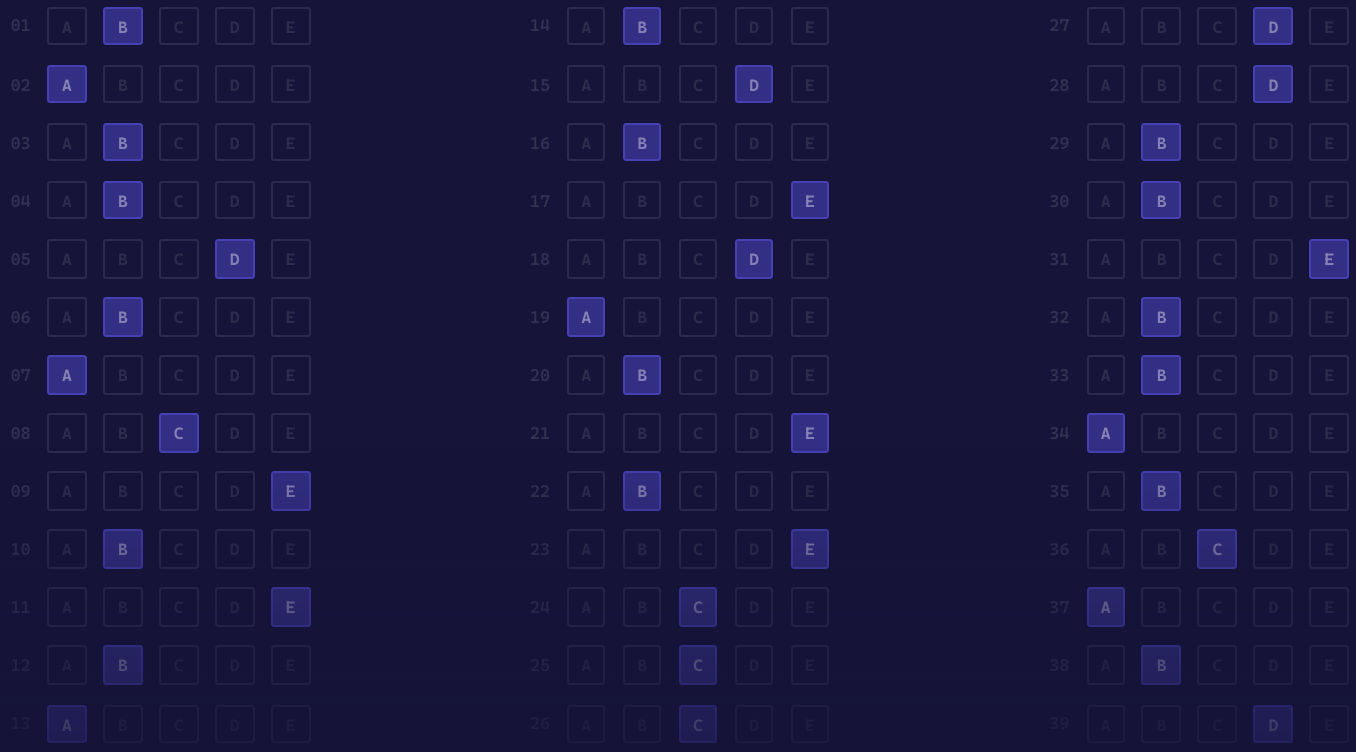
MOMETRIX
SMARTER PREP. BETTER RESULTS.



PRACTICE QUESTIONS

Canadian Alliance of Medical Laboratory Professionals Regulators (CAMLPR)

MIC

Clinical Microbiology

EDITION	QUESTIONS	FORMAT
Demo	9	Limited Edition PDF

WEB www.mometrix.net

SUPPORT support@mometrix.net

Before you begin

What this is

9 practice questions for Canadian Alliance of Medical Laboratory Professionals Regulators (CAMLPR) `MIC`, 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, `MIC`
- the question number
- the email address on your order

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

mometrix.net

QUESTION 1 SINGLE CHOICE

A 24-hour blood culture from a febrile neonate shows a gram-positive coccus that grows in chains, is catalase-negative, and is CAMP test positive. Which organism is the most likely identification?

A Streptococcus pyogenes

B Streptococcus agalactiae (Group B Streptococcus)

C Enterococcus faecalis

D Streptococcus pneumoniae

ANSWER B

WHY Streptococcus agalactiae (Group B Streptococcus) is gram-positive, catalase-negative, arranged in chains, and characteristically CAMP test positive. Streptococcus pyogenes is CAMP negative and bacitracin sensitive; Enterococcus faecalis grows in 6.5% NaCl and is PYR positive; S. pneumoniae is bile soluble and optochin sensitive.

QUESTION 2 SINGLE CHOICE

A stool specimen from a patient with persistent watery diarrhea is prepared with a modified Kinyoun acid-fast stain. Pink-red, slightly curved bacilli measuring 2–5 µm are seen. The most likely organism is:

A Escherichia coli

B Campylobacter jejuni

C Cryptosporidium parvum oocysts

D Shigella sonnei

ANSWER C

WHY Modified acid-fast staining of stool is used to detect Cryptosporidium, Cyclospora, and Isospora (Cystoisospora) oocysts, which appear pink-red against a blue-green background. E. coli, Campylobacter, and Shigella do not stain with modified acid-fast techniques.

mometrix.net

QUESTION 3 SINGLE CHOICE

Which culture and incubation conditions are most appropriate for the primary isolation of Mycobacterium tuberculosis from a clinical specimen?

