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37	A	B	C	D	E
38	A	B	C	D	E
39	A	B	C	D	E

PRACTICE QUESTIONS

TTBU - The Testing Board Ukraine

1MCUK

Krok 1 Medicine (Ukrainian) & English Proficiency

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

Before you begin

What this is

9 practice questions for TTBU - The Testing Board Ukraine **1MCUK**, 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, **1MCUK**
- 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 45-year-old patient presents with an injury to the medial surface of the right thigh. Which muscle located in this region is most likely affected?

- ☐ A Quadriceps femoris
- ☐ B Biceps femoris
- ☒ C Adductor magnus
- ☐ D Sartorius

ANSWER C

WHY The medial (adductor) compartment of the thigh contains the adductor muscles (adductor longus, adductor brevis, adductor magnus, gracilis, pectineus). The quadriceps and sartorius are in the anterior compartment, and the biceps femoris is in the posterior compartment. Therefore, the adductor magnus is the muscle most likely affected by an injury to the medial thigh.

QUESTION 2 SINGLE CHOICE

Which of the following correctly describes the function of aldosterone in the kidney?

- ☐ A Increases calcium reabsorption in the distal convoluted tubule
- ☒ B Promotes sodium reabsorption and potassium excretion in the distal tubule and collecting duct
- ☐ C Inhibits water reabsorption in the collecting duct
- ☐ D Stimulates bicarbonate reabsorption in the proximal tubule

ANSWER B

WHY Aldosterone, a mineralocorticoid produced by the zona glomerulosa of the adrenal cortex, acts on the principal cells of the distal convoluted tubule and collecting duct to increase sodium reabsorption and potassium secretion. It does not primarily regulate calcium, inhibit water reabsorption (that is the role of ADH regulation), or act on the proximal tubule.

QUESTION 3 SINGLE CHOICE

In which cellular organelle does the citric acid cycle (Krebs cycle) take place?

- ☐ A Cytoplasm
- ☒ B Mitochondrial matrix
- ☐ C Rough endoplasmic reticulum
- ☐ D Lysosome

ANSWER B

WHY The citric acid cycle occurs in the mitochondrial matrix of eukaryotic cells. Glycolysis takes place in the cytoplasm, protein synthesis on the rough endoplasmic reticulum, and intracellular digestion occurs in lysosomes.

QUESTION 4 SINGLE CHOICE

Which histological feature is characteristic of simple columnar epithelium?

- ☐ A Multiple layers of flattened cells
- ☒ B A single layer of tall cells with nuclei typically located near the base
- ☐ C Stratified cells with a keratinized surface layer
- ☐ D Cube-shaped cells arranged in a single layer

ANSWER B

WHY Simple columnar epithelium consists of a single layer of tall (height greater than width) cells whose nuclei are usually aligned near the base of the cell. It lines most of the digestive tract. The other options describe stratified squamous, keratinized stratified squamous, and simple cuboidal epithelium, respectively.

QUESTION 5 SINGLE CHOICE

Which type of necrosis is most characteristic of tuberculous granulomas?

- ☐ A Coagulative necrosis
- ☐ B Liquefactive necrosis
- ☒ C Caseous necrosis
- ☐ D Fat necrosis

ANSWER C

WHY Caseous necrosis, which has a cheese-like macroscopic appearance, is the hallmark of tuberculosis and some fungal infections. Coagulative necrosis is typical of ischemic injury in solid organs (except the brain), liquefactive necrosis occurs in the brain after infarction and in abscesses, and fat necrosis is seen in acute pancreatitis or breast trauma.

QUESTION 6 SINGLE CHOICE

Which of the following bacteria is a Gram-positive, spore-forming, anaerobic rod that produces an exotoxin causing pseudomembranous colitis?

- ☒ A *Clostridium difficile*
- ☐ B *Staphylococcus aureus*
- ☐ C *Escherichia coli*
- ☐ D *Salmonella typhi*

ANSWER A

WHY *Clostridium difficile* is a Gram-positive, spore-forming, anaerobic bacillus that produces toxins A and B, causing pseudomembranous colitis, often following antibiotic use. *Staphylococcus aureus* is Gram-positive cocci in clusters; *E. coli* and *Salmonella typhi* are Gram-negative rods and do not form spores.

QUESTION 7

SINGLE CHOICE

A patient is prescribed a non-selective beta-blocker. Which of the following drugs belongs to this group?

- ☐ A Metoprolol
- ☐ B Bisoprolol
- ☒ C Propranolol
- ☐ D Atenolol

ANSWER C

WHY Propranolol is a non-selective beta-blocker that blocks both β_1 and β_2 receptors. Metoprolol, bisoprolol, and atenolol are cardioselective β_1 -blockers, which have less effect on bronchial β_2 receptors at therapeutic doses.

QUESTION 8

SINGLE CHOICE

Which vitamin deficiency is most strongly associated with the development of rickets in children?

- ☐ A Vitamin A
- ☐ B Vitamin C
- ☒ C Vitamin D
- ☐ D Vitamin K

ANSWER C

WHY Vitamin D deficiency in children leads to rickets, characterized by impaired mineralization of the growing skeleton, with bowing of the legs, rachitic rosary, and delayed closure of the fontanelles. Vitamin A deficiency causes night blindness and xerophthalmia; vitamin C deficiency causes scurvy; vitamin K deficiency causes bleeding diathesis.

QUESTION 9

SINGLE CHOICE

Which heart valve is located between the left atrium and the left ventricle?

- ☐ A Tricuspid valve
- ☐ B Pulmonary valve
- ☒ C Mitral (bicuspid) valve
- ☐ D Aortic valve

ANSWER C

WHY The mitral (bicuspid) valve lies between the left atrium and the left ventricle. The tricuspid valve is on the right side, the pulmonary valve guards the right ventricular outflow, and the aortic valve guards the left ventricular outflow.