NEET MDS Conservative Dentistry and Endodontics Sample Paper – 1

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. According to G.V. Black's classification of cavities, a lesion located in the gingival (cervical) third of the facial or lingual surface of any tooth is classified as Class:

(A) Class I

(B) Class II

(C) Class III

(D) Class V

Q2. The concentration of sodium hypochlorite (NaOCl) most commonly used as a root-canal irrigant lies in the range of:

(A) 0.01–0.05%

(B) 15–17%

(C) 25–30%

(D) 0.5–5.25%

Q3. The agent routinely used to chelate and remove the smear layer while lubricating the root canal is:

(A) Sodium hypochlorite

(B) EDTA (17%)

(C) Chlorhexidine gluconate

(D) Hydrogen peroxide

Q4. The apical extent of an ideal root-canal preparation (the "working length") should terminate at the:

(A) Radiographic apex

(B) Apical constriction (minor apical diameter)

(C) Cemento-enamel junction

(D) Middle third of the canal

Q5. Which of the following is regarded as the gold-standard core material for obturation of the root-canal system?

(A) Silver points

(B) Mineral trioxide aggregate

(C) Dental amalgam

(D) Gutta-percha

Q6. By weight, the major single component of a conventional gutta-percha point is:

(A) Gutta-percha (matrix)

(B) Barium sulphate

(C) Zinc oxide

(D) Waxes and resins

Q7. An electronic apex locator that determines canal length by comparing the ratio of two impedances measured at different frequencies belongs to which category?

(A) Multi-frequency (ratio-type) apex locator

(B) First-generation resistance-based locator

(C) Radiographic paralleling method

(D) Tactile (finger-spreader) method

Q8. The principal constituent responsible for the setting and biological properties of Mineral Trioxide Aggregate (MTA) is:

(A) Tricalcium and dicalcium silicate (Portland-cement derivative)

(B) Zinc oxide and eugenol

(C) Calcium hydroxide paste

(D) Polyacrylic-acid modified glass

Q9. The intracanal medicament of choice placed between appointments for its sustained antibacterial action and tissue-dissolving pH is:

(A) Formocresol

(B) Calcium hydroxide

(C) Normal saline

(D) Camphorated monochlorophenol alone

Q10. Adhesion of composite resin to acid-etched enamel is achieved principally through:

(A) Micromechanical retention by resin tags into the etched enamel

(B) Primary ionic bonding to calcium

(C) Van der Waals forces alone

(D) Covalent bonding to hydroxyapatite

Q11. The etchant conventionally used for enamel and dentin conditioning prior to bonding is:

(A) 10% sodium hypochlorite

(B) 17% EDTA

(C) 32–37% phosphoric acid

(D) 50% citric acid

Q12. The most common reason for clinical failure of a Class II posterior composite restoration is:

(A) Secondary (recurrent) caries, usually at the gingival margin

(B) Occlusal wear of the restoration

(C) Marginal discolouration

(D) Loss of surface gloss

Q13. The "smear layer" produced during cavity or canal instrumentation is composed of:

(A) Cutting debris of hydroxyapatite and denatured collagen

(B) A pure bacterial biofilm

(C) Residual gutta-percha

(D) Intact enamel rods

Q14. The property of nickel-titanium rotary files that lets them negotiate curved canals and recover their shape after deformation is:

(A) High rigidity

(B) High modulus of elasticity

(C) Superelasticity (shape memory)

(D) Low resistance to cyclic fatigue

Q15. Which pulp-testing method assesses the true vascular vitality of the pulp rather than the nerve response?

(A) Electric pulp test

(B) Laser Doppler flowmetry / pulse oximetry

(C) Cold (refrigerant) test

(D) Heated gutta-percha test

Q16. Reversible pulpitis is best characterised clinically by:

(A) Spontaneous, unprovoked pain

(B) Dull pain lingering for several minutes after stimulus removal

(C) A frankly necrotic, non-responsive pulp

(D) Sharp pain to a stimulus that subsides quickly once the stimulus is removed

Q17. The classical symptom of symptomatic irreversible pulpitis is:

(A) Complete absence of pain

(B) Spontaneous, lingering pain that persists after the stimulus is removed

(C) Pain only on apical percussion with a vital periapex

(D) A draining sinus tract with pulp necrosis

Q18. The classical access-cavity outline for a mandibular first molar (two mesial and one to two distal canals) is:

(A) Triangular

(B) Oval

(C) Trapezoidal / rectangular

(D) Circular

Q19. Which canal is most frequently missed during endodontic treatment of a maxillary first molar?

