

NEET MDS Conservative Dentistry and Endodontics Sample Paper – 2

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. The microorganism most strongly implicated in the *initiation* of dental caries, owing to its ability to adhere to the pellicle, synthesise insoluble extracellular polysaccharide (glucan) and be strongly acidogenic, is:

- (A) *Lactobacillus acidophilus*
- (B) *Actinomyces viscosus*
- (C) *Streptococcus mutans*
- (D) *Veillonella* species

Q2. The “critical pH” below which the enamel surface begins to demineralise (becomes undersaturated with respect to hydroxyapatite) is approximately:

- (A) 7.0
- (B) 6.8



(C) 4.5

(D) 5.5

Q3. In the Stephan curve, after a sugar rinse the plaque pH:

(A) Rises above 7 and stays elevated for hours

(B) Falls sharply within minutes and then gradually recovers to baseline over about 30–60 minutes

(C) Remains completely unchanged throughout

(D) Falls only after 6 hours and never recovers

Q4. Which bacterium is most closely associated with the *progression* of an established carious lesion into deeper dentin, being highly acidogenic and aciduric but a poor initial coloniser?

(A) *Streptococcus sanguinis*

(B) *Streptococcus mutans*

(C) *Porphyromonas gingivalis*

(D) *Lactobacillus* species

Q5. In the ICDAS (International Caries Detection and Assessment System), a code of **0** indicates:

(A) Distinct cavitation with visible dentin

(B) Sound tooth surface with no evidence of caries after air-drying

(C) An underlying dark shadow from dentin

(D) Localised enamel breakdown without visible dentin

Q6. The earliest clinically detectable stage of enamel caries, appearing as an opaque, chalky area best seen on a dried tooth, is the:

(A) White-spot lesion (incipient subsurface demineralisation)

(B) Frank cavitation into dentin



- (C) Arrested brown-spot lesion
- (D) Reversible pulpitis

Q7. A rapidly progressing, widespread pattern of caries affecting surfaces usually considered caries-immune (including lower anteriors), classically seen with frequent sugar intake, is termed:

- (A) Arrested caries
- (B) Recurrent caries
- (C) Rampant caries
- (D) Residual caries

Q8. Early childhood (nursing bottle) caries characteristically *spar*es which teeth because of the protective position of the tongue during suckling?

- (A) Maxillary incisors
- (B) Maxillary first molars
- (C) Maxillary canines
- (D) Mandibular incisors

Q9. The chief inorganic mineral phase of enamel that is dissolved during the demineralisation phase of caries is:

- (A) Calcium fluoride
- (B) Amorphous calcium phosphate
- (C) Carbonated hydroxyapatite
- (D) Brushite

Q10. Fluoride reduces caries mainly because the fluorapatite it helps form is:

- (A) Less soluble in acid, with a lower critical pH (about 4.5) than hydroxyapatite
- (B) More soluble in acid than hydroxyapatite



- (C) Bactericidal to all oral flora at any dose
- (D) Able to replace the entire enamel with a new crystal

Q11. Systemic (pre-eruptive) fluoride is delivered mainly through:

- (A) Community water fluoridation and dietary fluoride supplements
- (B) Professionally applied 5% sodium fluoride varnish
- (C) Acidulated phosphate fluoride gel trays
- (D) Over-the-counter fluoride mouthrinse

Q12. The professionally applied topical fluoride agent that also provides the highest fluoride concentration (approximately 22,600 ppm F) in a single application is:

- (A) 0.05% sodium fluoride daily rinse
- (B) 1000 ppm fluoride toothpaste
- (C) 5% sodium fluoride varnish
- (D) 0.2% sodium fluoride weekly rinse

Q13. The laser-fluorescence device that quantifies caries by measuring fluorescence of bacterial porphyrins within demineralised tooth structure is the:

- (A) Electric pulp tester
- (B) DIAGNOdent
- (C) Apex locator
- (D) Radiovisiography sensor alone

