NEET MDS Conservative Dentistry and Endodontics Sample Paper – 8

Duration: 25 Minutes **Maximum Marks: 100**

Instructions

- This paper contains **25** Multiple Choice Questions (Single Correct Answer), modelled on the Conservative Dentistry and Endodontics portion of **NEET MDS** (NBEMS).
- Each correct answer carries **4 marks**. There is **negative marking of 1 mark** for each incorrect answer; unattempted questions are not penalised.
- Only **one** option is correct. Choose carefully.
- Syllabus level: **BDS-level Conservative Dentistry and Endodontics as per the NBEMS NEET MDS syllabus**.
- Use of mobile phones, calculators, or electronic gadgets is strictly prohibited.

Q1. Grossman's sealer belongs to which chemical category of root-canal sealers?

(A) Glass-ionomer sealer

(B) Zinc oxide–eugenol sealer

(C) Epoxy-resin sealer

(D) Calcium-silicate (bioceramic) sealer

Q2. AH Plus and AH 26 are classic examples of which class of root-canal sealer?

(A) Epoxy-resin based sealer

(B) Zinc oxide–eugenol based sealer

(C) Calcium-hydroxide based sealer

(D) Glass-ionomer based sealer

Q3. Which commercially available root-canal sealer is a glass-ionomer based material?

(A) AH Plus

(B) Grossman's sealer

(C) Sealapex

(D) Ketac-Endo

Q4. Sealapex and CRCS are examples of which category of root-canal sealer?

(A) Epoxy-resin sealer

(B) Zinc oxide–eugenol sealer

(C) Calcium-hydroxide based sealer

(D) Silicone based sealer

Q5. Which of the following is a distinguishing property of calcium-silicate (bioceramic) sealers such as BioRoot RCS or EndoSequence BC Sealer?

(A) They set only in a completely dry canal

(B) They are hydrophilic and set in the presence of moisture, forming hydroxyapatite

(C) They shrink markedly on setting

(D) They are strongly acidic on setting

Q6. According to Grossman, an ideal root-canal sealer should be all of the following EXCEPT:

(A) Dimensionally stable, with no shrinkage on setting

(B) Radiopaque and easily mixed

(C) Bacteriostatic, or at least not favouring bacterial growth

(D) Insoluble in the usual gutta-percha solvents so that it can never be removed

Q7. Among Grossman's requirements, the sealer should provide a slow (not rapid) setting time chiefly so that:

(A) There is adequate working time to complete obturation before it sets

(B) It becomes more soluble in tissue fluids

(C) It expands excessively into the periapex

(D) It stains the tooth for easier detection

Q8. In cold lateral condensation, the instrument used to create space alongside the master cone for accessory cones is the:

(A) Vertical plugger (heat carrier)

(B) Finger (or hand) spreader

(C) Lentulo spiral

(D) Gates-Glidden drill

Q9. The single-cone obturation technique has regained popularity mainly because of its combination with:

(A) Silver points

(B) Chloroform-dip customisation only

(C) Cold lateral spreaders

(D) Matched-taper gutta-percha and calcium-silicate (bioceramic) sealer

Q10. In the carrier-based obturation system (Thermafil), the gutta-percha is delivered into the canal on a:

(A) Central plastic (or metal) carrier coated with heat-softened gutta-percha

(B) Cold rigid silver core

(C) Paper point soaked in sealer

(D) Rotary nickel-titanium file left in the canal

Q11. The sectional (chunk) obturation technique is best described as:

(A) Placing a single full-length cone with sealer

(B) Laterally condensing multiple cold accessory cones

(C) Carrying and compacting short segments of gutta-percha into the canal, usually on a plugger/carrier

(D) Injecting only sealer without any gutta-percha

Q12. During master-cone selection, the desirable slight resistance felt when the well-fitting cone is withdrawn from the prepared canal is termed:

(A) Rebound

(B) Tug-back

(C) Creep

(D) Flaring

Q13. The master gutta-percha cone is ideally selected so that its tip fits and binds at the:

(A) Radiographic apex, 2 mm beyond the foramen

(B) Middle third of the canal

(C) Prepared working length, at the apical constriction with tug-back

(D) Canal orifice only

Q14. If a well-fitting master cone appears radiographically to be about 1.5 mm short of the working length, the most appropriate step is to:

(A) Verify apical patency, recheck length, and reselect/seat a cone that reaches the working length

(B) Proceed to obturate at the short length anyway

(C) Push the same cone forcibly beyond the apex

(D) Abandon obturation permanently

Q15. The ideal apical limit of a root-canal filling is generally accepted to be:

