NEET MDS Conservative Dentistry and Endodontics Sample Paper – 6

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. Which endodontic hand instrument is manufactured by machining (grinding) a continuous spiral groove into a round tapered metal blank, rather than by twisting?

(A) Hedstroëm (H-) file

(B) K-file

(C) K-reamer

(D) Barbed broach

Q2. Conventional K-type files and K-reamers are traditionally produced by twisting a metal blank whose cross-section is:

(A) Perfectly round

(B) Semicircular

(C) Rhomboid

(D) Square or triangular

Q3. The Hedstroëm file cuts dentin most effectively during which movement?

(A) Clockwise reaming rotation

(B) Watch-winding oscillation

(C) Pull (withdrawal) stroke

(D) Push (insertion) stroke

Q4. Compared with a K-file of the same ISO size, a K-reamer characteristically has:

(A) More flutes per unit length

(B) A blunt, triangular tip

(C) Fewer cutting flutes (spirals) per unit length

(D) A completely non-cutting blade

Q5. In the ISO colour-coding system for endodontic files, a size 25 instrument is colour-coded:

(A) Red

(B) Yellow

(C) White

(D) Blue

Q6. In ISO-standardised instruments, the size number (e.g. size 30) denotes the diameter, in hundredths of a millimetre, of the instrument measured at:

(A) The handle end

(B) A point 16 mm coronal to the tip

(C) The maximum flute diameter (D16)

(D) The tip of the working part (D0)

Q7. A conventional ISO hand file carries a standardised taper of 0.02, which means the diameter of the blade increases by:

(A) 0.02 mm over the entire 16 mm working part

(B) 0.2 mm for every 1 mm of length

(C) 2% of the tip size in total

(D) 0.02 mm for every 1 mm along the cutting blade

Q8. The three smallest ISO files, sizes 06, 08 and 10, are colour-coded respectively:

(A) Pink, grey, purple

(B) White, yellow, red

(C) Purple, white, yellow

(D) Grey, pink, black

Q9. A distinctive design feature of the ProTaper NiTi rotary system is that a single instrument possesses:

(A) Multiple (progressively varying) tapers along its cutting length

(B) A fixed 0.02 taper identical to ISO hand files

(C) No taper at all (parallel-sided blade)

(D) Only reverse (safety) cutting flutes

Q10. In the ProTaper system, the files designated S1 and S2 are used primarily to:

(A) Obturate the prepared canal

(B) Shape the coronal and middle thirds of the canal

(C) Locate the canal orifice only

(D) Finish the apical third to size

Q11. Increasing the taper of a NiTi rotary file while keeping its tip size and alloy constant will generally:

(A) Increase its flexibility

(B) Increase its stiffness (reduce flexibility)

(C) Have no effect on stiffness

(D) Reduce its cutting efficiency to zero

Q12. In the step-back (telescopic) preparation technique, after the apical portion is prepared to the master apical file, each successively larger file is used at a working length that is:

(A) Progressively 1 mm shorter than the previous instrument

(B) Progressively 1 mm longer than the previous instrument

(C) Identical to the master apical file for all sizes

(D) Chosen at random for each file

Q13. The crown-down (step-down) technique differs from step-back in that instrumentation begins:

(A) Coronally with larger files, progressing apically with smaller ones

(B) At the apex with the smallest file first

(C) Only after obturation is complete

(D) At full working length with the largest file

Q14. The balanced-force technique described by Roane employs:

(A) Push–pull filing strokes only

(B) Continuous 360° clockwise rotation

(C) A clockwise turn to engage dentin followed by a counterclockwise turn under apical pressure to cut it

(D) Ultrasonic energy applied to the file

Q15. "Watch-winding" motion during hand instrumentation consists of:

(A) A full 360° clockwise turn of the file

(B) A back-and-forth (right–left) oscillation of about 30–60° with light apical pressure

(C) Pure pull (withdrawal) strokes without rotation

(D) Continuous counterclockwise unwinding

Q16. Cyclic fatigue fracture of a rotating NiTi file occurs mainly because:

(A) Excessive apical pushing force is applied to the handle

(B) The file rotates freely at a curvature, undergoing repeated tension–compression cycles at the point of maximum bend

(C) The tip binds in the canal while the shaft keeps turning

(D) Repeated autoclaving corrodes the alloy

Q17. Torsional (shear) failure of an endodontic instrument typically occurs when:

(A) The file spins freely within a wide, straight canal

(B) The file is simply bent repeatedly without engagement

(C) The tip or a portion of the file locks in the canal while the handle continues to rotate

(D) The irrigant used is too dilute

Q18. Which canal feature most increases the risk of cyclic-fatigue fracture of a NiTi rotary instrument?