Q14. The most appropriate radiographic view for detecting an early interproximal (approximal) carious lesion is the:

- (A) Periapical film only
- (B) Occlusal film



- (C) Bitewing radiograph
- (D) Panoramic (OPG) radiograph

Q15. On a bitewing radiograph, an incipient interproximal enamel lesion classically appears as a:

- (A) Radiopaque nodule at the CEJ
- (B) Diffuse radiopacity of the whole crown
- (C) Radiolucency limited to the pulp chamber
- (D) Notch-shaped (triangular) radiolucency with its base at the tooth surface

Q16. According to modern (minimally invasive) philosophy, sharp explorer probing of a suspected pit-and-fissure lesion is discouraged mainly because it may:

- (A) Discolour the enamel permanently
- (B) Give a falsely negative electric pulp test
- (C) Sterilise the lesion
- (D) Cavitate a remineralisable surface and transfer cariogenic bacteria between sites

Q17. In the widely used CAMBRA (Caries Management By Risk Assessment) approach, which is considered a major protective (risk-reducing) factor?

- (A) Frequent between-meal sugar snacking
- (B) Regular exposure to fluoride (toothpaste, water, varnish)
- (C) Deep, visible cavitated lesions
- (D) High salivary counts of *Streptococcus mutans*

Q18. Reduced salivary flow (xerostomia) increases caries risk chiefly because saliva normally provides:



- (A) Buffering, clearance of sugars and a supply of calcium/phosphate for remineralisation
- (B) Direct antibiotic destruction of all plaque bacteria
- (C) A permanent physical barrier that prevents any acid contact
- (D) Fluorapatite crystals secreted directly onto the enamel

Q19. Regarding the cariogenicity of dietary sugars, the single most important determinant of caries risk is the:

- (A) Frequency of sugar (fermentable carbohydrate) intake
- (B) Colour of the food consumed
- (C) Temperature at which the food is eaten
- (D) Total calorie count of the meal

Q20. The polyol sweetener that is actively *anti-cariogenic* because oral bacteria cannot ferment it and it inhibits *Streptococcus mutans* is:

- (A) Sucrose
- (B) Xylitol
- (C) Glucose
- (D) Fructose

Q21. The acquired pellicle, the essential first step in plaque and biofilm formation, is best described as:

- (A) A thin, cell-free film of salivary glycoproteins adsorbed onto the enamel surface
- (B) A mature multilayered bacterial colony
- (C) A layer of mineralised calculus
- (D) A residue of dietary sucrose only

Q22. Within mature dental (supragingival) plaque, the sticky extracellular matrix that binds bacteria together and to the tooth is composed largely of:



- (A) Collagen fibres
- (B) Bacterial extracellular polysaccharides (mainly glucans from sucrose)
- (C) Hydroxyapatite crystals
- (D) Salivary amylase

Q23. Root-surface (cementum/dentin) caries differs from enamel caries in that its critical pH for demineralisation is:

- (A) Much lower (about 4.5)
- (B) Identical to that of enamel
- (C) Higher (about 6.0–6.7), so it demineralises more readily
- (D) Irrelevant because root surfaces do not decay

Q24. The zone of a carious dentin lesion that is demineralised but has intact collagen and *should be preserved* during “selective” (minimally invasive) caries removal is the:

- (A) Zone of bacterial invasion (necrotic surface)
- (B) Outer infected dentin
- (C) Zone of destruction
- (D) Affected (remineralisable) dentin

Q25. A dark, hard, shiny brown-spot lesion on a smooth surface with no cavitation most likely represents:

- (A) An arrested (remineralised) carious lesion
- (B) An acutely active, rapidly advancing lesion
- (C) Intrinsic tetracycline staining
- (D) A frank pulp exposure



Detailed Solutions

Q1.

