

# Sikkim Public Service Commission

Main Written Examination for the post of  
Dental Mechanic/Dental Technician

## Paper II

Time Allowed : 3 Hrs.

Maximum Marks : 100

### INSTRUCTIONS TO CANDIDATES

*Read the following instructions carefully before answering the questions :-*

1. **IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.**
2. Please note that it is the candidate's responsibility to fill in the Roll Number carefully and without any omission or discrepancy at the appropriate places in the **OMR ANSWER SHEET** for MCQ. Any omission/discrepancy will render the Answer Sheet liable for rejection.
3. **Use only Black Ball Point Pen to fill the OMR sheet**
4. Do not write anything else on the OMR Answer Sheet except the required information.
5. **This booklet contains MCQ and conventional type of questions divided into 3 sections. Section A contains MCQ and Section B and C contains conventional type of questions.**
6. Before you proceed to mark in the Answer Sheet (OMR), you have to fill in some particulars in the Answer Sheet (OMR) as per given instructions.
7. After you have completed filling in all your responses on the OMR Sheet & writing section in a separate Answer Sheet, you should hand over the Answer Sheet & OMR Sheet to the Invigilator only. You are permitted to take away with you the Test Booklet.
8. **Marking Scheme**  
*THERE WILL BE NEGATIVE MARKING FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE OBJECTIVE TYPE QUESTION PAPERS.*
  - (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, one-third of the marks assigned to that question will be deducted as penalty.
  - (ii) If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct and there will be same penalty as above to the question.
  - (iii) If a question is left blank. i.e., no answer is given by the candidate, there will be no penalty for that question.

**DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO**

**SECTION A**  
**Multiple Choice Questions**

(50x1=50)

- 1) The Zinc oxide-eugenol impression pastes harden by:
  - A) Chemical reaction
  - B) Cold
  - C) Heat
  - D) Pressure
  
- 2) 4th state of matter is:
  - A) Solid
  - B) Liquid
  - C) Gas
  - D) Colloid
  
- 3) All of the following statements about Type II silicon impression material are true EXCEPT:
  - A) They evolve hydrogen when cast if they are not fully cured
  - B) They exhibit a very low setting shrinkage
  - C) They have a lower tear resistance than polysulphide rubbers
  - D) They set by condensation polymerisation
  
- 4) Which of the following statements about an alginate impression are EXCEPT:
  - A) It should be rapidly displaced from the mouth
  - B) It may exhibit fluid exudates on the surface as a result of imbibition of water
  - C) It will take up water and expand if kept wet
  - D) It will shrink as a result of syneresis

- 5) All of the following can be used to slow down the setting of Zinc oxide eugenol impression paste EXCEPT:
- A) Adding a small amount of glycerine
  - B) Adding a small amount of water
  - C) Altering the amounts of the two pastes used
  - D) Cooling mixing slab
- 6) Type I and Type II zinc oxide impression paste differ with respect to:
- A) Their use
  - B) Their hardness after setting
  - C) Water content
  - D) Eugenol content
- 7) Hysteresis in a hydrocolloid gel is:
- A) Moisture absorption
  - B) Temperature lag between gelation and liquefaction temperature
  - C) Phenomenon of conversion of gel into sol
  - D) All of the above
- 8) Hysteresis in a hydrocolloid gel is:
- A) Moisture absorption
  - B) Temperature lag between gelation and liquefaction temperature
  - C) Phenomenon of conversion of gel into sol
  - D) All of the above
- 9) The base paste of the condensation poly silicone has a low molecular weight dimethyl siloxane with a terminal-group
- A) Mercaptan group
  - B) Hydroxyl group
  - C) Silane group
  - D) Vinyl group



10) The impression with the least dimensional change upon disinfection is:

- A) Addition poly silicone
- B) Agar-agar
- C) Polysulphide
- D) Polyether

11) Best material for duplicating cast is:

- A) Agar-agar
- B) Alginate
- C) Zinc oxide eugenol
- D) Plaster of paris

12) Palladium is added to polyvinyl siloxane to:

