 1991

021

FIRST B. D. S. DEGREE EXAMINATION, APRIL 1991.

Paper III — MATERIALS USED IN DENTISTRY

Time: Three hours.

Maximum: 100 marks

Answer ALL the questions.

Answer Parts A and B in separate answer books.

PART A — (50 marks)

1. (a) Classify impression materials with suitable examples. (2 marks)
- (b) Give the composition, physical and mechanical properties of silicone rubber base impression materials. (6 marks)
- (c) Compare and contrast rubber base impression material with that of other elastic impression material used in dentistry. (6 marks)
2. Give a brief account of the following:
  - (a)  $\alpha$ -hemihydrate and  $\beta$ -hemihydrate. (2 marks)
  - (b) Calcination and methods to obtain type I, II, III IV dental gypsum products. (8 marks)
  - (c) Setting time, initial and final. (2 marks)
  - (d) Significance of w/p ratio, spatulation and temperature of water with relation to gypsum. (6 marks)
  - (e) Setting expansion, dry strength, wet strength. (4 marks)

3. (a) Classify dental waxes with suitable examples. (5 marks)
- (b) Give the ideal requisites for inlay casting wax. (4 marks)
- (c) Give your method of manipulation of inlay casting wax with reasons. (5 marks)

PART B — (50 marks)

4. (a) What are the ideal requisites of denture base material? (2 marks)
- (b) Compare and contrast polymethyl methacrylate with that of metal denture base material in relation to physical, mechanical and biological properties. (8 marks)
5. (a) Enumerate the anterior and posterior tooth restorative materials. (8 marks)
- (b) Compare and contrast the esthetics, mechanical, physical and biological properties of anterior and posterior tooth restorative materials. (12 marks)
6. Write notes on the following:
  - (a) A.D.A. (I.S.I.) specifications. (2 marks)
  - (b) Silver amalgam and its composition. (4 marks)
  - (c) High and low copper alloys. (4 marks)
  - (d) Creep. (2 marks)
  - (e) Corrosion and tarnish. (2 marks)
  - (f) Cast metal and wrought metal. (2 marks)
  - (g) Cavity varnish. (2 marks)
  - (h) Etching and bonding agent. (2 marks)

OCTOBER - 1991

021

FIRST B.D.S. DEGREE EXAMINATION, OCTOBER 1991.

MATERIALS USED IN DENTISTRY

Time : Three hours

Maximum : 100 marks

Answer ALL the questions.

Answer Sections A and B in separate answer books.

Draw diagrams wherever necessary.

SECTION A

1. Describe in detail about Gypsum and Gypsum products. Explain the setting reaction and the factors which affect them. (15 marks)
2. Write the composition of silicate cements. Discuss its properties and in detail about dimensional stability and strength. (15 marks)
3. Write short notes on :
  - (a) Wash impression. (5 marks)
  - (b) Internal porosity. (5 marks)
  - (c) Solid solution. (5 marks)
  - (d) Welding. (5 marks)

SECTION B

4. Classify the defects that can occur in dental castings. How will you eliminate each one of these defects? (15 marks)
5. Write the composition of zinc oxide Eugenol impression paste. Describe in detail the setting time and how it can be controlled? (15 marks)
6. Write short notes on :
  - (a) Cavity liners. (5 marks)
  - (b) Heat treatment. (5 marks)
  - (c) Trituration. (5 marks)
  - (d) Addition polymerisation. (5 marks)

OCTOBER - 1991

621A

FIRST B.D.S. DEGREE EXAMINATION, OCTOBER 1991.

Paper III — MATERIALS USED IN DENTISTRY

Time : Two and a half hours. Maximum : 60 marks.