(A) 2 mm beyond the radiographic apex

(B) Flush with the radiographic apex, deliberately overextended

(C) At or up to about 0.5–1 mm short of the radiographic apex (at the apical constriction)

(D) In the coronal third only

Q16. A root-canal filling that is grossly over-extended (sealer/gutta-percha pushed well beyond the apex) is most likely to:

(A) Guarantee a superior long-term outcome

(B) Have no effect on healing

(C) Act as a periapical irritant and lower the success rate of treatment

(D) Sterilise the periapical tissues

Q17. A significantly under-filled (short) root canal most commonly fails because:

(A) The gutta-percha dissolves in saliva

(B) It over-instruments the periapex

(C) The tooth becomes hypersensitive to cold

(D) Unfilled apical space harbours bacteria/tissue and leaks, impairing the apical seal

Q18. Which organic solvent is most effective at dissolving (softening) gutta-percha during retreatment?

(A) Chloroform

(B) Distilled water

(C) Normal saline

(D) Glycerine

Q19. Eucalyptol (eucalyptus oil) is used in endodontics primarily as a:

(A) Comparatively less volatile/less toxic gutta-percha solvent

(B) Root-canal irrigant for tissue dissolution

(C) Chelating agent for the smear layer

(D) Bleaching agent for discoloured teeth

Q20. During non-surgical retreatment, bulk gutta-percha in the canal body is frequently removed with the aid of:

(A) A rubber dam clamp only

(B) Rotary retreatment files together with a gutta-percha solvent

(C) An apex locator alone

(D) Cold water irrigation only

Q21. Compared with a resin or zinc oxide–eugenol sealer, a distinctive clinical advantage claimed for calcium-silicate (bioceramic) sealers is their:

(A) Strong acidity that etches dentin

(B) Large setting shrinkage

(C) Very short shelf life

(D) Bioactivity/biocompatibility with slight expansion and hydroxyapatite formation at the dentin interface

Q22. A recognised clinical drawback of many calcium-silicate (bioceramic) sealers, particularly when used with a single-cone technique, is that they:

(A) Are radiolucent and cannot be seen on radiographs

(B) Set instantly, leaving no working time

(C) Dissolve completely within hours

(D) Are difficult to remove from the canal if retreatment later becomes necessary

Q23. Zinc oxide–eugenol type root-canal sealers set principally by:

(A) Free-radical addition polymerisation

(B) An acid–base glass-ionomer reaction

(C) A chelation reaction forming zinc eugenolate

(D) Light-activated curing

Q24. The chief functions of a sealer/cement placed together with the gutta-percha core during obturation are to:

(A) Fill voids, bind the core to the canal wall, and seal accessory canals/irregulariti

(B) Replace the need for any core material

(C) Dissolve the remaining pulp tissue

(D) Provide the sole mechanical bulk of the filling

Q25. Which combination correctly matches a sealer with its chemical class?

(A) Grossman's sealer — epoxy resin

(B) AH 26 — epoxy resin

(C) Ketac-Endo — zinc oxide–eugenol

(D) Sealapex — glass ionomer

Detailed Solutions

Q1.

Solution

Concept — Sealer categories: Grossman's sealer is the classic *zinc oxide–eugenol* based root-canal sealer (powder of zinc oxide, resin and radiopacifier mixed with a eugenol liquid). **Why other options are wrong:** Glass-ionomer (Ketac-Endo), epoxy-resin (AH Plus/AH 26) and calcium-silicate (bioceramic) sealers are different chemistries. **Final Answer:** Zinc oxide–eugenol sealer

Answer: (B) Go Back to Q1

Q2.

Solution

Concept — Resin sealers: AH 26 and its improved successor AH Plus are *epoxy-resin* based sealers, valued for good adhesion, flow, low solubility and a long track record. **Why other options are wrong:** ZOE (Grossman), calcium-hydroxide (Sealapex) and glass-ionomer (Ketac-Endo) are other classes. **Final Answer:** Epoxy-resin sealer

Answer: (A) Go Back to Q2

Q3.

Solution

Concept — GIC sealer: Ketac-Endo is the well-known *glass-ionomer* root-canal sealer, offering chemical adhesion to dentin. **Why other options are wrong:** AH Plus is epoxy-resin, Grossman's is ZOE, and Sealapex is a calcium-hydroxide sealer. **Final Answer:** Ketac-Endo

Answer: (D) Go Back to Q3

Q4.