- A) Act as a scavenger
- B) Helps as surfactant
- C) Acts as plasticizer
- D) Acts as a catalyst

13) Syneresis seen in hydrocolloid gel is:

- A) Seen as water loss
- B) Water absorption
- C) Shrinkage
- D) Gelation

14) Immediate pouring of impressions is most critical in:

- A) Condensation polysilicon
- B) Addition Polysilicon
- C) Polyether
- D) A and B

- 15) Impression techniques are used for recording
- A) Oral mucosal tissues
  - B) Dental hard tissues
  - C) Oral mucosal tissues and dental hard tissues
  - D) None of the above
- 16) Model plaster (white) used to cast study models before mixing with water, is largely composed of:
- A)  $\text{CaO}$
  - B)  $\text{CaCO}_3$
  - C)  $(\text{CaSO}_4)_2 - \frac{1}{2}\text{H}_2\text{O}$
  - D)  $\text{CaSO}_4 - 2\text{H}_2\text{O}$
- 17) The product, which is obtained by calcining gypsum under steam pressure at  $120-130^\circ\text{C}$  or by dehydrating gypsum in the presence of sodium succinate is:
- A) Alpha - hemihydrates
  - B) Beta - hemihydrates
  - C) Calcium sulphate dihydrate
  - D) Orthorhombic anhydrate
- 18) Water powder ratio of dental stone and plaster is respectively
- A) 0.28 and 0.6
  - B) 0.6 and 0.28
  - C) 0.6 and 3.2
  - D) 0.28 and 0.98
- 19) Role of gum dammar in Inlay casting wax is
- A) To improve cracking resistance
  - B) To provide strength to wax
  - C) To impart smoothness to the pattern
  - D) All of the above

20) Carnuba wax is preferred over Candelila wax because

- A) It is harder and has less flow
- B) It has low melting temperature
- C) It provides lustre to the pattern
- D) All of the above

21) Fluoride rich materials include?

- A) Silicate cement
- B) Glass ionomer cement
- C) Polycarboxylate cement
- D) All of the above

22) Glass ionomer cements are composed of:

- A) Alumino silicate powder and phosphoric acid
- B) Aluminosilicate powder and polyacrylate
- C) Zinc oxide powder and phosphoric acid
- D) Zinc oxide powder and polyacrylate liquid

23) Which one of the following dental cement accelerates the formation of reparative dentin?

- A) Eugenol
- B) Calcium Hydroxide
- C) Zinc oxide
- D) Silica

24) Minimum thickness for type I zinc phosphate cement should be:

- A) 15 microns
- B) 25 microns
- C) 50 microns
- D) 100 microns

- 25) Which of the following is common to both zinc eugenol cement and polycarboxylate cement?
- A) Polyacrylic acid is liquid
  - B) Chemical bond to tooth structure
  - C) Chelation
  - D) Substitution of eugenol by EBA to increase strength of cement:
- 26) Increased amount of powder in zinc phosphate cement mixture will cause:
- A) Decreased strength
  - B) Decreased film thickness
  - C) Decreased solubility
  - D) Increased setting time
- 27) The addition of which of the following can accelerate the setting time of zinc oxide cement:
- A) Zinc acetate
  - B) Barium sulphate
  - C) Zinc sulphate
  - D) Barium chloride
- 28) Which of the following show chemical bond with enamel (Calcified tissues):
- A) Composites
  - B) Direct filling resins
  - C) Polycarboxylate cements
  - D) BIS-GMA resins in pit and fissure sealants
- 29) Which of the following cements is most irritant to pulpal tissues?
- A) Zinc phosphate
  - B) Silicate
  - C) Glass ionomer
  - D) Polycarboxylate



30) Which of the following do polycarboxylate and GIC have in common?

