

NATIONAL BOARD PART I SAMPLE TEST ITEMS

The following 40 test items are representative of the four disciplines in the National Board Part I Dental Examinations: Anatomic Sciences, Biochemistry-Physiology, Microbiology-Pathology and Dental Anatomy and Occlusion. There is only one correct or best response for a test item. During testing, it is best to guess than leave an answer blank; there is no penalty for guessing wrong.

ANATOMIC SCIENCES

- Which of the following blood elements is a fragment of megakaryocytic cytoplasm?
 - Platelet
 - Normoblast
 - Erythrocyte
 - Promyelocyte
 - Proerythroblast
- Which of the following cells is *MOST* likely to contain an abundant amount of rough-surfaced endoplasmic reticulum?
 - Pericyte
 - Macrophage
 - Osteoblast
 - Endothelial cell
 - Lymphocyte
- Which of the following is the prime muscle in retracting and elevating the mandible?
 - Masseter
 - Digastric
 - Mylohyoid
 - Temporalis
 - Lateral pterygoid
- A patient has a profound disturbance in equilibrium, alterations of gait (ataxia), and intention tremor. This patient *MOST* likely has a massive lesion that involves which of the following?
 - Amygdala
 - Cerebellum
 - Cerebral cortex
 - Caudate nucleus
 - Lenticular nucleus
- The muscularis externa contains some striated muscle in the
 - ileum.
 - stomach.
 - appendix.
 - esophagus.
 - urinary bladder.
- Vessels supplying blood to the walls of large arteries are collectively known as
 - arterioles.
 - capillaries.
 - vasa vasorum.
 - metarterioles.
 - glomus.
- The one calcified structure of a tooth incapable of continued growth after eruption is the
 - enamel.
 - dentin.
 - cementum.
 - true denticle.
- Which of the following is the first formed portion of the dentin?
 - Circumpulpal
 - Intertubular
 - Transparent
 - Reparative
 - Mantle

9. Which of the following represents the posterior boundary of the oral cavity and the anterior boundary of the fauces?
- Tonsil
 - Soft palate
 - Dorsum of the tongue
 - Palatopharyngeal arch
 - Palatoglossal arch
10. Each of the following PDL fiber groups is found in association with a central incisor *EXCEPT* one. Which one is this *EXCEPTION*?
- Apical
 - Oblique
 - Horizontal
 - Alveolar crest
 - Interradicular

BIOCHEMISTRY-PHYSIOLOGY

1. Hypoglycemia results from the excessive secretion of
- glucose.
 - insulin.
 - glucagon.
 - cyclic-AMP.
 - epinephrine.
2. The fluoride concentration in body fluids is regulated principally by which of the following?
- Hormonal action
 - Bone resorption and kidney tubular secretion
 - Simple skeletal exchange and resorption of bone
 - Skeletal uptake and soft tissue deposition
 - Skeletal uptake and renal excretion
3. Which of the following amino acids is a precursor for epinephrine?
- Valine
 - Leucine
 - Tyrosine
 - Cysteine
 - Tryptophan
4. Which of the following vitamins is *MOST* likely to be involved with bone loss in the elderly?
- Vitamin A
 - Niacin
 - Thiamine
 - Vitamin D
 - Vitamin E
5. Gout is a disease of purine overproduction. In this disease, joints develop crystals of
- urea.
 - adenine.
 - guanine.
 - hypoxanthine.
 - sodium urate.
6. The *MOST* susceptible sites in the nervous system for the effects of acute ischemic anoxia are the
- motor end-plates.
 - sensory receptors.
 - synapses in autonomic ganglia.
 - synapses in the central nervous system.

BIOCHEMISTRY-PHYSIOLOGY (continued)

7. An enzyme increases the rate of a biochemical reaction by
- A. decreasing substrate concentration.
 - B. decreasing activation energy.
 - C. increasing K_m .
 - D. increasing K_{eq} .
 - E. increasing released free energy.
8. Excluding the effect of drugs, apnea occurring after hyperventilation of an anesthetized patient results from
- A. decreased demand for oxygen.
 - B. increased cerebral blood flow.
 - C. decreased carbon dioxide tension.
 - D. increased hydrogen ion concentration.
 - E. decreased oxygenation of carotid bodies.
9. Anemia is frequently associated with a deficiency of
- A. vitamins A and D.
 - B. vitamins C and D.
 - C. vitamins E and K.
 - D. vitamin B_{12} and folic acid.
 - E. thiamine, riboflavin, and niacin.
10. Each of the following is an important function of saliva *EXCEPT* one. Which one is this *EXCEPTION*?
- A. Provides buffering action
 - B. Facilitates deglutition
 - C. Initiates protein digestion
 - D. Prevents demineralization
 - E. Enhances flavor