Solution

Concept — Caries initiation: *Streptococcus mutans* is the prime initiator of caries: it adheres to the acquired pellicle, uses glucosyltransferase to convert sucrose into insoluble sticky glucan, is highly acidogenic and aciduric, and thus starts smooth-surface and pit-and-fissure lesions. **Why other options are wrong:**

Lactobacilli dominate lesion *progression*, not initiation; Actinomyces is linked to root caries; Veillonella merely uses lactate and is not acidogenic. **Final Answer:**

Streptococcus mutans

Answer: (C) [Go Back to Q1](#)

Q2.

Solution

Concept — Critical pH: Around pH 5.5, saliva/plaque fluid becomes undersaturated with respect to hydroxyapatite, so enamel starts to dissolve. Above it the fluid is supersaturated and mineral is retained. **Why other options are wrong:**

7.0 and 6.8 are near neutral (no net enamel loss); 4.5 is the critical pH of the more resistant fluorapatite, not hydroxyapatite. **Final Answer:**

pH 5.5

Answer: (D) [Go Back to Q2](#)

Q3.

Solution

Concept — Stephan curve: After a sugar/glucose rinse, acidogenic plaque bacteria drop the plaque pH sharply within 2–5 minutes (often below the critical pH), after which salivary buffering and clearance return it to baseline over roughly 30–60 minutes. **Why other options are wrong:** pH falls (not rises), it does

change, and recovery occurs within an hour, not after 6 hours. **Final Answer:**

Sharp fall, gradual recovery

Answer: (B) [Go Back to Q3](#)



Q4.

Solution

Concept — Lesion progression: *Lactobacillus* species are strongly acidogenic and aciduric but adhere poorly to smooth surfaces; they flourish in the retentive environment of an established cavity and drive its advance into dentin. **Why other options are wrong:** *S. sanguinis* is an early, less cariogenic coloniser; *S. mutans* initiates; *P. gingivalis* is a periodontal pathogen. **Final Answer:** Lactobacillus

Answer: (D) [Go Back to Q4](#)

Q5.

Solution

Concept — ICDAS: ICDAS code 0 denotes a *sound* surface with no caries evidence even after 5 seconds of air-drying. Codes 1–2 are early enamel changes, 3–4 localised breakdown/underlying shadow, and 5–6 frank cavitation. **Why other options are wrong:** Cavitation with dentin (5–6), a dark dentin shadow (4) and localised enamel breakdown (3) are higher codes. **Final Answer:** Sound surface

Answer: (B) [Go Back to Q5](#)

Q6.

Solution

Concept — White-spot lesion: The earliest visible enamel caries is the incipient white-spot lesion: subsurface demineralisation leaves a relatively intact surface layer, appearing chalky/opaque, especially on drying, and it is still remineralisable. **Why other options are wrong:** Frank cavitation is a late stage; an arrested brown-spot is remineralised/inactive; reversible pulpitis is a pulpal, not enamel, diagnosis. **Final Answer:** White-spot lesion

Answer: (A) [Go Back to Q6](#)

Q7.

Solution

Concept — Rampant caries: Rampant caries is a sudden, rapidly advancing decay involving many teeth and even normally caries-resistant surfaces (e.g. lower incisors), typically from frequent sugar intake, xerostomia or the “nursing” habit. **Why other options are wrong:** Arrested caries is inactive; recurrent caries is at restoration margins; residual caries is decay left behind after preparation. **Final**



Answer: Rampant caries

Answer: (C) [Go Back to Q7](#)

Q8.

Solution

Concept — Nursing (bottle) caries: The maxillary incisors are attacked first (they erupt early and pool the sweet liquid), while the *mandibular incisors* are *characteristically spared* because the tongue covers and protects them during suckling. **Why other options are wrong:** Maxillary incisors, first molars and canines are all commonly involved. **Final Answer:** Mandibular incisors

Answer: (D) [Go Back to Q8](#)

Q9.

Solution

Concept — Enamel mineral: Enamel is composed mainly of *carbonated hydroxyapatite*; the carbonate substitution makes it more acid-soluble than pure hydroxyapatite and it is this mineral that dissolves during demineralisation. **Why other options are wrong:** Calcium fluoride and brushite are reaction/precipitation products; amorphous calcium phosphate is a remineralisation intermediate, not the main enamel phase. **Final Answer:** Carbonated hydroxyapatite

Answer: (C) [Go Back to Q9](#)

Q10.