Solution

Concept — Calcium-hydroxide sealers: Sealapex and CRCS (Calciobiotic Root Canal Sealer) are *calcium-hydroxide based* sealers intended to add a mild antibacterial/reparative effect. **Why other options are wrong:** They are not epoxy-resin, ZOE or silicone materials. **Final Answer:** Calcium-hydroxide based sealer

Answer: (C) Go Back to Q4

Q5.

Solution

Concept — Bioceramic sealers: Calcium-silicate (bioceramic) sealers are *hydrophilic*; they use canal moisture to set and precipitate hydroxyapatite at the dentin interface, giving a bioactive seal, and they typically show slight expansion rather than shrinkage. **Why other options are wrong:** They do not require a bone-dry canal, do not shrink markedly, and are alkaline, not strongly acidic. **Final Answer:** Hydrophilic; sets in moisture

Answer: (B) Go Back to Q5

Q6.

Solution

Concept — Grossman's ideal sealer: An ideal sealer should be dimensionally stable, radiopaque, easily mixed, and bacteriostatic, but it must also be *soluble in common solvents* so it can be retrieved during retreatment—so "insoluble so that it can never be removed" is NOT desirable. **Why other options are wrong:** Dimensional stability, radiopacity/easy mixing and being bacteriostatic are all genuine Grossman requirements. **Final Answer:** Should be removable, not permanently insoluble

Answer: (D) Go Back to Q6

Q7.

Solution

Concept — Setting time: Grossman specified a slow set so the clinician has adequate *working time* to place the sealer and compact the core before the material hardens. **Why other options are wrong:** A slow set is not intended to raise solubility, cause periapical expansion, or stain the tooth. **Final Answer:** Adequate working time

Answer: (A) Go Back to Q7

Q8.

Solution

Concept — Lateral condensation: A *finger (or hand) spreader* is pushed alongside the master cone to compact it laterally and create space for accessory gutta-percha cones. **Why other options are wrong:** Pluggers compact vertically, the Lentulo spins sealer, and Gates-Glidden drills flare the coronal canal. **Final Answer:** Finger spreader

Answer: (B) Go Back to Q8

Q9.

Solution

Concept — Single-cone technique: Modern single-cone obturation relies on a *matched-taper* gutta-percha cone that fits the rotary-shaped canal, combined with a *calcium-silicate (bioceramic) sealer* that bonds and forms hydroxyapatite, reducing the sealer bulk needed. **Why other options are wrong:** Silver points, chloroform-dip alone and cold spreaders are not the reason for its resurgence. **Final Answer:** Matched-taper cone + bioceramic sealer

Answer: (D) Go Back to Q9

Q10.

Solution

Concept — Carrier-based obturation: In the Thermafil system a central *plastic (or metal) carrier* pre-coated with heat-softened gutta-percha is warmed in an oven and inserted, carrying the gutta-percha to length. **Why other options are wrong:** It is not a cold silver core, a paper point, or a working rotary file. **Final Answer:** Gutta-percha coated central carrier

Answer: (A) Go Back to Q10

Q11.

Solution

Concept — Sectional technique: In sectional (chunk) obturation, short *segments* of gutta-percha are carried on a plugger/carrier and compacted one at a time to build up the fill, historically useful when a post space is planned. **Why other options are wrong:** A single full-length cone, cold lateral accessory cones, and sealer-only fills describe other methods. **Final Answer:**

Compaction of short GP segments

Answer: (C) Go Back to Q11

Q12.

Solution

Concept — Tug-back: The slight frictional resistance felt as a properly fitted master cone is withdrawn from the apical portion of the canal is called *tug-back*; it signals a good apical fit. **Why other options are wrong:** Rebound, creep and flaring do not describe this apical grip. **Final Answer:** Tug-back

Answer: (B) Go Back to Q12

Q13.

Solution

Concept — Master-cone position: The master cone should reach the prepared *working length* and bind at the apical constriction with tug-back—neither short nor beyond the foramen. **Why other options are wrong:** Beyond the apex over-extends; the middle third and orifice are far too coronal. **Final Answer:** Working length, at apical constriction

Answer: (C) Go Back to Q13

Q14.

Solution

Concept — Short master cone: If the cone is short, the correct response is to confirm apical patency, re-measure length, and *reselect or reseat* a cone that reaches the working length before obturating. **Why other options are wrong:** Obturating short leaves apical leakage; forcing the cone past the apex over-extends; abandoning treatment is unwarranted. **Final Answer:** Recheck length and reseat to WL

Answer: (A) Go Back to Q14

Q15.

Solution

Concept — Ideal fill length: The filling should end at or about *0.5–1 mm short* of the radiographic apex, i.e. at the apical constriction, to obtain a fluid-tight apical seal without periapical extrusion. **Why other options are wrong:** 2 mm beyond and flush/overextended are over-fills; a coronal-third fill is grossly short. **Final Answer:** 0.5–1 mm short of radiographic apex

Answer: (C) Go Back to Q15

Q16.