(A) Palatal canal

(B) Second mesiobuccal canal (MB2)

(C) Distobuccal canal

(D) First mesiobuccal canal (MB1)

Q20. Using the SLOB rule ("Same Lingual, Opposite Buccal") to separate superimposed canals: if the X-ray tube head is shifted mesially and the object appears to move in the *same* direction as the tube, the object is located:

(A) Buccally

(B) Directly in the mid-root

(C) In the furcation

(D) Lingually / palatally

Q21. For direct pulp capping of a mature permanent tooth with a small mechanical exposure, the material with the highest reported success and biocompatibility is:

(A) Mineral trioxide aggregate / calcium-silicate cement

(B) Zinc phosphate cement

(C) Composite resin placed directly on the pulp

(D) Dental amalgam

Q22. The most widely accepted explanation for dentinal hypersensitivity is the:

(A) Hydrodynamic theory (Brännström)

(B) Direct neural stimulation theory

(C) Odontoblast-transducer theory

(D) Gate-control theory

Q23. The microorganism most often implicated in persistent and secondary (post-treatment) endodontic infections is:

(A) Streptococcus mutans

(B) Lactobacillus acidophilus

(C) Enterococcus faecalis

(D) Porphyromonas gingivalis

Q24. The obturation technique in which heat-softened gutta-percha is compacted apically in increments (Schilder's technique) is called:

(A) Cold lateral condensation

(B) Single-cone technique

(C) Sectional silver-point technique

(D) Warm vertical compaction

Q25. The pain of cracked-tooth syndrome is classically reproduced by:

(A) Continuous cold stimulus only

(B) A hot stimulus only

(C) Release of biting pressure (rebound pain on releasing a bite)

(D) Light apical percussion alone

Detailed Solutions

Q1.

Solution

Concept — G.V. Black classification: Class V lesions occupy the gingival (cervical) third of facial or lingual surfaces of any tooth; they are typically caused by smooth-surface caries or abrasion/erosion. **Why other options are wrong:** Class I involves pits and fissures; Class II involves proximal surfaces of posteriors; Class III involves proximal surfaces of anteriors without the incisal angle. **Final Answer:** Cervical third lesion $\Rightarrow$ Class V

Answer: (D) Go Back to Q1

Q2.

Solution

Concept — Endodontic irrigation: Sodium hypochlorite is used between roughly 0.5% and 5.25%; it dissolves organic pulp tissue and is antibacterial. Higher strength = better dissolution but more toxicity to periapical tissues. **Why other options are wrong:** 0.01–0.05% is far too weak; 15–17% and 25–30% are not clinically used (severe tissue toxicity). **Final Answer:** 0.5–5.25%

Answer: (D) Go Back to Q2

Q3.

Solution

Concept — Smear-layer removal: EDTA (usually 17%) is a chelating agent that binds calcium ions, softens dentin and removes the inorganic smear layer; it also lubricates canals during instrumentation. **Why other options are wrong:** NaOCl dissolves organic tissue but not the inorganic smear layer; chlorhexidine is antibacterial with no chelation; hydrogen peroxide is an obsolete effervescent irrigant. **Final Answer:** EDTA

Answer: (B) Go Back to Q3

Q4.

Solution

Concept — Working length: The apical constriction (minor apical diameter) is the narrowest part of the canal, roughly 0.5–1 mm short of the radiographic apex, and is the ideal apical end-point of preparation and obturation. **Why other options are wrong:** Ending at the radiographic apex over-instruments; the CEJ and middle third are far coronal. **Final Answer:** Apical constriction

Answer: (B) Go Back to Q4

Q5.

