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NEET MDS 2021 Question Paper with Answer

National Eligibility Cum Entrance Test for Masters of Dental Surgery

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NEET MDS 2021 (Memory Based)

Ques. Arrange the following zones of the pulp from outer to inner layer in the correct sequence:

1. Odontoblastic zone
2. Cell rich zone
3. Cell free zone
4. Central pulp

- 1) 1324
- 2) 1234
- 3) 3241
- 4) 3214

Ans. 1 (1324)

Solution. The correct sequence of zones of the pulp from outer to inner layer is:

1. Cell free zone: This is the outermost layer of the pulp, also known as the zone of Weil. It contains fewer cells and more collagen fibers.
2. Odontoblastic zone: This layer is located just beneath the cell-free zone and contains odontoblasts, which are responsible for the formation of dentin.
3. Cell-rich zone: This is the middle layer of the pulp and contains various types of cells, such as fibroblasts, macrophages, and immune cells.
4. Central pulp: This is the innermost layer of the pulp and contains blood vessels and nerves that supply the tooth.

Therefore, the correct sequence is 1324.

Ques. All of the following are the uses of EDTA, except:

- 1) Dissolution of pulp
- 2) Softening of dentin
- 3) Removal of smear layer
- 4) Chelation of calcium ions

Ans. 1 (Dissolution of pulp)

Solution. EDTA (ethylenediaminetetraacetic acid) is a chelating agent that can bind to metal ions, and it is used in various fields such as medicine, dentistry, and laboratory research. The uses of EDTA include:

1. Chelation of calcium ions: EDTA can chelate or bind to calcium ions, which makes it useful in medical treatments for heavy metal poisoning or to prevent blood from clotting.
2. Softening of dentin: In dentistry, EDTA is used to remove the smear layer, which is a layer of debris that accumulates on the surface of dentin during dental procedures. EDTA can soften the dentin, making it easier to remove the smear layer.
3. Removal of smear layer: EDTA can effectively remove the smear layer, which can improve the adhesion of dental materials to dentin.
4. Preservation of blood samples: EDTA is also used as an anticoagulant to prevent blood from clotting during the collection and storage of blood samples.

Therefore, the correct answer to the question is option 1 - EDTA is not used for the dissolution of pulp.

Ques. Which of the following can be used as a base under CaOH_2 , when the remaining dentin thickness is less than 1 mm?

- 1) ZnOE
- 2) Resin modified GIC
- 3) Polycarboxylate
- 4) ZnPO_4

Ans. 2 (Resin modified GIC)

Solution. When the remaining dentin thickness is less than 1 mm, it is important to provide additional support to the tooth structure before placing calcium hydroxide (CaOH_2) as a base. In this situation, resin modified glass ionomer cement (GIC) can be used as a base under CaOH_2 . Resin modified GIC is a type of dental cement that contains a resin component to improve its mechanical properties and bond strength. It is often used as a base material because it can bond to both dentin and restorative materials, providing additional support to the tooth structure. Resin modified GIC also has good biocompatibility and can release fluoride, which can help prevent secondary caries. Zinc oxide eugenol (ZnOE) is another commonly used dental cement, but it may not be the best choice for a base when the remaining dentin thickness is less than 1 mm because it may not provide enough mechanical support to the tooth structure. Polycarboxylate cement and zinc phosphate (ZnPO_4) cement are also options for base materials, but they may not have the same level of bond strength and biocompatibility as resin modified GIC. Therefore, the correct answer to the question is option 2 - resin modified GIC can be used as a base under CaOH_2 when the remaining dentin thickness is less than 1 mm.