Solution

Concept — Fluoride mechanism: When fluoride is present during remineralisation, fluorapatite/fluorhydroxyapatite forms; it is far less acid-soluble, with a lower critical pH (≈ 4.5), so the enamel resists dissolution at pH values that would harm ordinary hydroxyapatite. **Why other options are wrong:** Fluorapatite is *less*, not more, soluble; fluoride is not a universal bactericide at these doses and it does not replace the whole enamel. **Final Answer:** Less soluble; critical pH ≈ 4.5

Answer: (A) [Go Back to Q10](#)



Q11.

Solution

Concept — Systemic fluoride: Systemic (pre-eruptive, ingested) fluoride reaches the developing tooth mainly through community water fluoridation and prescribed dietary supplements, becoming incorporated into forming enamel. **Why other options are wrong:** Varnishes, APF gels and mouthrinses act *topically* at the tooth surface, not systemically. **Final Answer:** Water fluoridation & supplements

Answer: (A) [Go Back to Q11](#)

Q12.

Solution

Concept — Topical fluoride: 5% sodium fluoride varnish delivers about 22,600 ppm fluoride, adheres to the tooth for prolonged release, and is the leading professionally applied topical agent for high-risk patients. **Why other options are wrong:** A 0.05% rinse (≈ 225 ppm), 1000 ppm paste and 0.2% weekly rinse (≈ 900 ppm) are far lower in concentration. **Final Answer:** 5% NaF varnish

Answer: (C) [Go Back to Q12](#)

Q13.

Solution

Concept — DIAGNOdent: This device shines a 655 nm laser on the tooth; bacterial porphyrins in demineralised/carious tissue fluoresce, and the reflected fluorescence is displayed as a numeric score, aiding detection of occlusal caries. **Why other options are wrong:** The electric pulp tester assesses vitality, the apex locator measures canal length, and a radiovisiography sensor alone is a digital X-ray receptor. **Final Answer:** DIAGNOdent

Answer: (B) [Go Back to Q13](#)

Q14.

Solution

Concept — Detecting approximal caries: The *bitewing* radiograph shows the contact areas of upper and lower posterior crowns without root superimposition, making it the view of choice for early interproximal lesions. **Why other options are wrong:** Periapical films emphasise roots/periapex, occlusal films show arch segments, and the OPG lacks the resolution for early approximal caries. **Final**



Answer: Bitewing radiograph

Answer: (C) [Go Back to Q14](#)

Q15.

Solution

Concept — Radiographic appearance: An incipient interproximal enamel lesion appears as a *triangular (notch-shaped) radiolucency* with its broad base at the outer enamel surface and its apex pointing toward the DEJ. **Why other options are wrong:** Caries is radiolucent (not radiopaque), localised (not diffuse), and starts at the surface, not within the pulp chamber. **Final Answer:** Triangular surface radiolucency

Answer: (D) [Go Back to Q15](#)

Q16.

Solution

Concept — Tactile probing: Forcefully sticking a sharp explorer into a fissure can *cavitate* an otherwise remineralisable early lesion and can carry cariogenic bacteria from one site to another; visual/air-drying and radiographic assessment are preferred. **Why other options are wrong:** The concern is mechanical damage and bacterial transfer, not staining, pulp testing or sterilisation. **Final Answer:** May cavitate & spread bacteria

Answer: (D) [Go Back to Q16](#)

Q17.

Solution

Concept — CAMBRA: Caries risk is a balance of pathological factors against protective factors. Regular fluoride exposure (paste, water, varnish) is a key *protective* factor, along with good saliva and antibacterials. **Why other options are wrong:** Frequent sugar snacking, cavitated lesions and high S. mutans counts are pathological (risk-increasing) factors. **Final Answer:** Regular fluoride exposure

Answer: (B) [Go Back to Q17](#)



Q18.

