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

PRACTICE QUESTIONS

Saudi Commission For Health Specialties (SCFHS)

LABTO

Lab Technologist Exam

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

Before you begin

What this is

9 practice questions for Saudi Commission For Health Specialties (SCFHS) LABTO , 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, LABTO
- 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 clinical chemistry control material has a mean of 100 mg/dL and a standard deviation of 2 mg/dL. One of the daily control measurements is 104 mg/dL. According to Westgard rules, which rule is FIRST violated by this single control measurement?

- ☒ **A** 1_2s rule
- ☐ **B** 1_3s rule
- ☐ **C** 2_2s rule
- ☐ **D** R_4s rule

ANSWER A

WHY The 1_2s rule is violated when a single control measurement exceeds the mean by ± 2 standard deviations ($100 \pm 2 \times 2 = 96$ to 104 mg/dL). A value of 104 mg/dL lies exactly at the +2 SD limit, triggering the 1_2s warning rule. The 1_3s rule would require ± 3 SD (94 to 106 mg/dL). The 2_2s and R_4s rules require two consecutive measurements or the range between two measurements, neither of which applies to a single value.

QUESTION 2

SINGLE CHOICE

A peripheral blood smear is being prepared from an EDTA tube that has been sitting at room temperature for more than 2 hours. Which pre-analytical artifact is most likely to be observed on the stained smear?

- ☒ **A** Crenation of red blood cells
- ☐ **B** Degmacyte (bite cell) formation
- ☐ **C** Crystallization of hemoglobin
- ☐ **D** Toxic granulation in neutrophils

ANSWER A

WHY Prolonged storage of EDTA blood (>2 hours at room temperature) causes red cells to lose water and shrink, producing crenated (echinocytic) red cells. Bite cells result from splenic removal of Heinz bodies, not from storage. Toxic granulation is a finding in sepsis/severe infection and is unrelated to storage time.

QUESTION 3

SINGLE CHOICE

A bone marrow aspirate shows large cells with prominent nucleoli, deeply basophilic cytoplasm, and a high nuclear-to-cytoplasmic ratio. These cells are strongly positive for myeloperoxidase (MPO) and Sudan Black B. Which leukemia classification is most consistent with these findings?

- ☐ A Acute lymphoblastic leukemia (ALL)
- ☐ B Acute promyelocytic leukemia (APL, AML-M3)
- ☒ C Acute myeloblastic leukemia (AML-M1/M2)
- ☐ D Chronic lymphocytic leukemia (CLL)

ANSWER C

WHY Strong myeloperoxidase and Sudan Black B positivity identifies the cells as myeloid lineage, which excludes ALL and CLL (both lymphoid). The description of large blasts with prominent nucleoli and basophilic cytoplasm without mention of abnormal promyelocytes with Auer rods or hypergranular features is most consistent with AML-M1 or AML-M2 (acute myeloblastic leukemia). APL (M3) classically shows hypergranular promyelocytes with bundles of Auer rods (faggot cells).

QUESTION 4

SINGLE CHOICE

In the Jaffe reaction for creatinine measurement, which compound is most commonly listed as a significant positive interferent?

- ☐ A Glucose
- ☐ B Uric acid
- ☒ C Acetoacetate (ketone bodies)
- ☐ D Bilirubin

ANSWER C

WHY The Jaffe reaction (picric acid with creatinine under alkaline conditions) is non-specific. The most clinically significant positive interferents are ketone bodies, particularly acetoacetate. This is important in diabetic ketoacidosis, where falsely elevated creatinine values can be obtained. Modern enzymatic methods largely eliminate this interference.