(A) A small radius (abrupt, sharp) canal curvature

(B) A wide, straight canal

(C) A low rotational speed setting

(D) Copious irrigation with lubricant

Q19. Gates-Glidden drills are chiefly indicated for:

(A) Apical enlargement to full working length

(B) Compaction of gutta-percha during obturation

(C) Locating the second mesiobuccal orifice

(D) Flaring the coronal and middle thirds and creating straight-line access

Q20. A characteristic safety feature of the Gates-Glidden drill is that it:

(A) Carries an aggressive, sharply pointed cutting tip

(B) Has a non-cutting (safe-ended) tip and is designed to fracture near the shank if overstressed

(C) Cannot be mounted in a rotary handpiece

(D) Follows the ISO 0.02 standardised taper

Q21. Peeso reamers are most appropriately used for:

(A) Fine apical preparation at working length

(B) Delivering intracanal irrigant

(C) Locating additional canal orifices

(D) Preparing the post (dowel) space in the radicular dentin

Q22. Gates-Glidden drills are supplied in a series numbered 1 to 6, the individual sizes being identified by:

(A) ISO colour bands painted on the flutes

(B) Tip diameter marked in hundredths of a millimetre

(C) Rings (bands) on the shank indicating increasing head size

(D) The overall length of the handle

Q23. “Recapitulation” during canal instrumentation refers to:

(A) Fitting the master gutta-percha cone

(B) Taking a working-length confirmation radiograph

(C) Verifying length with an electronic apex locator

(D) Returning to working length with a small file between successive larger instruments to loosen and flush debris

Q24. Maintaining apical "patency" during instrumentation means:

(A) Widely enlarging the apical foramen

(B) Preparing a large, tapered apical seat

(C) Passing a small (patency) file just through the apical constriction to keep it free of debris without enlarging it

(D) Deliberately obturating past the apical foramen

Q25. The largest instrument taken to full working length that establishes the final size of the apical preparation is called the:

(A) Initial apical file

(B) Master apical file

(C) Glide-path file

(D) Gates-Glidden drill

Detailed Solutions

Q1.

Solution

Concept — Instrument manufacture: The Hedstroëm file is machined by grinding a continuous spiral groove into a round tapered blank, producing a series of intersecting cones with sharp positive rake angles. **Why other options are wrong:** K-files and K-reamers are made by twisting a square/triangular blank; a barbed broach is made by notching a blank to raise barbs for pulp extirpation, not by grinding a spiral. **Final Answer:** Hedstroëm (H-) file

Answer: (A) Go Back to Q1

Q2.

Solution

Concept — K-type manufacture: Classic K-files and K-reamers are produced by twisting a tapered blank of square (smaller sizes) or triangular (larger sizes) cross-section along its long axis, creating the tight spiral flutes. **Why other options are wrong:** A round or semicircular blank cannot form the twisted cutting edges; rhomboid is not a standard blank shape. **Final Answer:** Square or triangular blank

Answer: (D) Go Back to Q2

Q3.

Solution

Concept — Hedstroëm cutting action: Its cone-shaped blades give an aggressive positive rake angle that engages and cuts dentin on the *pull* (withdrawal) stroke; it must not be rotated, as the flutes can thread into dentin and fracture. **Why other options are wrong:** Rotation or watch-winding risks binding and separation; the push stroke does not engage the blades effectively. **Final Answer:** Pull (withdrawal) stroke

Answer: (C) Go Back to Q3

Q4.

Solution

Concept — File versus reamer: A K-reamer is made with fewer twists, so it has fewer cutting flutes (spirals) per unit length than a K-file of the same size. This lets it be used with a reaming (rotational) motion. **Why other options are wrong:** More flutes per length describes a file; both instruments have cutting tips of similar geometry, so a blunt or non-cutting blade is incorrect. **Final Answer:** Fewer flutes per unit length

Answer: (C) Go Back to Q4

Q5.

