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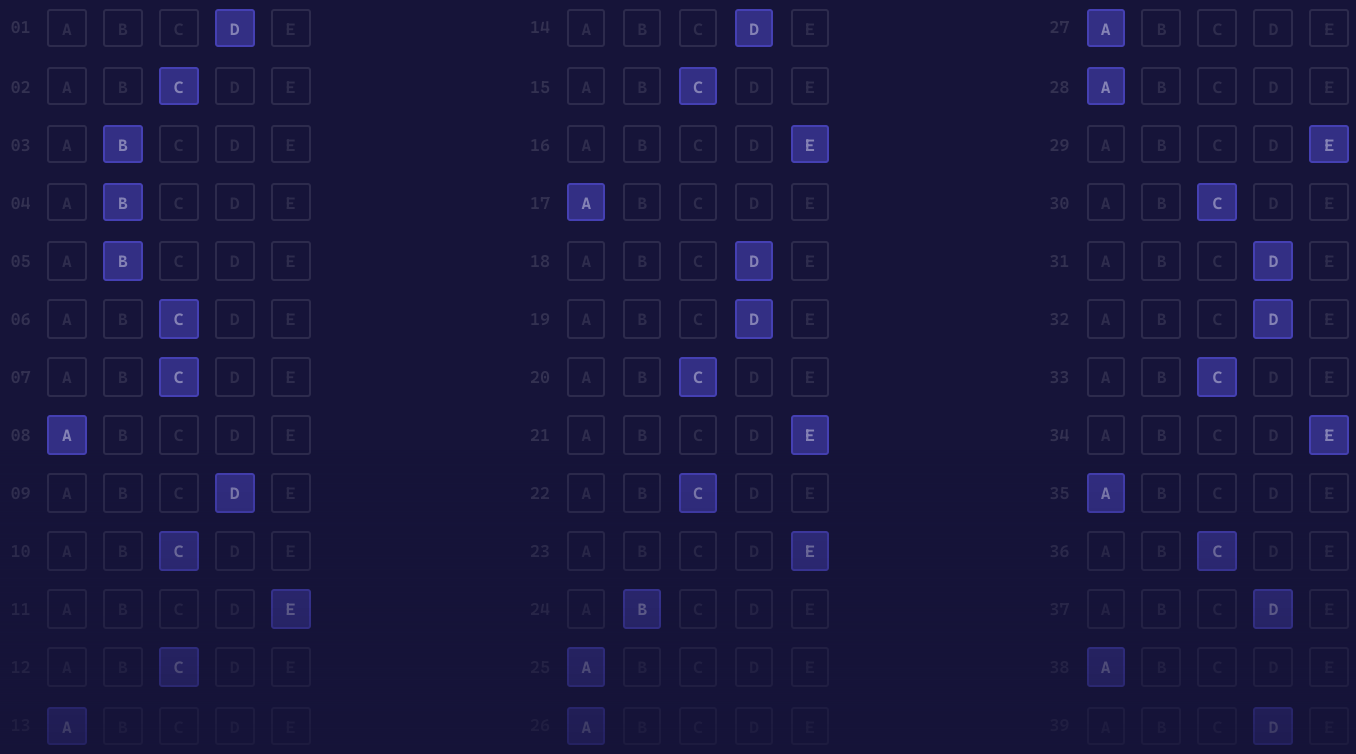

PRACTICE QUESTIONS

United States Medical Licensing Exam® (USMLE)

STP2L

STP2L

EDITION	QUESTIONS	FORMAT
Demo	9	Limited Edition PDF

Before you begin

What this is

9 practice questions for United States Medical Licensing Exam® (USMLE) `STP2L`, 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, `STP2L`
- the question number
- the email address on your order

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

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QUESTION 1 SINGLE CHOICE

A 4-year-old boy has recurrent infections with catalase-positive organisms, including Staphylococcus aureus and Aspergillus. His neutrophil function tests show an absent oxidative burst. Which enzyme deficiency is the underlying cause of this condition?

A Myeloperoxidase

B NADPH oxidase

C Glucose-6-phosphate dehydrogenase

D Adenosine deaminase

ANSWER B

WHY Chronic granulomatous disease (CGD) is caused by a defect in NADPH oxidase, which prevents neutrophils from generating reactive oxygen species during the respiratory (oxidative) burst. This impairs killing of catalase-positive organisms such as S. aureus and Aspergillus species. Myeloperoxidase deficiency causes a different and usually milder phenotype; G6PD deficiency causes hemolysis; ADA deficiency causes SCID.

QUESTION 2 SINGLE CHOICE

A previously healthy 19-year-old college student develops a severe frontal headache, photophobia, and neck stiffness 3 days after returning from summer camp in New England. CSF shows lymphocytic pleocytosis, elevated protein, and normal glucose. Which organism is the most likely cause?

A Neisseria meningitidis

B Streptococcus pneumoniae

C Borrelia burgdorferi

D Enterovirus

ANSWER C

WHY Lyme disease (Borrelia burgdorferi) can cause lymphocytic meningitis, particularly in the early disseminated stage after exposure in endemic areas such as the northeastern United States. CSF in neuroborreliosis typically shows lymphocytic pleocytosis with elevated protein and normal glucose. Neisseria meningitidis and Streptococcus pneumoniae produce neutrophilic pleocytosis with low glucose; enteroviral meningitis is possible but less classically tied to this exposure history.

QUESTION 3 SINGLE CHOICE

A 45-year-old woman has a thyroidectomy for a follicular adenoma. Pathology shows a well-circumscribed, encapsulated tumor composed of follicles without capsular or vascular invasion. Which description best characterizes the lesion?