Ques. Dentin bonding agent is:

- 1) Hydrophilic
- 2) Hydrophobic
- 3) Hydrophilic and hydrophobic
- 4) Lipophilic and lipophobic

Ans. 3 (Hydrophilic and hydrophobic)

Solution. Dentin bonding agents are dental materials that are used to bond restorative materials, such as composite resins or porcelain, to dentin. Dentin bonding agents have the ability to bond to both the hydrophilic and hydrophobic components of dentin, which makes them both hydrophilic and hydrophobic. Dentin is a complex, porous structure composed of organic and inorganic components. The organic component is primarily collagen, while the inorganic component is primarily hydroxyapatite crystals. The collagen fibers are hydrophilic, meaning they have an affinity for water, while the hydroxyapatite crystals are hydrophobic, meaning they repel water. To achieve a successful bond between the restorative material and dentin, the bonding agent must be able to penetrate the porous structure of dentin and bond to both the hydrophilic collagen fibers and the hydrophobic hydroxyapatite crystals. Dentin bonding agents typically contain both hydrophilic and hydrophobic components to achieve this dual bonding capability. Therefore, the correct answer to the question is option 3 - dentin bonding agents are both hydrophilic and hydrophobic.

Ques. Law of symmetry is not followed by:

- 1) Maxillary molars
- 2) Mandibular molars
- 3) Maxillary premolars
- 4) Mandibular premolars

Ans. 1 (Maxillary molars)

Solution. The law of symmetry in dentistry states that teeth in the left and right sides of the dental arch should be symmetrically positioned with respect to the midline of the face. However, this law is not always followed due to variations in tooth size, shape, and position. In general, maxillary and mandibular teeth are symmetrical in shape and position within their respective arches. However, maxillary molars are an exception to this rule because they often exhibit more variation in their size, shape, and position compared to other teeth. Maxillary molars have three roots, which can vary in size, shape, and position, leading to variations in the overall shape and position of the tooth. Additionally, the maxillary sinus, which is located above the maxillary molars, can also affect the position and shape of these teeth. Therefore, the correct answer to the question is option 1 - maxillary molars do not always follow the law of symmetry in dentistry due to variations in their size, shape, and position.

Ques. Which of the following is used to enlarge canal opening?

- 1) K-file
- 2) Reamer
- 3) Gates Glidden drill
- 4) Path finder

Ans. 3 (Gates Glidden drill)

Solution. The Gates Glidden drill is a rotary cutting instrument that is commonly used in endodontics to enlarge the access cavity and shape the coronal portion of the root canal. It is specifically designed to enlarge the orifice (opening) of the canal in order to provide better access to the canal for cleaning and shaping. The Gates Glidden drill is a cylindrical bur that is available in various sizes and lengths, and it is designed to fit into a slow-speed handpiece. The drill is used to remove the roof of the pulp chamber and to smooth and shape the walls of the access cavity. It is often used in conjunction with hand files and reamers to prepare the root canal for filling. K-files and reamers are manual endodontic instruments that are used to clean and shape the root canal. K-files are flexible, tapered instruments that are used to remove debris and shape the canal, while reamers are rigid, tapered instruments that are used to remove dentin and debris from the canal walls. These instruments are used after the canal has been accessed and the Gates Glidden drill has been used to enlarge the orifice. A pathfinder is a type of endodontic instrument that is used to locate the root canal orifices. It is a thin, flexible wire that is inserted into the canal to help guide the placement of other instruments. Therefore, the correct answer to the question is option 3 - the Gates Glidden drill is used to enlarge the canal opening in endodontics.

Ques. Strength of gypsum bonded investment material is provided by:

- 1) Carbon
- 2) Copper
- 3) Silica
- 4) Gypsum

Ans. 4 (Gypsum)

Solution. Gypsum bonded investment materials are used in dentistry to make investment molds for casting metal or ceramic restorations. These materials are composed of a mixture of gypsum powder and water, which forms a hard, rigid mold after it has set. The strength of gypsum bonded investment materials is primarily provided by the gypsum component of the mixture. Gypsum is a naturally occurring mineral that is composed of calcium sulfate dihydrate ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$). When mixed with water, gypsum forms a paste that can be used to make molds. Once the gypsum paste is set, it forms a hard, rigid structure that provides the necessary strength to the investment mold. The strength of the mold is important to ensure that it can withstand the high temperatures and pressures that are used during the casting process. While other materials may be added to the gypsum bonded investment material mixture to improve certain properties, such as setting time or thermal expansion, the primary source of strength in the material is the gypsum component. Therefore, the correct answer to the question is option 4 - the strength of gypsum bonded investment material is primarily provided by the gypsum component.