- A) Polysiloxane
- B) Phosphoric acid
- C) Polyacrylic acid
- D) Ion leachable glass

31) PH of polycarboxylate liquid is:

- A) 5
- B) 7
- C) 8
- D) 1.7

32) When selection the colour of cement to use for cementing a porcelain jacket crown, the powder being tested is best mixed with:

- A) Glycerin-water solution
- B) Cement liquid
- C) Alcohol
- D) Only water

33) Eugenol may be replaced in the zinc oxide eugenol cement by:

- A) Acetic acid
- B) Alginic acid
- C) Phosphoric acid
- D) Ortho-ethoxy acid

34) The setting of zinc phosphate may be retarded by?

- A) Increased in the ratio of powder to liquid
- B) Diluting the liquid with water
- C) Increase the addition of powder to liquid
- D) Decrease the addition of powder to liquid



35) Thermal conductivity of which material is close to dentin:

- A) Amalgam
- B) Silicate
- C) Composite resin
- D) Cavity varnish

36) pH of fully set zinc phosphate:

- A) 3-4
- B) 4-5
- C) 6-7
- D) 7-8

37) The logical explanation for the unique anticariogenic property of most silicate cements is:

- A) The reduction in enamel solubility due to fluoride uptake by enamel
- B) That beryllium flux is used in silicates
- C) That silicates show very little leakage at the margins of the restoration
- D) Due to the high silica content

38) Thickness of luting cement is:

- A) 20-40 $\mu$
- B) 10-20 $\mu$
- C) 60-80 $\mu$
- D) 1-2 $\mu$

39) The two cements which hold with the tooth are:

- A) GIC and polycarboxylate
- B) GIC and ZnPO<sub>4</sub>
- C) ZnPO<sub>4</sub> and silicate
- D) GIC and silicate

- 40) The chief advantage of zinc phosphate cement is its:
- A) Good compressive strength
  - B) Film thickness
  - C) Lack of irritation
  - D) Low solubility
- 41) All of the following is used as accelerator in zinc oxide eugenol cement except:
- A) Acetic acid
  - B) Zinc acetate dehydrate
  - C) Calcium chloride
  - D) Bromoglycerine
- 42) Which of the following cements is most biocompatible with pulp?
- A) GIC
  - B) Copper cement
  - C) Zinc phosphate cement
  - D) Zinc oxide eugenol cement
- 43) What is the working time of zinc polyacrylate cement?
- A) 1 Minutes
  - B) 2 Minutes
  - C) 3 Minutes
  - D) 4 Minutes
- 44) The major component of zinc phosphate cement is
- A) Zinc oxide
  - B) Phosphoric acid
  - C) Zinc
  - D) None of the above

45) Which of the following cements is most kind to pulp?

- A) Glass ionomer
- B) Polycarboxylate
- C) Silicate
- D) Resin cement

46) Polycarboxylate cement is used for:

- A) Temporary restoration
- B) Leuting
- C) Permanent restoration
- D) Die material

47) Silicate cement is indicated in:

- A) Mouth breathers
- B) Patients with high caries index
- C) In the restoration of posterior tooth
- D) None of the above

48) The dual cure cements should not be used with light transmitting prostheses thicker than:

- A) 1.0 mm
- B) 1.5 mm
- C) 2.0 mm
- D) 2.5 mm

49) The cement Which is least soluble in oral cavity:

- A) Glass ionomer
- B) Resin cement
- C) Polycarboxylate cement
- D) Silico-Phosphate cement



50) What are snap on dentures?

- A) denture over implants
- B) Partial denture
- C) Fixed partial denture
- D) complete denture

### **SECTION B**

**Short Answer Type Questions (Attempt Any FOUR)**

**(5x4=20)**

1. Define jaw relation? Various methods of recording?
2. Kennedy's classification of partial denture?
3. Teeth setting and physical and chemical changes involved?
4. Uses of dental survey with diagram?
5. Casting machine design and function?
6. Importance of cold mold seal and its composition?

### **SECTION C**

**Long Answer/Essay Type Questions (Attempt Any TWO)**

**(15x2=30)**

1. Define impression? Describe impression materials in detail?
2. Classification of gypsum products, setting reaction and its uses?
3. Dental Articulators and requirements of articulators?
4. Procedure of Denture Fabrication in detail?