SECTION A — (30 marks)

(ESSAYS)

1. Describe plaster of Paris in detail and its various uses in dentistry. (15 marks)
2. Discuss the composition of silver amalgam alloy and explain the importance of minimal mercury technique. (15 marks)

SECTION B — (30 marks)

(SHORT NOTES)

1. Pit and fissure Sealants.
  2. Ideal requirements of inlay casting wax.
  3. Electroplating.
  4. Denture reliners.
  5. Polycarboxylic cements.
  6. Powdered gold. (6 × 5 = 30 marks)
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[RS 503]

APRIL - 1993

FIRST B.D.S. DEGREE EXAMINATION,

(Old Regulation)

MATERIALS USED IN DENTISTRY

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

Answer Sections A and B in separate answer books.

Draw diagrams wherever necessary.

#### SECTION A

1. Discuss the composition and types of gold alloys. How does it differ from direct filling gold? (15)
2. Give the classification of impression materials. Explain advantages and indications of each group. (15)
3. Write short notes on : (20)
  - (a) Indentation hardness.
  - (b) Porosity in acrylics.
  - (c) Separating media.
  - (d) Ceramics fused to metals.

#### SECTION B

Name the materials that possess the quality of direct bonding to tooth structure. Explain the composition, chemistry of setting of any one of them. (15)

5. Classify temporary dental cements. Explain the role of each lining prior to a permanent restoration on a vital tooth. (15)

6. Write short notes on : (20)

- (a) Cohesive gold.
  - (b) Delayed expansion in amalgam.
  - (c) Gypsum bonded investment.
  - (d) 18-8 stainless steel.
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APRIL - 1993

{RS506}

FIRST B.D.S. DEGREE EXAMINATION, APRIL 1993.

Paper III -- MATERIALS USED IN DENTISTRY

Time : Three hours

Maximum : 90 marks

Two and a half hours

Sections A and B : 60 marks

for Sections A and B

Answer Sections A and B in separate answer books.

Answer Section C in the answer sheet provided.

SECTION A -- (2 × 15 = 30 marks)

(ESSAYS)

1. Classify Anterior teeth filling materials. Write in detail about Glass Ionomer Cement.
2. Write an essay on Elastomeric Impression materials.

SECTION B -- (6 × 5 = 30 marks)

3. Write short notes on :
  - (1) Calcium Hydroxide.
  - (2) Silica.
  - (3) Hygroscopic expansion.
  - (4) Soldering.
  - (5) Die materials.
  - (6) Creep and Flow.

[SB 526]

APRIL - 1995

**First B.D.S Degree Examination**

(Old Regulations)

Paper III - MATERIALS USED IN DENTISTRY

Time : Three hours

Maximum : 100 marks

Answer All questions

Answer Sections A and B in separate answer books

Draw diagrams wherever necessary

**SECTION—A**

1. Classify cast gold alloys. Discuss about composition, properties and uses of different types of cast gold alloys. (15)
2. Classify impression materials. Discuss in detail about reversible hydrocolloid material. (15)
3. Write short notes on :
  - a) Aluminous porcelain
  - b) Separating media
  - c) Annealing
  - d) Tarnish and corrosion [4×5=20]

**SECTION—B**

4. Discuss the types, composition and uses of composite resin. Add a note on acid etching and bonding agents. (15)
5. Discuss in detail about soldering and welding in dentistry. (15)
6. Write short notes on :
  - a) Advantages of high copper amalgam
  - b) Glass cermet cements
  - c) Abrasive and polishing agents
  - d) Austenitic stainless steel (4×5=20)



[SB 529]

APRIL - 1995

SECTION - B

(6X5=30)

**First B.D.S. Degree Examination**

(New Regulations)

Paper III - MATERIALS USED IN DENTISTRY

Time : Three hours                      Maximum : 90 marks

Two and a half hours                      Sec. A and B : 60 marks  
for Section A and B

Answer Sections A and B in separate answer books

Answer Section C in the answer sheet provided

SECTION - A                      (2×15=30)

1. Classify the impression materials and discuss their ideal requirements. Give the compositions of various elastomeric impression materials. (15)
  
2. Describe the alloying properties of metals contained in the casting gold alloys. Discuss the various casting defects and methods to minimise them (15)

3. Write short notes on ;

- a) Dental stone
- b) Surface hardness
- c) Cold-cure acrylic resins
- d) Metal ceramics
- e) Microfilled - light cure composite resins
- f) Chrome-cobalt alloys in dentistry