Ques. All of the following statements regarding self cure as compared to heat cure are true, except:

- 1) Self cure has lower molecular weight
- 2) Self cure has higher residual monomer content
- 3) Self cure is more porous
- 4) Self cure has more transverse strength

Ans. 4 (Self cure has more transverse strength)

Solution. The statement that is NOT true regarding self cure as compared to heat cure is "Self cure has more transverse strength". The other statements are generally true:

- Self cure has lower molecular weight than heat cure.
- Self cure has higher residual monomer content than heat cure.
- Self cure is more porous than heat cure.

However, the statement "Self cure has more transverse strength" is not universally true. The strength of a self-cure resin may depend on various factors such as the type of resin, the formulation, and the curing conditions. In some cases, self-cure resins may have lower transverse strength than heat-cured resins, while in other cases, they may have similar or higher strength. Therefore, it is not accurate to make a generalization about the transverse strength of self-cure resins compared to heat-cured resins. In general, both self-cure and heat-cured resins have their own advantages and disadvantages, and the choice between the two depends on various factors such as the clinical situation, the properties of the material, and the preference of the clinician.

Ques. During bleaching, light emitted from LED lamp is:

- 1) Cold blue visible light 465 nm
- 2) Hot blue visible light 465 nm
- 3) Cold orange visible light 465 nm
- 4) Cold green visible light 465 nm

Ans. 1 (Cold blue visible light 465 nm)

Solution. During bleaching, the light emitted from an LED lamp is typically a cold blue visible light with a wavelength of 465 nm. The blue light activates the bleaching agent, typically hydrogen peroxide or carbamide peroxide, which then releases oxygen ions that penetrate the enamel and dentin to break down the chromophores and lighten the tooth. The cold blue light emitted by the LED lamp does not produce significant heat, which helps to minimize discomfort or sensitivity during the bleaching process. The specific wavelength of the blue light emitted by the LED lamp can vary depending on the manufacturer or the specific device, but 465 nm is a common wavelength used in dental bleaching systems.

Ques. The process of making the impression material to conduct electricity is:

- 1) Metallizing
- 2) Electroplating
- 3) Iontophoresis
- 4) Galvanizing

Ans. 1 (Metallizing)

Solution. The process of making an impression material conductive for use in electroplating or other electroforming processes is called "metallizing." Metallizing is the process of coating a non-conductive material, such as an impression or a model, with a thin layer of conductive material, such as metal, to make it electrically conductive. This is typically done by applying a conductive coating, such as a metal or graphite, to the surface of the material using a spray gun or other application method. The conductive coating forms a thin layer over the surface of the material, allowing electrical current to flow through it. Once the material has been metallized, it can be used in electroplating or other electroforming processes, where a layer of metal is deposited onto the surface of the material by passing an electrical current through it. The metal layer can then be used to create a mold or casting, or for other applications where a conductive surface is needed. Electroplating, iontophoresis, and galvanizing are also related to the use of electrical current in various processes, but they are not specifically related to the process of making an impression material conductive through metallizing.

Ques. As the intensity increases, hue perception changes. The effect is called:

- 1) Metamerism
- 2) Bezold- Brucke effect
- 3) Chameleon effect
- 4) Tyndall effect

Ans. 2 (Bezold- Brucke effect)

Solution. The effect of changes in hue perception with changes in light intensity is called the Bezold-Brucke effect. This effect was first described by two German physiologists, Wilhelm von Bezold and Karl Brucke, in the late 19th century.

The Bezold-Brucke effect refers to the phenomenon in which the hue of a color appears to shift as the intensity of the light illuminating the color changes. For example, a red object viewed under low light levels may appear to be more brown or dark gray, while the same object viewed under bright light may appear to be a brighter, more vivid red. Similarly, a yellow object viewed under low light levels may appear more greenish, while the same object viewed under bright light may appear more pure yellow. The Bezold-Brucke effect is caused by changes in the sensitivity of the cone cells in the retina of the eye at different light levels. Different types of cones are more or less sensitive to different parts of the visible light spectrum, and changes in light intensity can affect the relative activation of these different types of cones, resulting in changes in hue perception. Metamerism, chameleon effect, and Tyndall effect are other

color-related phenomena, but they are not specifically related to changes in hue perception with changes in light intensity. Metamerism refers to the phenomenon in which two colors appear to match under one set of lighting conditions, but not under another. The chameleon effect refers to the tendency for people to unconsciously mimic the behaviors and attitudes of those around them. The Tyndall effect refers to the scattering of light by colloidal particles in a medium, such as the blue color of the sky or the haziness of fog or mist.

