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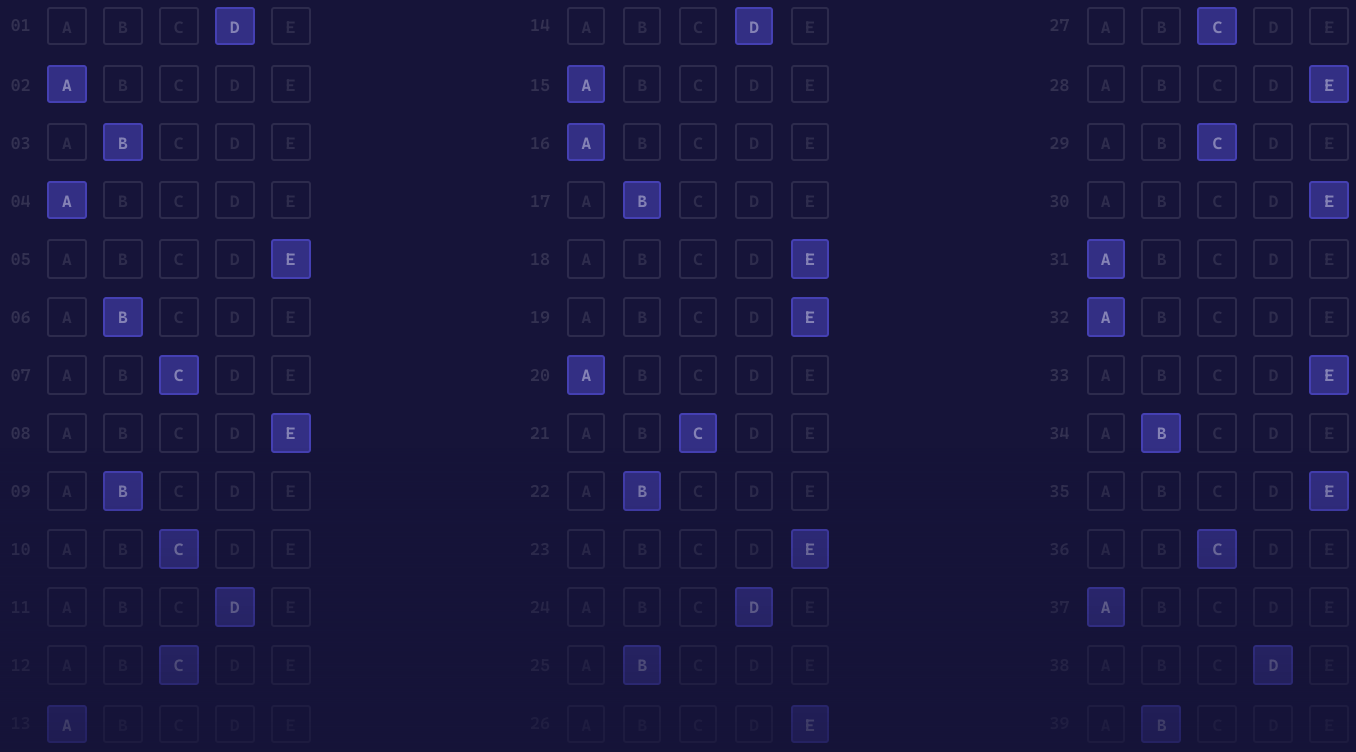

PRACTICE QUESTIONS

American Veterinary Medical Association (AVMA)

BCSE

Basic and Clinical Sciences Exam

EDITION	QUESTIONS	FORMAT
Demo	9	Limited Edition PDF

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Before you begin

What this is

9 practice questions for American Veterinary Medical Association (AVMA) `BCSE`, each with its answer key and an explanation. Answer a question before you read its key — the explanation is worth more once you have committed.

If something looks wrong

Send us three things and we will check it:

- the exam code, `BCSE`
- the question number
- the email address on your order

Write to **support@mometrix.net**. We reply within one business day.

QUESTION 1 SINGLE CHOICE

A bovine is presented for examination. Which of the following compartments of the ruminant stomach is the most cranial and lies against the diaphragm?

A Reticulum

B Rumen

C Omasum

D Abomasum

ANSWER B

WHY The rumen occupies the left side of the abdomen and its cranial sac lies directly against the diaphragm, making it the most cranial of the four compartments in most adult ruminants. The reticulum lies cranioventrally but smaller; the omasum and abomasum lie more caudally to the right.

QUESTION 2 SINGLE CHOICE

On an ECG tracing, the interval that represents the time from the beginning of ventricular depolarization to the end of ventricular repolarization is the:

A P-R interval

B Q-T interval

C S-T segment

D R-R interval

ANSWER B

WHY The Q-T interval extends from the start of the QRS complex (ventricular depolarization) to the end of the T wave (ventricular repolarization). The P-R interval reflects AV nodal conduction delay, the S-T segment represents the plateau phase, and the R-R interval is used to calculate heart rate.

