

Subject Dental Material

Instructor: Mr. Usman

Midterm Assignment

30 Marks

Department AHS

Semester DT 4th

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- Attempt all questions, all questions carry equal marks.
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Q1. Discuss glass ionomer cement briefly?

Ans 1: A glass ionomer cement is a dental restorative material used in dentistry as a filling material and luting cement, including for orthodontic bracket attachment. Glass-ionomer cements are based on the reaction of silicate glass-powder and polyacrylic acid, an ionomer cements are high strength bases used primarily for permanent cement, as a base, and as a Class V filling material.

Q2. Differentiate permanent cement, luting agent and temporary cement.

Ans 2: Difference between permanent and temporary cement luting agents:

Permanent cement luting agents:

Permanent dental cement used to attach indirect restorations to prepared teeth is called a luting agent. A luting agent's primary function is to fill the void at restoration-tooth interface and mechanically in place to prevent its dislodgement during mastication.

Temporary cement luting agents:

Temporary cement luting agents are zinc-oxide-eugenol and noneugenol cements and calcium hydroxide pastes. Definitive cements are supposed to remain in function for the longest time possible and, for such, must have sufficient properties.

Q3. Write a detail note on manipulation, advantages and disadvantages of Zinc Oxide Eugenol cement?

Ans 3: Zinc oxide-eugenol cement (IRM) is a low strength base used as a temporary cement filling in the event that the patient will return at a later date for a semi-permanent restoration. The powder is mainly Zinc oxide and the liquid is eugenol with olive oil as a plasticizer.

Manipulation:

Powder-liquid ratio: 4:1-6:1 wt. % after shaking the bottles gently, measured quantity of powder and liquid are dispensed onto a cool glass slab. The bulk of the powder is incorporated into the liquid and saturated thoroughly in a circular motion with a stiff bladed stainless steel spatula. Smaller increments are then added until the mix is complete.

Advantages:

- Inexpensive
- Easy manipulation
- Can be added with fresh ZOE
- Non toxic

Disadvantages:

- Can't be used in deep undercuts
- Only sets quickly in thin section
- Eugenol allergy in some patients

Q4. Briefly explain polycarboxylate cement?

Ans 4: Zinc polycarboxylate cement was the first cement that was developed with the properties of an adhesive bond to tooth structure along with some metallic restoration. Zinc polycarboxylate cement is available as powder and liquid both forms .It is highly bio compatible to the pulp which is similar to ZOE cements .It is more viscous than zinc phosphate cement .Zinc polycarboxylate cement is used for crowns, bridges, inlays, onlays and orthodontic cementation etc.

Q5. Distinguish liquid powder ratio of Zinc phosphate cement, also write its uses and advantages?

Ans 5: Liquid powder ratio of zinc phosphate cement is 1:4 g of powder per 0.5 ml of liquid.

Uses:

- Final cementation of cast metal restoration
- Cavity base
- Temporary filling material
- Cementation of orthodontic bonds

Disadvantages:

- Need for accurate proportion, more critical manipulation
- Technique sensitive
- Slight solubility in mouth fluids
- Opaque material not soluble for visible surface