Solution

Concept — ISO colour coding: The sequence for sizes 15–40 is white, yellow, red, blue, green, black; thus size 25 is *red*. Size 15 is white and size 20 is yellow. **Why other options are wrong:** Yellow is size 20, white is size 15, and blue is size 30. **Final Answer:** Red (size 25)

Answer: (A) Go Back to Q5

Q6.

Solution

Concept — ISO size designation: The number equals the diameter (in hundredths of a millimetre) at the tip of the working part, denoted D0. Hence size 30 has a 0.30 mm tip diameter. **Why other options are wrong:** The diameter at 16 mm from the tip is D16 (the maximum flute diameter), not the size number; the handle is irrelevant to sizing. **Final Answer:** Tip diameter D0

Answer: (D) Go Back to Q6

Q7.

Solution

Concept — Standardised taper: A 0.02 taper means the blade diameter grows by 0.02 mm for every 1 mm along the 16 mm cutting portion, so D16 is 0.32 mm larger than D0. **Why other options are wrong:** A 0.02 mm gain over the whole length or a 0.2 mm/mm increase misstate the rate; “2% total” is not how taper is defined. **Final Answer:** 0.02 mm per 1 mm of blade

Answer: (D) Go Back to Q7

Q8.

Solution

Concept — Colour code of small sizes: Below size 15 the code is size 06 pink, size 08 grey, and size 10 purple; these small "glide-path" files precede the white size 15. **Why other options are wrong:** White/yellow/red begins at size 15; the other sequences reverse or mix the colours incorrectly. **Final Answer:** Pink, grey, purple

Answer: (A) Go Back to Q8

Q9.

Solution

Concept — ProTaper design: Each ProTaper instrument has a *progressively varying (multiple) taper* over its length, concentrating cutting where it is needed and improving flexibility and efficiency compared with a fixed-taper file. **Why other options are wrong:** A fixed 0.02 taper describes ISO hand files, not ProTaper; the files are tapered and cut in the conventional direction. **Final Answer:** Multiple varying tapers

Answer: (A) Go Back to Q9

Q10.

Solution

Concept — ProTaper sequence: The shaping files SX, S1 and S2 open and enlarge the coronal and middle thirds, whereas the finishing files (F1–F3) prepare the apical third to a defined size. **Why other options are wrong:** Obturation and finishing are not the role of S-files; orifice location is done with the SX or an orifice opener, not S1/S2 specifically. **Final Answer:** Shape coronal/middle thirds

Answer: (B) Go Back to Q10

Q11.

Solution

Concept — Taper and stiffness: For a given tip size and alloy, a greater taper means more bulk of metal along the shaft, which increases the file's stiffness and reduces its flexibility in curved canals. **Why other options are wrong:** Flexibility falls (not rises) with taper; stiffness is definitely affected, and cutting efficiency is not abolished. **Final Answer:** Increased stiffness

Answer: (B) Go Back to Q11

Q12.

Solution

Concept — Step-back technique: After the master apical file is set at working length, each larger file is used about 1 mm *shorter* than the preceding one, producing an apically tapering (flared) preparation. **Why other options are wrong:** Using longer or identical lengths would not create the step-back flare; lengths are systematic, not random. **Final Answer:** Each file 1 mm shorter

Answer: (A) Go Back to Q12

Q13.

Solution

Concept — Crown-down technique: Instrumentation begins coronally with larger instruments and works apically with progressively smaller files. Early coronal flaring removes interferences, improves irrigant access and reduces apical debris extrusion. **Why other options are wrong:** Starting at the apex with the smallest file is the step-back approach; obturation and largest-file-at-length descriptions are incorrect. **Final Answer:** Coronal-to-apical, large-to-small

Answer: (A) Go Back to Q13

Q14.

Solution

Concept — Balanced-force technique: Roane's method engages dentin with a clockwise (approx. 90°) rotation, then cuts it with a counterclockwise rotation performed under gentle apical pressure, keeping the file centred in curved canals. **Why other options are wrong:** It is not simple push–pull filing, not continuous one-way rotation, and does not use ultrasonics. **Final Answer:**

CW engage, CCW cut under pressure

Answer: (C) Go Back to Q14

Q15.

Solution

Concept — Watch-winding: A short back-and-forth (right–left) oscillation of roughly 30–60° with light apical pressure advances a small file into the canal and is useful for negotiating and establishing a glide path. **Why other options are wrong:** A full 360° turn, pure pull strokes, or continuous unwinding do not describe watch-winding. **Final Answer:** 30–60° back-and-forth

Answer: (B) Go Back to Q15

Q16.