QUESTION 5

SINGLE CHOICE

On a MacConkey agar plate inoculated with a stool specimen, a lactose-fermenting, oxidase-negative, gram-negative rod produces a metallic green sheen on the selective differential media next to the plate. The most likely organism is:

- ☐ A *Klebsiella pneumoniae*
- ☒ B *Escherichia coli*
- ☐ C *Pseudomonas aeruginosa*
- ☐ D *Shigella dysenteriae*

ANSWER B

WHY *Escherichia coli* is a lactose-fermenting (pink on MacConkey), oxidase-negative, gram-negative rod and is classically associated with the metallic green sheen on EMB agar. *Klebsiella* also ferments lactose but typically appears mucoid without the metallic sheen. *Pseudomonas* is oxidase-positive. *Shigella* is non-lactose-fermenting.

QUESTION 6

SINGLE CHOICE

In the ABO blood grouping system, a patient's red cells are not agglutinated by either anti-A or anti-B reagents, and the patient's plasma agglutinates both A cells and B cells. What is the patient's blood group?

- ☐ A Group A
- ☐ B Group B
- ☐ C Group AB
- ☒ D Group O

ANSWER D

WHY Group O individuals have no A or B antigens on their red cells (no agglutination with anti-A or anti-B), but they have both anti-A and anti-B antibodies in their plasma (which agglutinate both A and B reagent red cells). This is the classic pattern of group O.

QUESTION 7

SINGLE CHOICE

A patient has a prolonged PT but a normal aPTT. Which coagulation factor deficiency is most consistent with these results?

- ☐ A Factor VIII deficiency
- ☐ B Factor IX deficiency
- ☒ C Factor VII deficiency
- ☐ D Factor XI deficiency

ANSWER C

WHY PT evaluates the extrinsic and common pathways (factors VII, X, V, II, fibrinogen), while aPTT evaluates the intrinsic and common pathways (factors XII, XI, IX, VIII, X, V, II, fibrinogen). An isolated prolonged PT with normal aPTT points specifically to factor VII deficiency, the only factor unique to the extrinsic pathway. Factors VIII, IX, and XI are intrinsic pathway factors and would prolong the aPTT.

QUESTION 8

SINGLE CHOICE

A urine dipstick shows a positive test for blood but the microscopic sediment examination reveals no red blood cells. Which of the following is the most likely explanation?

- ☐ A The specimen was not centrifuged properly
- ☒ B Myoglobinuria due to rhabdomyolysis
- ☐ C Severe hyperglycemia causing osmotic diuresis
- ☐ D Contamination with povidone-iodine

ANSWER B

WHY The urine dipstick test for blood detects the peroxidase activity of hemoglobin (and myoglobin). It cannot distinguish between hemoglobin from lysed red cells, free hemoglobin, or myoglobin. The absence of red blood cells on microscopy with a positive dipstick for blood is characteristic of myoglobinuria (as in rhabdomyolysis). Povidone-iodine contamination typically produces a false-positive glucose, not blood.

QUESTION 9

MULTIPLE CHOICE

A Levey-Jennings control chart for a chemistry analyte shows that 4 consecutive control values have exceeded the mean + 2 standard deviation (2SD) limit on the same side. According to standard Westgard rules, which interpretation and course of action is correct? (Choose two.)

- ☒ **A** This pattern violates the 4_2s rule and indicates a systematic error requiring investigation before reporting patient results.
- ☐ **B** This pattern violates the 1_3s rule because any single value beyond 3SD rejects the run.
- ☐ **C** The run may be accepted because all values fell within the 2SD limit, indicating acceptable random error only.
- ☒ **D** Patient results from the affected analytical run should be held until the cause of the shift is identified and corrected.
- ☐ **E** The 1_2s rule should be applied as a warning only; no further action is needed because values are still within 2SD.

ANSWER A · D

WHY Four consecutive control values exceeding the mean + 2SD on the same side violates the Westgard 4_2s rule, which detects systematic error (shift or trend). When a rule is violated, the analytical run is rejected; patient results must be held until the problem is investigated and corrected. Option B is incorrect because the 1_3s rule refers to a single value exceeding 3SD, which is not described. Option C is incorrect because values beyond 2SD are not within the control limit. Option E misrepresents the 1_2s rule application.