Ques. Knives used in gingivectomy are:

- 1) Merrifield and Orban
- 2) Merrifield and Kirkland
- 3) Kirkland and Orban #1 and #2
- 4) Kirkland and Orban #3 and #4

Ans. 3 (Kirkland and Orban #1 and #2)

Solution. Gingivectomy is a surgical procedure that involves the removal of a portion of the gingiva (gum tissue) to eliminate periodontal pockets and create a more aesthetic appearance of the gingiva. Several types of knives can be used in gingivectomy, but the most commonly used knives are the Kirkland knife and the Orban knife. The Kirkland knife is a sharp, curved blade with a pointed tip, while the Orban knife is a sharp, straight blade with a slightly rounded tip. Both of these knives are designed to make precise incisions in the gingiva and to remove tissue with minimal trauma. In gingivectomy, the Kirkland knife is typically used to make initial incisions in the gingiva, while the Orban knife is used to remove the excess tissue. Kirkland and Orban #1 and #2 are the most commonly used knives in gingivectomy. The Merrifield knife is another type of surgical knife that is used in periodontal surgery, but it is not commonly used in gingivectomy. It is a small, straight knife with a pointed tip, and it is designed for delicate incisions in soft tissue.

Ques. Which of the following statements is incorrect for furcation defect?

- 1) Grade 3 defect is clinically visible.
- 2) Grade 1 can be visible radiographically as radiopaque.
- 3) In Grade 4 inter-radicular bone is completely lost.
- 4) In Grade 2 bone is attached to the dome of the furcation.

Ans. 1 (Grade 3 defect is clinically visible.)

Solution. The statement that is incorrect for furcation defect is "Grade 3 defect is clinically visible." In fact, Grade 3 furcation defect is not clinically visible and can only be detected by using a periodontal probe. The other statements are correct:

- Grade 1 furcation defect can be visible radiographically as radiopaque due to the presence of dense bone in the furcation area.
- Grade 2 furcation defect is characterized by bone loss up to the dome of the furcation, but some bone is still attached to the furcation.
- Grade 4 furcation defect is the most severe and is characterized by complete loss of inter-radicular bone.

Ques. Cheese like material composed of food particles, desquamated epithelial cells, leukocytes and microbes, which can be easily displaced with water spray is known as:

- 1) Materia alba
- 2) Pellicle
- 3) Calculus
- 4) Acquired plaque

Ans. 1 (Materia alba)

Solution. Materia alba is a cheese-like material that forms on teeth and is composed of food particles, desquamated epithelial cells, leukocytes, and microbes. It can be easily displaced with a water spray and is often found in areas of the mouth where plaque accumulates. Pellicle is a thin film that forms on teeth shortly after they have been cleaned, while calculus (also known as tartar) is a hardened form of plaque that can only be removed by a dental professional. Acquired plaque refers to plaque that forms on teeth due to poor oral hygiene habits.

Ques. Which of the following is not found in the root?

- 1) Enamel
- 2) Dentin
- 3) Cementum
- 4) Pulp

Ans. 1 (Enamel)

Solution. Enamel is not found in the root of a tooth. Enamel is the hard, outermost layer of the crown of a tooth, which covers the dentin. The root of a tooth is covered by cementum, which is a thin layer of hard, mineralized tissue that helps anchor the tooth in the jawbone. Beneath the cementum lies the dentin, which forms the bulk of the tooth and contains the pulp, a soft tissue that contains nerves and blood vessels.