Solution

Concept — Saliva & caries: Saliva protects by buffering acids (bicarbonate), clearing sugars and bacteria, and supplying calcium, phosphate and fluoride for remineralisation. Xerostomia removes all these defences, sharply raising caries risk. **Why other options are wrong:** Saliva does not directly “antibiotic-kill” all plaque, is not an impermeable barrier, and does not secrete ready-made fluorapatite. **Final Answer:** Buffering, clearance, remineralisation

Answer: (A) [Go Back to Q18](#)

Q19.

Solution

Concept — Diet & caries: It is the *frequency* of fermentable-carbohydrate intake, more than the total amount, that governs caries: each exposure triggers a Stephan-curve acid drop, so repeated snacking keeps plaque pH below the critical level. **Why other options are wrong:** Colour, temperature and total calories are not determinants of cariogenicity. **Final Answer:** Frequency of sugar intake

Answer: (A) [Go Back to Q19](#)

Q20.

Solution

Concept — Xylitol: Xylitol is a five-carbon sugar alcohol that oral bacteria cannot ferment to acid; it also reduces *S. mutans* levels and stimulates saliva, so it is regarded as anti-cariogenic. **Why other options are wrong:** Sucrose, glucose and fructose are all readily fermented to acid and are cariogenic. **Final Answer:** Xylitol

Answer: (B) [Go Back to Q20](#)

Q21.

Solution

Concept — Acquired pellicle: The acquired pellicle is a thin, cell-free (bacteria-free) film of adsorbed salivary glycoproteins that forms on cleaned enamel within minutes and provides the surface to which bacteria subsequently attach to build plaque. **Why other options are wrong:** A mature bacterial colony, calculus and pure sucrose residue are not the initial pellicle. **Final Answer:**



Salivary glycoprotein film

Answer: (A) [Go Back to Q21](#)

Q22.

Solution

Concept — Plaque matrix: The plaque biofilm matrix is dominated by bacterial *extracellular polysaccharides*, chiefly insoluble glucans synthesised from sucrose by glucosyltransferase, which glue the bacteria together and to the tooth.

Why other options are wrong: Collagen, hydroxyapatite crystals (that is calculus/tooth) and salivary amylase are not the main plaque matrix. **Final Answer:**

Extracellular glucans

Answer: (B) [Go Back to Q22](#)

Q23.

Solution

Concept — Root caries: Cementum and root dentin are less mineralised and have a *higher critical pH* (about 6.0–6.7) than enamel, so they demineralise at pH values that would not yet harm enamel—one reason root caries is common in older adults with gingival recession. **Why other options are wrong:** 4.5 is

the fluorapatite figure; the critical pH is not identical to enamel; root surfaces certainly decay. **Final Answer:**

Higher critical pH ($\approx 6.0-6.7$)

Answer: (C) [Go Back to Q23](#)

Q24.

Solution

Concept — Zones of carious dentin: Carious dentin has an outer *infected* layer (bacteria-laden, denatured collagen, must be removed) and a deeper *affected* layer (demineralised but with intact collagen and no significant bacteria) that is remineralisable and should be preserved in selective caries removal. **Why**

other options are wrong: The bacterial-invasion, outer infected and destruction zones are all the necrotic/infected tissue meant to be removed. **Final Answer:**

Affected (remineralisable) dentin

Answer: (D) [Go Back to Q24](#)



Q25.

Solution

Concept — Arrested caries: A hard, shiny, dark-brown non-cavitated smooth-surface lesion indicates an *arrested* (inactive/remineralised) lesion—the demineralisation-remineralisation balance has shifted to net repair, so it is left untreated and monitored. **Why other options are wrong:** Active lesions are soft/matte and light; tetracycline staining is intrinsic and generalised; this is not a pulp exposure. **Final Answer:** Arrested carious lesion

Answer: (A) [Go Back to Q25](#)



Answer Key

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