A Follicular carcinoma

B Follicular adenoma

C Papillary carcinoma

D Medullary carcinoma

ANSWER B

WHY A follicular adenoma is a benign, well-circumscribed, encapsulated tumor without capsular or vascular invasion. Follicular carcinoma is distinguished from adenoma by the presence of capsular and/or vascular invasion. Papillary carcinoma is defined by characteristic nuclear features (Orphan Annie eyes, nuclear grooves, psammoma bodies), and medullary carcinoma arises from parafollicular C cells.

QUESTION 4 SINGLE CHOICE

A patient with chronic obstructive pulmonary disease has the following arterial blood gas: pH 7.36, $PaCO_2$ 60 mm Hg, HCO_3^- 34 mEq/L. Which acid-base disturbance is present?

A Acute respiratory acidosis

B Chronic respiratory acidosis with metabolic compensation

C Metabolic alkalosis with respiratory compensation

D Anion gap metabolic acidosis

ANSWER B

WHY The elevated $PaCO_2$ indicates a primary respiratory acidosis. The pH is near normal (slightly acidemic), and the HCO_3^- of 34 mEq/L reflects renal compensation, which takes 3 to 5 days to develop, consistent with chronic respiratory acidosis. In acute respiratory acidosis, the HCO_3^- rises only modestly (about 1 mEq/L for every 10 mm Hg rise in $PaCO_2$).

QUESTION 5 SINGLE CHOICE

A fasting patient develops hypoglycemia, lactic acidosis, and hyperuricemia after ingestion of ethanol. Which metabolite accumulates because of the metabolism of ethanol by alcohol dehydrogenase?

A **Acetaldehyde**

B Methanol

C Pyruvate

D Acetone

ANSWER A

WHY Alcohol dehydrogenase converts ethanol to acetaldehyde, which is then oxidized to acetate by aldehyde dehydrogenase. Acetaldehyde is the toxic intermediate that contributes to the flushing reaction and hepatic injury. Ethanol metabolism also increases the NADH/NAD+ ratio, which inhibits gluconeogenesis (causing hypoglycemia), shunts pyruvate to lactate, and impairs purine catabolism, contributing to lactic acidosis and hyperuricemia.

QUESTION 6 SINGLE CHOICE

A 7-year-old boy has bilateral sensorineural hearing loss, a long face, and aortic root dilation. His mother has a similar but milder phenotype. Which inheritance pattern is most likely?

A Autosomal recessive

B Mitochondrial (maternal) inheritance

C X-linked recessive

D **Autosomal dominant**

ANSWER D

WHY The presentation is consistent with Marfan syndrome or a related connective tissue disorder, which follows an autosomal dominant inheritance pattern. Male-to-male transmission is expected if present, and variable expressivity explains the milder phenotype in the mother. Mitochondrial inheritance affects both sexes but is transmitted only through females and shows no male-to-male transmission; X-linked recessive disorders primarily affect males and are carried by unaffected females.

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QUESTION 7 SINGLE CHOICE

A 62-year-old man has dysphagia and a chest radiograph shows a dilated esophagus with a tapered narrowing at the lower esophageal sphincter. Manometry reveals failure of the lower esophageal sphincter to relax with swallowing and absence of peristalsis in the body of the esophagus. Which plexus innervation is primarily affected?

A **Myenteric (Auerbach) plexus**

B Submucosal (Meissner) plexus

C Celiac plexus

D Phrenic plexus

ANSWER **A**

WHY Achalasia is characterized by failure of the lower esophageal sphincter to relax and loss of peristalsis due to degeneration of inhibitory neurons in the myenteric (Auerbach) plexus in the wall of the esophagus. The submucosal (Meissner) plexus primarily regulates secretion and local blood flow; the celiac and phrenic plexuses are sympathetic trunks and not responsible for the motor failure seen in achalasia.

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QUESTION 8 SINGLE CHOICE

A 3-year-old child is brought to the pediatrician because his parents are concerned he is not yet toilet trained. He can speak in 3-word sentences, name colors, and play cooperatively with other children. Which is the most appropriate next step?

A **Reassure and continue routine well-child care**

B Obtain a urine culture to evaluate for urinary tract infection

C Refer for developmental delay evaluation

D Order a voiding cystourethrogram

ANSWER **A**

WHY Most children achieve daytime bladder control between 2 and 4 years of age, and bowel control typically precedes bladder control. The child's language and social development are appropriate for age, so isolated late toilet training is most often a normal variant. Reassurance and continued observation are appropriate; workup for pathology is reserved for children with additional signs of delay, neurologic deficits, or previously established continence followed by regression.

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QUESTION 9 MULTIPLE CHOICE

A 28-year-old woman is treated with vancomycin for a methicillin-resistant Staphylococcus aureus (MRSA) bacteremia. On day 10 of therapy, she develops flushing, pruritus, and hypotension during the infusion. Which of the following is the most appropriate next step in management? (Choose two.)

A Discontinue vancomycin permanently and switch to an alternative agent

B Slow the rate of vancomycin infusion

C Pretreat with diphenhydramine before future infusions

D Administer a test dose to confirm IgE-mediated anaphylaxis

E Monitor vancomycin trough concentrations to guide further dosing

ANSWER **B** · **C**

WHY Vancomycin infusion reaction (formerly called 'red man syndrome') is a non-IgE-mediated histamine release reaction characterized by flushing, pruritus, and hypotension during infusion. It is not a true allergic reaction. Management includes slowing the infusion rate (over at least 60 minutes) and premedication with an antihistamine such as diphenhydramine. Vancomycin does not need to be permanently discontinued, a test dose is not useful because this is not anaphylaxis, and trough monitoring relates to therapeutic dosing rather than acute reaction management.

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