Solution

Concept — Over-extension: Gross extrusion of filling material beyond the apex acts as a *periapical irritant/foreign body*, provokes inflammation, and is associated with a lower success rate. **Why other options are wrong:** Over-fill does not guarantee success, is not neutral, and does not sterilise the tissues. **Final Answer:** Periapical irritant, lower success

Answer: (C) Go Back to Q16

Q17.

Solution

Concept — Under-fill: A short fill leaves *unfilled apical space* where residual tissue and bacteria persist and coronal leakage percolates, so the apical seal fails. **Why other options are wrong:** Gutta-percha does not dissolve in saliva; a short fill under-instruments rather than over-instruments; cold hypersensitivity of a treated (non-vital) tooth is not the mechanism. **Final Answer:** Unfilled space leaks / harbours bacteria

Answer: (D) Go Back to Q17

Q18.

Solution

Concept — GP solvents: *Chloroform* is the most effective (fastest) gutta-percha solvent and is used to soften cones and dissolve fillings during retreatment; its volatility/toxicity warrants careful use. **Why other options are wrong:** Water, saline and glycerine do not dissolve gutta-percha. **Final Answer:** Chloroform

Answer: (A) Go Back to Q18

Q19.

Solution

Concept — Eucalyptol: Eucalyptol (eucalyptus oil) is a *gutta-percha solvent* that is slower but less volatile and less toxic than chloroform, useful for softening cones and aiding retreatment. **Why other options are wrong:** It is not a tissue-dissolving irrigant, a chelator, or a bleaching agent. **Final Answer:** Less-toxic GP solvent

Answer: (A) Go Back to Q19

Q20.

Solution

Concept — Retreatment removal: Bulk gutta-percha is efficiently removed with dedicated *rotary retreatment files* used together with a *gutta-percha solvent* that softens the mass, followed by hand refinement. **Why other options are wrong:** A dam clamp, an apex locator alone, or cold-water irrigation do not remove the filling. **Final Answer:** Rotary retreatment files + solvent

Answer: (B) Go Back to Q20

Q21.

Solution

Concept — Bioceramic advantage: Calcium-silicate (bioceramic) sealers are *bioactive and biocompatible*, show slight setting expansion, and form hydroxyapatite at the dentin interface, improving the seal. **Why other options are wrong:** They are alkaline (not acidic), expand slightly (do not shrink), and have an acceptable shelf life. **Final Answer:** Bioactive, slight expansion, HA formation

Answer: (D) Go Back to Q21

Q22.

Solution

Concept — Bioceramic drawback: Set calcium-silicate sealers are hard and adherent, so they can be *difficult to remove* if retreatment is later required, especially after a single-cone fill. **Why other options are wrong:** They are radiopaque, have a usable working time, and do not dissolve within hours. **Final Answer:** Hard to remove during retreatment

Answer: (D) Go Back to Q22

Q23.

Solution

Concept — ZOE setting: Zinc oxide–eugenol sealers set by a *chelation* (acid–base) reaction in which eugenol reacts with zinc oxide to form zinc eugenolate. **Why other options are wrong:** Free-radical polymerisation is a resin/composite reaction; the glass-ionomer reaction is different; ZOE is not light-cured. **Final Answer:** Chelation to zinc eugenolate

Answer: (C) Go Back to Q23

Q24.

Solution

Concept — Role of sealer: The sealer fills voids between the core and canal wall, *binds* the gutta-percha to dentin, and seals accessory canals and surface irregularities; the core still provides the bulk. **Why other options are wrong:** Sealer does not replace the core, does not dissolve pulp tissue, and is not the main mechanical bulk. **Final Answer:** Fills voids, binds core, seals irregularities

Answer: (A) Go Back to Q24

Q25.

Solution

Concept — Sealer–class matching: *AH 26 is an epoxy-resin sealer*—the correct match. This anchors the standard classification of endodontic sealers. **Why other options are wrong:** Grossman's is ZOE (not epoxy), Ketac-Endo is glass ionomer (not ZOE), and Sealapex is a calcium-hydroxide sealer (not glass ionomer). **Final Answer:** AH 26 — epoxy resin

Answer: (B) Go Back to Q25

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	B	2	A	3	D	4	C	5	B
6	D	7	A	8	B	9	D	10	A
11	C	12	B	13	C	14	A	15	C
16	C	17	D	18	A	19	A	20	B
21	D	22	D	23	C	24	A	25	B