Solution

Concept — Obturation core: Gutta-percha remains the gold-standard core obturating material for its dimensional stability, plasticity when warmed, radiopacity and ease of retrieval. **Why other options are wrong:** Silver points corrode; MTA is a repair/sealing material; amalgam is not a core canal filler. **Final Answer:** Gutta-percha

Answer: (D) Go Back to Q5

Q6.

Solution

Concept — Gutta-percha composition: A conventional point is only about 20% gutta-percha; the major component (about 60–65%) is zinc oxide, with radiopacifiers and plasticizers making up the remainder. **Why other options are wrong:** Gutta-percha is the named matrix but not the largest fraction; barium sulphate and waxes/resins are minor additives. **Final Answer:** Zinc oxide

Answer: (C) Go Back to Q6

Q7.

Solution

Concept — Apex locators: Modern (multi-frequency, ratio-type) apex locators compare impedances measured at two or more frequencies; their ratio is largely independent of the electrolyte in the canal, making them accurate even in the presence of irrigants/blood. **Why other options are wrong:** First-generation resistance devices were inaccurate with fluid; radiographic and tactile methods are not impedance-ratio devices. **Final Answer:** Multi-frequency (ratio-type)

Answer: (A) Go Back to Q7

Q8.

Solution

Concept — MTA: MTA is essentially a refined Portland-cement derivative; tricalcium and dicalcium silicate hydrate to form calcium silicate hydrate and calcium hydroxide, giving its sealing ability and biocompatibility. **Why other options are wrong:** ZOE, calcium-hydroxide paste and glass-ionomer chemistries are different materials. **Final Answer:** Tricalcium/dicalcium silicate

Answer: (A) Go Back to Q8

Q9.

Solution

Concept — Intracanal medicament: Calcium hydroxide is the standard inter-appointment dressing; its high pH ($\approx$12.5) is antibacterial, helps dissolve necrotic tissue and encourages hard-tissue formation. **Why other options are wrong:** Formocresol is cytotoxic/largely abandoned; saline has no antibacterial action; CMCP alone is irritating and short-acting. **Final Answer:** Calcium hydroxide

Answer: (B) Go Back to Q9

Q10.

Solution

Concept — Enamel bonding: Phosphoric-acid etching creates microporosities in enamel; unfilled resin flows in and polymerises to form resin tags, giving *micromechanical* retention. **Why other options are wrong:** Enamel bonding is not primarily ionic or covalent; van der Waals forces alone are negligible. **Final Answer:** Micromechanical resin tags

Answer: (A) Go Back to Q10

Q11.

Solution

Concept — Etchant: 32–37% phosphoric acid is the conventional total-etch conditioner for both enamel and dentin. **Why other options are wrong:** NaOCl and EDTA are canal irrigants; 50% citric acid is not the standard bonding etchant. **Final Answer:** 32–37% phosphoric acid

Answer: (C) Go Back to Q11

Q12.

Solution

Concept — Composite failure: Secondary (recurrent) caries, most often at the gingival margin of Class II restorations, is the leading cause of failure, followed by fracture. **Why other options are wrong:** Wear, discolouration and loss of gloss are lesser, often aesthetic, issues. **Final Answer:** Secondary caries

Answer: (A) Go Back to Q12

Q13.

Solution

Concept — Smear layer: It is a 1–5 μm amorphous layer of cut hydroxyapatite debris and denatured collagen that occludes the dentinal tubules after instrumentation. **Why other options are wrong:** It is not a pure biofilm, gutta-percha or intact enamel. **Final Answer:** Hydroxyapatite + collagen debris

Answer: (A) Go Back to Q13

Q14.

Solution

Concept — NiTi rotary files: Superelasticity (a shape-memory property of the austenite/martensite transformation) lets NiTi files flex around curves and spring back, reducing canal transportation. **Why other options are wrong:** Rigidity and a high modulus would cause ledging; low fatigue resistance is a disadvantage, not the useful property. **Final Answer:** Superelasticity

Answer: (C) Go Back to Q14

Q15.

Solution

Concept — Vitality testing: Laser Doppler flowmetry and pulse oximetry detect pulpal *blood flow/oxygenation*, i.e. true vascular vitality, unlike thermal and electric tests which only assess nerve response. **Why other options are wrong:** Electric, cold and heat tests are sensibility (nerve) tests, not vascular tests. **Final Answer:** Laser Doppler / pulse oximetry

Answer: (B) Go Back to Q15

Q16.