Solution

Concept — Cyclic fatigue: When a file rotates freely inside a curved canal, its outer surface at the point of maximum curvature is repeatedly stretched (tension) and compressed with each revolution; accumulated cycles nucleate a crack that propagates to fracture. **Why other options are wrong:** Apical pushing and tip binding relate to torsional failure; autoclaving is not the mechanism of cyclic fatigue. **Final Answer:** Repeated tension–compression at a curve

Answer: (B) Go Back to Q16

Q17.

Solution

Concept — Torsional failure: Torsional (shear) fracture occurs when the tip or a segment of the file locks in the canal while the handle keeps rotating, so the applied torque exceeds the elastic limit of the engaged metal and it shears. **Why other options are wrong:** Free spinning in a straight canal or simple bending relates to cyclic fatigue; irrigant dilution does not cause torsional shear. **Final Answer:** Tip binds while handle rotates

Answer: (C) Go Back to Q17

Q18.

Solution

Concept — Curvature and cyclic fatigue: A small radius of curvature (an abrupt, sharp bend) imposes the greatest strain per rotation and dramatically shortens the fatigue life of a rotary NiTi file; angle of curvature also contributes. **Why other options are wrong:** Wide straight canals impose little cyclic strain; lower speed and good irrigation actually reduce fatigue risk. **Final Answer:** Small-radius (sharp) curvature

Answer: (A) Go Back to Q18

Q19.

Solution

Concept — Gates-Glidden drills: These flame/football-headed rotary burs on a long thin shank are used to flare the coronal and middle thirds and to establish straight-line access, not to shape the delicate apical region. **Why other options are wrong:** They are unsuitable for apical enlargement, do not obturate, and are not orifice-locating aids. **Final Answer:** Coronal/middle-third flaring

Answer: (D) Go Back to Q19

Q20.

Solution

Concept — Gates-Glidden safety design: The drill has a small non-cutting (safe-ended) tip that guides it and limits perforation, and it is intentionally weakest at the shank so that, if it fractures, the fragment lies coronally and is easily retrieved. **Why other options are wrong:** It does not have an aggressive point, is handpiece-driven, and does not follow the ISO 0.02 taper convention. **Final Answer:** Safe tip; fractures near shank

Answer: (B) Go Back to Q20

Q21.

Solution

Concept — Peeso reamers: With their long parallel-sided cutting flutes and greater stiffness, Peeso reamers are ideal for removing gutta-percha and enlarging the radicular canal to create a post (dowel) space. **Why other options are wrong:** They are too stiff and aggressive for apical shaping, do not irrigate, and are not

orifice locators. **Final Answer:** Post (dowel) space preparation

Answer: (D) Go Back to Q21

Q22.

Solution

Concept — Gates-Glidden numbering: Sizes 1 through 6 (head diameters roughly 0.5–1.5 mm) are identified by rings (bands) cut on the shank—one ring for size 1 up to six rings for size 6. **Why other options are wrong:** They are not ISO-colour coded on the flutes, not marked by tip diameter, and not distinguished by handle length. **Final Answer:** Rings on the shank

Answer: (C) Go Back to Q22

Q23.

Solution

Concept — Recapitulation: Between successive larger instruments the operator returns a small file to full working length to break up and flush packed debris, keeping the canal clean and helping prevent apical blockage. **Why other options are wrong:** Fitting a master cone, radiographs and apex-locator readings are separate steps, not recapitulation. **Final Answer:** Return small file to length to clear debris

Answer: (D) Go Back to Q23

Q24.

Solution

Concept — Apical patency: Patency filing passes a small file (often size 08 or 10) *just* through the apical constriction to keep it free of debris, without enlarging the foramen or transporting it. **Why other options are wrong:** Widening the foramen, cutting a large apical seat, or over-obturating are not the aim of patency. **Final Answer:** Small file kept through the constriction

Answer: (C) Go Back to Q24

Q25.

Solution

Concept — Master apical file: The master apical file (MAF) is the largest instrument taken to full working length; it sets the final diameter of the apical preparation and the reference for subsequent step-back flaring. **Why other options are wrong:** The initial apical file is the first binding file; the glide-path file precedes shaping; a Gates-Glidden is a coronal-flaring bur. **Final Answer:** Master apical file

Answer: (B) Go Back to Q25

Answer Key

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