MICROBIOLOGY-PATHOLOGY

1. What are the "sulfur granules" found in actinomycotic lesions?
- A. Uric acid crystals
 - B. Coagulated pus cells
 - C. Calcified necrotic tissue
 - D. Colonies of the infecting organism
 - E. Agglutinated platelets and lymphocytes
2. Which organ is the *MOST* susceptible to infarction due to systemic arterial thromboembolism?
- A. Brain
 - B. Heart
 - C. Liver
 - D. Colon
 - E. Lung
3. The aerosol produced during operative dental procedures is likely to contain a predominance of which of the following?
- A. Yeasts and spirochetes
 - B. Spirochetes and rod forms
 - C. Spirochetes and rickettsiae
 - D. Gram-positive rods and cocci
 - E. Gram-negative rod forms and spirochetes
4. Ten days after being hospitalized for a large, incapacitating myocardial infarct, a 50-year-old man suddenly develops a paralysis of the right side of his body. Which of the following *BEST* explains the damage to his brain?
- A. Rupture of a congenital aneurysm of the circle of Willis
 - B. Brain abscess from necrosis of myocardium
 - C. Formation of a bacterial embolus from the pulmonic valve
 - D. Embolization of a mural thrombus from the right ventricle
 - E. Detachment of a mural thrombus from the left ventricle

MICROBIOLOGY-PATHOLOGY (continued)

5. Which of the following conditions represents an intoxication rather than an infection?
- A. Anthrax
 - B. Botulism
 - C. Chancroid
 - D. Bacteroidosis
 - E. Salmonellosis septicemia
6. Which of the following organs possesses the *greatest* capacity for regeneration?
- A. Lung
 - B. Liver
 - C. Heart
 - D. Brain
 - E. Kidney
7. In contrast to an exudate, a transudate has a
- A. cloudy appearance.
 - B. higher specific gravity.
 - C. lower protein concentration.
 - D. larger number of erythrocytes.
 - E. characteristic cellular component.
8. Fluoride affects the metabolism of oral bacteria by inhibiting an enzyme in which of the following pathways?
- A. Glycolytic
 - B. Folic acid
 - C. Citric acid
 - D. Aspartate biosynthetic
 - E. Extracellular polysaccharide
9. Which component of the HIV virus is inhibited by AZT treatment?
- A. gP120
 - B. ss RNA genome
 - C. ds DNA genome
 - D. Viral receptor
 - E. Reverse transcriptase
10. Which of the following represents the virus *MOST* likely to pass the placenta and produce congenital defects in the fetus?
- A. Mumps
 - B. Rubella
 - C. Rubeola
 - D. Variola
 - E. Varicella

DENTAL ANATOMY AND OCCLUSION

1. Which of the following newly erupted teeth is *MOST* likely to exhibit only one pulp horn?
- A. #31
 - B. #28
 - C. #19
 - D. #15
 - E. #5
2. Which of the following maxillary anterior teeth has a mesiodistal crown width that is greater than the incisocervical height?
- A. Primary central incisor
 - B. Primary lateral incisor
 - C. Central incisor
 - D. Lateral incisor
 - E. Canine

DENTAL ANATOMY AND OCCLUSION (continued)

3. How many pulp horns are usually present in a typical *primary* mandibular first molar?
- A. 1
 - B. 2
 - C. 3
 - D. 4
 - E. 5
4. Considering root morphology, which of the following teeth *MOST* readily lend themselves to rotation during extraction?
- A. Maxillary central incisor
 - B. Mandibular central incisor
 - C. Mandibular lateral incisor
 - D. Maxillary first premolar
 - E. Mandibular canine
5. Which of the following are the tissues immediately adjacent to the periodontal ligament?
- A. Dentin and lamina dura
 - B. Cementum and alveolar bone
 - C. Gingiva and alveolar plate
 - D. Bundle bone and intermediate plexus
 - E. Junctional epithelium and cortical bone
6. Which of the following offers the *greatest* degree of protection for lips, cheeks, and tongue?
- A. Saliva
 - B. Adjacent contact of teeth
 - C. Horizontal overlap (overjet)
 - D. Deflecting function of ridges
 - E. Sensory function of the periodontal ligament
7. The anatomy of the mesial surface of which of the following teeth is *MOST* likely to cause difficulty in restorative dentistry?
- A. Maxillary central incisor
 - B. Maxillary first premolar
 - C. Maxillary second premolar
 - D. Mandibular first molar
8. Which of the following describes the anatomic progression from mandibular first to third molars?
- A. The roots become more divergent.
 - B. The crowns and roots become longer.
 - C. The crowns and roots become shorter.
 - D. The crowns become longer, but the roots get shorter.
 - E. The crowns become shorter, but the roots get longer.
9. A female child's primary first molars and primary incisors have erupted, but the primary canines and primary second molars remain unerupted. What is the child's approximate age in months?
- A. 7
 - B. 10
 - C. 13
 - D. 16
 - E. 20
10. Which of the following devices accurately locates the hinge axis position of the mandible?
- A. Kinematic face bow
 - B. Arbitrary face bow
 - C. Wax recording device
 - D. Average value face bow
 - E. Arcon articulator recorder

National Board Dental Examination Part I
Sample Test Items
Answer Key

Anatomic Sciences

1. A
2. C
3. D
4. B
5. D
6. C
7. A
8. E
9. E
10. E

Microbiology-Pathology

1. D
2. A
3. D
4. E
5. B
6. B
7. C
8. A
9. E
10. B

Biochemistry-Physiology

1. B
2. E
3. C
4. D
5. E
6. D
7. B
8. C
9. D
10. C

Dental Anatomy and Occlusion

1. B
2. A
3. D
4. A
5. B
6. C
7. B
8. C
9. C
10. A