QUESTION 3 SINGLE CHOICE

Which type of inflammation is characterized by the predominant infiltration of neutrophils and the production of a fibrin-rich exudate with liquefactive necrosis?

A Granulomatous inflammation

B Chronic inflammation

C Suppurative (purulent) inflammation

D Fibrinous inflammation

ANSWER D

WHY Fibrinous inflammation produces a fibrin-rich exudate and is typically associated with severe vascular damage (commonly seen in serosal surfaces such as pleura, pericardium, and synovium). Suppurative inflammation is dominated by neutrophils with pus formation, while granulomatous inflammation involves macrophages and epithelioid cells.

QUESTION 4 SINGLE CHOICE

Which of the following bacteria is a gram-positive, spore-forming, anaerobic rod that produces a potent exotoxin causing flaccid paralysis in dogs and is an important differential for ascending motor weakness?

A Escherichia coli

B Clostridium botulinum

C Pasteurella multocida

D Salmonella enterica

ANSWER B

WHY Clostridium botulinum is a gram-positive, spore-forming, anaerobic rod whose botulinum neurotoxin blocks acetylcholine release at neuromuscular junctions, producing a descending flaccid paralysis. E. coli and Salmonella are gram-negative enterics, and Pasteurella is a gram-negative coccobacillus typically associated with bite wounds.

QUESTION 5 SINGLE CHOICE

Atipamezole is used in veterinary medicine primarily as a reversal agent for which class of sedative-analgesic drugs?

A Opioid agonists

B Benzodiazepines

C **Alpha-2 adrenergic agonists**

D Phenothiazine tranquilizers

ANSWER C

WHY Atipamezole is a selective alpha-2 adrenergic antagonist used to reverse the sedative and analgesic effects of alpha-2 agonists such as medetomidine, dexmedetomidine, and xylazine. Naloxone reverses opioids, flumazenil reverses benzodiazepines, and there is no specific widely-used reversal for phenothiazines.

QUESTION 6 SINGLE CHOICE

Which cranial nerve is responsible for parasympathetic innervation of the heart, lungs, and most abdominal viscera?

A Cranial nerve V (trigeminal)

B Cranial nerve VII (facial)

C **Cranial nerve X (vagus)**

D Cranial nerve XII (hypoglossal)

ANSWER C

WHY The vagus nerve (CN X) carries preganglionic parasympathetic fibers to thoracic and abdominal viscera, slowing heart rate, promoting bronchoconstriction, and stimulating gastric/pancreatic secretion. CN V is primarily sensory/motor to the face, CN VII provides parasympathetic supply to the lacrimal and salivary glands, and CN XII provides motor function to the tongue.

QUESTION 7 SINGLE CHOICE

Antidiuretic hormone (ADH) primarily increases water reabsorption in the kidney by acting on which segment of the nephron?

A Proximal convoluted tubule

B Thick ascending limb of the loop of Henle

C Distal convoluted tubule

D Collecting duct

ANSWER D

WHY ADH (vasopressin) binds to V2 receptors on the basolateral membrane of cells in the collecting duct, triggering insertion of aquaporin-2 water channels and allowing water reabsorption under the medullary osmotic gradient. The proximal tubule and thick ascending limb are largely impermeable-regardless of ADH, while the distal convoluted tubule plays a minor role in ADH-mediated water recovery.

QUESTION 8 SINGLE CHOICE

Which of the following characteristics most reliably distinguishes a malignant tumor from a benign tumor?

A Presence of a fibrous capsule

B Slow rate of growth

C Ability to metastasize to distant sites

D Well-differentiated cellular morphology

ANSWER C

WHY Metastasis—the ability to spread to distant sites and form secondary tumors—is the defining hallmark of malignancy. Benign tumors are typically encapsulated, slow-growing, and well-differentiated, while malignant tumors often lack encapsulation, are poorly differentiated, and invade surrounding tissues.

QUESTION 9 MULTIPLE CHOICE

Which of the following are recognized mechanisms of enzyme regulation in cells? (Choose two.)

A **Allosteric modulation by effector molecules**

B **Covalent modification such as phosphorylation**

C Alteration of the stop codon position

D Proteolytic activation of zymogens

ANSWER **A** · **B**

WHY Enzymes are commonly regulated by allosteric modulation (binding of effectors at sites distinct from the active site) and by covalent modification (e.g., phosphorylation, acetylation). Proteolytic activation of zymogens (e.g., trypsinogen to trypsin) is also a valid regulatory mechanism; however, only two answers can be selected here, and A and B are the most broadly applicable. Codon changes relate to genetic mutation, not acute enzyme regulation.