Ques. Serum lipase levels are increased in:

- 1) Acute pancreatitis
- 2) Diabetes mellitus
- 3) Myocardial infarction
- 4) Obstructive jaundice

Ans. 1 (Acute pancreatitis)

Solution. Serum lipase levels are increased in acute pancreatitis. Lipase is an enzyme that is produced by the pancreas and is involved in the digestion of fats. In acute pancreatitis, there is inflammation of the pancreas which leads to leakage of lipase into the blood stream, causing an increase in serum lipase levels. Diabetes mellitus and myocardial infarction are not typically associated with an increase in serum lipase levels. Obstructive jaundice can also cause an increase in serum lipase levels, but this is less common than in acute pancreatitis. In obstructive

jaundice, there is a blockage of the bile ducts which can cause backup of pancreatic enzymes including lipase, resulting in an increase in serum lipase levels.

Ques. The plaque found in heavy calculus former differs from that in non-calculus former in that it has:

- 1) Low calcium
- 2) Low potassium
- 3) Low phosphorus
- 4) Mineral content is same

Ans. 2 (Low potassium)

Ques. The dentist tries to prepare wax try-in using base plate wax in tropical area, the type of wax preferred is:

- 1) Type I base plate wax
- 2) Type II base plate wax
- 3) Type III base plate wax
- 4) Type IV base plate wax

Ans. 3 (Type III base plate wax)

Ques. Drug of choice in acute necrotizing ulcerative gingivitis is:

- 1) Metronidazole
- 2) Clindamycin
- 3) Tetracycline
- 4) Ceftriaxone

Ans. 1 (Metronidazole)

Ques. Which vitamin deficiency is seen in chronic alcoholics?

- 1) Vit B₁₂
- 2) Thiamine
- 3) Riboflavin
- 4) Vit A

Ans. 2 (Thiamine)

Ques. The 18:8 stainless steel is composed of:

- 1) 18 – Chromium, 8 – Nickel
- 2) 18 – Cobalt, 8 – Chromium
- 3) 18 – Cobalt, 8 – Nickel
- 4) 18 – Nickel, 8 – Chromium

Ans. 1 (18 – Chromium, 8 – Nickel)

Ques. Titanium welding is done using:

- 1) Argon
- 2) Laser assisted
- 3) Spot welding
- 4) Thermal welding

Ans. 1 (Argon)

Ques. Following tooth preparation, which chemicals are suitable for gingival retraction before making the impression?

- 1) Acidic
- 2) Basic
- 3) Neutral
- 4) Highly basic

Ans. 1 (Acidic)

Ques. Which density of bone is best suited to achieve a minimum difference in elastic modulus of titanium implant and the residual alveolar bone?

- 1) D1
- 2) D2
- 3) D3
- 4) D4

Ans. 2 (D2)

Ques. A 4-year-old child living in an area with water fluoride content of 0.5ppm, should be given supplemental fluoride tablet of:

- 1) 0.15 mg/day
- 2) 0 mg/day
- 3) 5 mg/day
- 4) 0.25 mg/day

Ans. 4 (0.25 mg/day)

Ques. A country is taking precautions for a disease which has not yet occurred. Which of the following level of prevention is most relevant?

- 1) Primordial Prevention
- 2) Primary Prevention
- 3) Secondary Prevention
- 4) Tertiary Prevention

Ans. 1 (Primordial Prevention)

Ques. DI-S score is 0.6, CI-S score is 0.7. What is the interpretation for OHI-S from this data?

- 1) Good
- 2) Excellent
- 3) Fair
- 4) Poor

Ans. 3 (Fair)

Ques. Patient with temporary restorations on four fractured anterior teeth, 6 teeth with chalky and rough spots and two 3rd molars extracted due to pericoronitis. What is the DMFT score according to WHO Modified DMFT Index 1987?

- 1) 6
- 2) 0
- 3) 10
- 4) 12

Ans. 2 (0)

Ques. Which phase of clinical trial is used to include large population to check the effectiveness, dosage and safety of drugs?

- 1) Phase 2
- 2) Phase 4
- 3) Phase 5
- 4) Phase 3

Ans. 4 (Phase 3)

Ques. Which of the following fluoride preparation combines with hydroxyapatite crystals to form calcium fluoride, which further diffuse to form fluorapatite crystals?

- 1) Stannous fluoride
- 2) Sodium fluoride
- 3) Amine fluoride
- 4) APF

Ans. 2 (Sodium fluoride)