[SB 532] APRIL - 1995

**FIRST B. D. S. DEGREE EXAMINATION**

(Revised Regulations)

Paper III - MATERIALS USED IN DENTISTRY

Time : Three hours                      Maximum : 100 marks

Two and a half hours              Sections A and B : 70 marks  
for Sections A and B

Answer Sections A and B in separate answer books

Answer Section C in the answer sheet provided

**SECTION A**

1. Describe the curing cycle for heat-cure acrylic denture base resins. Explain the causes and methods of minimising the fabrication defects and porosities. (15)
2. Explain the ideal requirements of investment materials and describe in detail gypsum-bonded investment materials. (15)

**SECTION B**

(8X 5=40)

3. Write short notes on any EIGHT :
  - a) Viscosity
  - b) Die materials
  - c) Alginate impression materials
  - d) Denture liners
  - e) Biocompatibility of materials used in dentistry
  - f) Metal-modified glass-ionomer cements
  - g) Incomplete casting
  - h) 18-8 stainless steel
  - i) Inlay-wax
  - j) firing of porcelain jacket crown

( AK 606 ) APRIL - 1996

FIRST B.D.S. DEGREE EXAMINATION

SECTION - B

(6x5=30)

(New Regulations)

Paper III - MATERIALS USED IN DENTISTRY

Time: Three hours Max: 90 marks

Two and a half hours Sec. A & B: 60  
for Sec. A and B marks

Answer section A and B in  
separate answer books

Answer section C in the answer  
sheet provided

SECTION-A (2x15=30)

1. Discuss the types, composition, setting reaction, properties and uses of Glass Ionomer Cement. (15)
2. Describe the important physical and mechanical properties of materials and metals used in dentistry which helps the dentist in their practice. (15)

3. Write short notes on:

- a) Annealing.
- b) Dentin bonding agents.
- c) Ductility and malleability.
- d) Acid etching.
- e) High copper amalgam alloy.
- f) Soft or resilient liners.

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( PK 606 )

Subject code:4063

OCTOBER - 1996

FIRST B.D.S. DEGREE EXAMINATION  
(NEW REGULATIONS)

PAPER-III MATERIALS USED IN DENTISTRY

Time: Three hours  
Two and a half hours  
for Sec. A and B

Max: 90 marks  
Sec.A & B: 60  
marks

Answer sections A and B  
in separate answer books

Answer Section C in the  
answer sheet provided

SECTION - A ( 2 x 15= 30)

1. Define Composite Resins. Classify Composite resins and give its composition. Add a note on acid etching and bonding agents.
2. Classify Cast Gold Alloys. Write about the composition, properties and uses of different cast gold alloys.

SECTION - B

3. Write short notes on: ( 6x5 = 30)

- a) Microleakage
- b) Dental stone
- c) Anhealing
- d) Base plate wax
- e) Metal Ceramics
- f) Pit and fissure sealants

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**[PK 609] OCTOBER - 1996 Sub. Code : 4063**

**FIRST B.D.S. DEGREE EXAMINATION.**

**(Revised Regulations)**

**Paper III — MATERIALS USED IN DENTISTRY**

**Time : Three hours Maximum : 100 marks**

**Two and a half hours Sections A and B : 70 marks  
for Sec. A and B**

**Answer Sections A and B in separate answer books.**

**Answer Section C in the answer sheet provided.**

**SECTION A**

- 1. Define Tarnish and corrosion. Discuss in detail about causes and types of corrosion and protection against corrosion. (15)**
- 2. Classify Gypsum products used in dentistry. Discuss about setting reaction and setting time of gypsum products. (15)**

**SECTION B**

- 3. Write short notes on : (8 × 5 = 40)**
  - (a) High copper amalgam alloy.**
  - (b) Casting Defects.**
  - (c) Mercury hygiene.**
  - (d) Inlay wax.**
  - (e) Annealing.**
  - (f) Ductility and malleability.**
  - (g) Abrasive and polishing agents.**
  - (h) Soft or resilient liners.**