Solution

Concept — Reversible pulpitis: Sharp pain that arises with a stimulus (usually cold/sweet) and disappears promptly on removal indicates inflammation that can resolve if the irritant is removed. **Why other options are wrong:** Spontaneous or lingering pain indicates *irreversible* pulpitis; a necrotic pulp gives no response. **Final Answer:** Pain subsides on stimulus removal

Answer: (D) Go Back to Q16

Q17.

Solution

Concept — Irreversible pulpitis: It classically produces spontaneous pain and pain that *lingers* for minutes after a thermal stimulus is removed, often worse when lying down. **Why other options are wrong:** Absence of pain and pure percussion pain with a vital periapex describe other states; a sinus tract implies necrosis/chronic apical disease. **Final Answer:** Spontaneous, lingering pain

Answer: (B) Go Back to Q17

Q18.

Solution

Concept — Access-cavity design: A mandibular first molar has a trapezoidal (rounded-rectangular) access outline reflecting its two mesial and one–two distal canal orifices. **Why other options are wrong:** A triangular outline suits maxillary anteriors/three-canal maxillary molars; oval/circular outlines fit single-canal teeth. **Final Answer:** Trapezoidal / rectangular

Answer: (C) Go Back to Q18

Q19.

Solution

Concept — Missed canals: The second mesiobuccal canal (MB2) of the maxillary first molar is the most frequently missed canal and a common cause of endodontic failure. **Why other options are wrong:** The palatal, distobuccal and MB1 canals are usually located readily. **Final Answer:** MB2

Answer: (B) Go Back to Q19

Q20.

Solution

Concept — SLOB rule: "Same Lingual, Opposite Buccal." If the structure moves in the *same* direction as the shifted tube head, it lies lingually/palatally; if it moves opposite, it lies buccally. **Why other options are wrong:** Same-direction movement specifically excludes a buccal, mid-root or furcation location. **Final Answer:** Lingual/palatal

Answer: (D) Go Back to Q20

Q21.

Solution

Concept — Direct pulp capping: MTA and other calcium-silicate cements give the highest success for direct pulp capping owing to their sealing ability, alkalinity and induction of a dentin bridge. **Why other options are wrong:** Zinc phosphate is irritant; composite/amalgam placed directly on pulp are not biocompatible capping agents. **Final Answer:** MTA / calcium-silicate cement

Answer: (A) Go Back to Q21

Q22.

Solution

Concept — Dentinal hypersensitivity: Brännström's hydrodynamic theory—fluid movement within dentinal tubules stimulating pulpal A-delta fibres—is the most widely accepted mechanism. **Why other options are wrong:** Direct neural, odontoblast-transducer and gate-control theories are less supported for hypersen-

sitivity. **Final Answer:** Hydrodynamic theory

Answer: (A) Go Back to Q22

Q23.

Solution

Concept — Persistent infection: *Enterococcus faecalis* is a facultative gram-positive coccus notably resistant to calcium hydroxide and is the organism most associated with failed/secondary root-canal infections. **Why other options are wrong:** S. mutans and Lactobacillus are chiefly caries organisms; P. gingivalis is a periodontal pathogen. **Final Answer:** Enterococcus faecalis

Answer: (C) Go Back to Q23

Q24.

Solution

Concept — Obturation techniques: Warm vertical compaction (Schilder) softens gutta-percha with heat and compacts it apically in increments, producing a dense three-dimensional fill. **Why other options are wrong:** Cold lateral and single-cone use unheated gutta-percha; sectional silver-point is obsolete. **Final Answer:** Warm vertical compaction

Answer: (D) Go Back to Q24

Q25.

Solution

Concept — Cracked-tooth syndrome: The hallmark is sharp pain on *release* of biting pressure (rebound pain), because the crack momentarily closes under load and springs open on release, moving fluid across the exposed dentin/pulp. **Why other options are wrong:** Continuous cold, heat-only, and pure apical percussion do not reproduce the classic rebound pain. **Final Answer:** Pain on release of biting pressure

Answer: (C) Go Back to Q25

Answer Key

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