FIRST B.D.S. DEGREE EXAMINATION  
(NEW REGULATIONS)

Paper-III MATERIALS USED IN DENTISTRY

Time: Three hours  
Two and a half hours  
for Sec. A and B

Max: 90 marks  
Sec.A&B: 60  
marks

Answer Sections A and B in  
separate answer books

Answer Section C in the answer  
sheet provided

SECTION-A (2x15=30)

1. Classify dental cements according to their uses. Give the composition, properties and uses of Zinc polycarboxylate cement.
2. Classify the gold alloy casting defects and explain the causes and methods to minimise them.

SECTION-B (6x5=30)

3. Write short notes on:
  - a) Metal-ceramics.
  - b) Nickel-titanium alloys.
  - c) Polysilicone impression materials.
  - d) Dental stone.
  - e) Significance of thermal expansion in dentistry.
  - f) Composition and condensation of porcelain.

OCTOBER - 1997

[MS 609]

Sub. Code : 4068

FIRST B.D.S. DEGREE EXAMINATION.

(New/Revised Regulations)

Paper III — MATERIALS USED IN DENTISTRY

Time : Three hours

Maximum : 100 marks

Two and a half hours

Sec. A & B : 70 marks

for Sec. A and B

Answer Sections A and B in separate answer books.

Answer Section C in the answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

1. Classify Glass Ionomer cements. Discuss in detail about composition, setting reaction, properties and uses of Glass Ionomer Cement.
2. Classify impression materials. Write on types, composition, properties and manipulation of elastometric impression materials.

SECTION B — (8 × 5 = 40 marks)

2. Write short notes on :
  - (a) Dental stone.
  - (b) Porosities in dental castings.
  - (c) Acid etching.
  - (d) Setting action of gypsum products.
  - (e) Corrosion of oral appliances.

[MS 609]

- (f) Chrome-Nickel alloys.
- (g) Mercury health hazard.
- (h) Viscosity.







[SM 654] OCTOBER - 1998 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 separate answer books.

Answer Section C in the answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

1. Classify the elastomeric impression materials. Give the composition, setting reaction and properties of any one of them. Add a note on dimensional changes of elastomeric impressions.

2. Describe the causes for casting shrinkages and the methods of its compensation. Explain the causes and remedies for solidification shrinkage porosities and incomplete castings.

SECTION B — (8 × 5 = 40 marks)

3. Write short notes on :

- (a) Modulus of elasticity
- (b) Dental stone
- (c) Separating medium
- (d) Creep of silver amalgam

- (e) Properties and uses of Glass-ionomer cements
- (f) Gypsum-bonded investment
- (g) Chrome-Cobalt-Nickel alloys
- (h) Metal ceramics.

APRIL - 1999

[SG 609]

Sub. Code : 406S

FIRST B.D.S. DEGREE EXAMINATION.

(Revised 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 separate answer books.

Answer Section C in the answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

1. Classify dental cements. Write in detail the composition, properties, uses, advantages and disadvantages of glass ionomer cement. Write briefly about sandwich technique.
2. Critically evaluate different impression materials. Write in detail about poly silicone rubber impression material.

SECTION B — (8 × 5 = 40 marks)

3. Short notes on :
  - (a) Gold foil
  - (b) Calcium hydroxide
  - (c) Casting defects

- (d) Polishing agents
  - (e) Mercury Hazards
  - (f) Soldering and welding
  - (g) Acid etching
  - (h) Bonding agents.
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APRIL - 1999

[SG 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 separate answer books.

Answer Section C in the answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

1. Discuss in detail composition of Dental porcelains. Add a note on Glazing.
2. Classify investment materials. Give the composition of Phosphate bonded investment material and describe, how will you compensate for casting shrinkage of dental casting alloy.

SECTION B — (8 × 5 = 40 marks)

3. Write short notes on :
  - (a) Sprue
  - (b) Copper rich amalgam alloy
  - (c) Polyether impression materials
  - (d) Polishing agents

- (e) Polycarboxylate cement
  - (f) Setting reactions in Alginates
  - (g) Advantages of metal denture base
  - (h) Mechanical bonding.
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**[KA 609] OCTOBER - 1999 Sub. Code : 4063**

**FIRST B.D.S. DEGREE EXAMINATION.**

**(Revised 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 separate answer books.**

**Answer Section C in the answer sheet provided.**

**SECTION A — (2 × 15 = 30 marks)**

1. Enumerate various denture base materials, mention ideal requirements of Denture base resins and stages in polymerization.
2. Discuss in detail strength of amalgam and factors affecting it. What technical considerations will you have when using Silver Amalgam?

**SECTION B — (8 × 5 = 40 marks)**

3. Write short notes on :
  - (a) Ductility and Malleability
  - (b) Duplicating materials
  - (c) Imbibition and syneresis
  - (d) Casting defects

- (e) Acid etching
- (f) Chrome cobalt alloys
- (g) Cavity liners and Bases.
- (h) Corrosion of oral appliances.

**[KA 654] OCTOBER - 1999 Sub. Code : 4183**

**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 separate Answer books.**

**Answer Section C in the answer sheet provided.**

**SECTION A — (2 × 15 = 30 marks)**

1. Classify dental amalgams. Write the composition, properties and advantages of High copper amalgams. Add a note on mercury toxicity.

2. Write in detail about denture base materials. Add a note on repair and reline materials.

**SECTION B — (8 × 5 = 40 marks)**

3. Write short notes :

- (a) Glass cermeta
- (b) Bonding agents
- (c) Dental Burs
- (d) Space Lattice

- (e) Flux and Anti flux
  - (f) Cavity Base, liners and varnish
  - (g) Elastomer impression material
  - (h) Dental casting gold alloys.
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[KB 609] APRIL - 2000 Sub. Code : 4063

FIRST B.D.S. DEGREE EXAMINATION.

(Revised 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 separate Answer books.

Answer Section C in the answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

1. Describe the various Gypsum products used in Dentistry.

2. What is an Amalgam? Describe the composition of various silver amalgam alloys used for restorations and also describe the manipulation of the alloy for a restoration.

SECTION B — (8 × 5 = 40 marks)

3. Write short notes on :

(a) Glass cermets

(b) Soldering

(c) Stabilisation of stainless steel

(d) Gutta Percha

(e) Microfilled composites

(f) Electrolytic corrosion

(g) Calcium hydroxide

(h) Rake angle.

**[KB 654] APRIL - 2000 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 separate Answer books.

Answer Section C in the answer sheet provided.

**SECTION A — (2 × 15 = 30 marks)**

1. What are Composite Resins? Describe in detail the composition, setting reaction, manipulation and uses of these resins used as restorative materials.

2. Give composition and explain setting reaction, properties, manipulation and uses of SILICONE impression materials.

**SECTION B — (8 × 5 = 40 marks)**

3. Write short notes on :

- (a) Dentin conditioner
- (b) Delayed expansion of Amalgam
- (c) Eames Technique
- (d) Subsurface porosities in castings

- (e) Die materials
- (f) Elasticity
- (g) Stabilization of stainless steel
- (h) Dentin Bonding agents.



**[KC 654] OCTOBER - 2000 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 separate Answer Books.

Answer Section C in the Answer Sheet provided.

**SECTION A — (2 × 15 = 30 marks)**

1. Give the ideal requirements of impression materials and classify the materials available. Add a note on Zinc-Oxide-Eugenol impression pastes.
2. Give the composition and biological properties of Glass-Ionomer Cement. Explain its bonding action to tooth enamel and dentin. Add a note on the recent modifications of G.I.C.

**SECTION B — (8 × 5 = 40 marks)**

3. Write short notes on :
  - (a) Surface hardness
  - (b) Die-stones
  - (c) Brazing
  - (d) Resilient denture liners

- (e) Zinc-phosphate Cement
- (f) Incomplete castings
- (g) Corrosion
- (h) Firing of porcelain jacket crown.