A Blood agar incubated at 35 °C in 5% CO_2 for 24–48 hours

B Chocolate agar incubated at 35 °C in ambient air for 24–48 hours

C Löwenstein-Jensen medium incubated at 35 °C in 5–10% CO_2 for up to 8 weeks

D Thiosulfate-citrate-bile salts-sucrose (TCBS) agar incubated at 35 °C for 18–24 hours

ANSWER C

WHY Mycobacterium tuberculosis is a slow-growing mycobacterium that requires specialized mycobacterial media such as Löwenstein-Jensen, Middlebrook 7H10, or 7H11, with incubation at 35 °C in 5–10% CO_2 for up to 8 weeks. Blood and chocolate agars are used for routine bacteria, and TCBS is selective for Vibrio species.

QUESTION 4 SINGLE CHOICE

A cerebrospinal fluid (CSF) specimen is received in the laboratory for bacterial culture. Which statement best describes the correct handling of this specimen?

A CSF should be refrigerated at 4 °C if culture will be delayed beyond 2 hours

B CSF should be plated directly to media immediately upon receipt and incubated without delay

C CSF is an unacceptable specimen for anaerobic culture and should only be inoculated to aerobic media

D CSF should be centrifuged and only the supernatant used for culture to avoid host cell interference

ANSWER B

WHY CSF is a critical specimen that must be processed urgently. It should never be refrigerated (cold damages fragile organisms such as Neisseria meningitidis and Haemophilus influenzae) and should be inoculated directly to appropriate media (blood, chocolate, and an anaerobic medium for shunt/needle aspirates) without delay. Anaerobic culture of CSF from a lumbar puncture is not routinely productive, but the specimen should still be plated promptly.

mometrix.net

QUESTION 5 SINGLE CHOICE

An isolate of Staphylococcus aureus is tested by broth microdilution for vancomycin. The MIC reported is 2 µg/mL. Using CLSI breakpoints for S. aureus, this result is interpreted as:

A **Susceptible**

B Intermediate

C Resistant

D Non-determinant, requires repeat testing

ANSWER **A**

WHY According to CLSI, the vancomycin susceptibility breakpoint for Staphylococcus aureus is ≤2 µg/mL (Susceptible), 4–8 µg/mL (Intermediate), and ≥16 µg/mL (Resistant). An MIC of 2 µg/mL is therefore reported as Susceptible.

QUESTION 6 SINGLE CHOICE

A hair and scalp scraping from a child with patchy alopecia is inoculated onto Sabouraud dextrose agar. After 2 weeks of incubation at 25 °C, a flat, downy, gray-white colony with no diffusible pigment is observed. Microscopic examination shows septate hyphae with smooth-walled, club-shaped macroconidia. The most likely identification is:

A Microsporum canis

B Trichophyton tonsurans

C **Trichophyton rubrum**

D Epidermophyton floccosum

ANSWER **C**

WHY Trichophyton rubrum typically produces a flat, white-to-cream or reddish, cottony-to-downy colony on Sabouraud dextrose agar, with reddish-brown diffusible pigment on the reverse being variable. Microscopically, it shows slender, septate hyphae with numerous tear-shaped (piriform) microconidia and rare, smooth-walled, pencil-shaped macroconidia. Epidermophyton floccosum does not produce microconidia; Microsporum canis typically has a yellow pigment and rough-walled macroconidia; T. tonsurans produces variable colony morphology with microconidia of varying size.

mometrix.net

QUESTION 7 SINGLE CHOICE

A peripheral blood film from a febrile patient who recently returned from sub-Saharan Africa shows ring forms, trophozoites, and crescent-shaped gametocytes within red blood cells. The most likely organism is:

A Plasmodium vivax

B **Plasmodium falciparum**

C Babesia microti

D Trypanosoma brucei

ANSWER **B**

WHY Plasmodium falciparum is the only Plasmodium species that produces crescent-shaped (banana-shaped) gametocytes. It also commonly shows multiple ring forms within a single RBC and the absence of mature schizonts in peripheral blood. P. vivax shows enlarged RBCs and Schüffner's dots; Babesia does not produce gametocytes; trypanosomes are extracellular in blood.

QUESTION 8 SINGLE CHOICE

Which of the following best describes the correct quality control approach for Gram stain reagents in the clinical microbiology laboratory?

A Use only a known gram-positive organism as a positive control with each batch of stains

B **Test each new batch of Gram stain reagents with both a known gram-positive and a known gram-negative organism, and document the results**

C Gram stain reagents do not require QC once performance is verified annually by the manufacturer

D Quality control of Gram stain is performed only when a new lot of crystal violet is received, not for the decolorizer or safranin

ANSWER **B**

WHY Per CLSI and laboratory accreditation standards, each new lot of Gram stain reagents must be quality controlled using both a known gram-positive (e.g., Staphylococcus aureus) and a known gram-negative (e.g., Escherichia coli) organism. The decolorizer (alcohol/acetone) is the most critical reagent to QC because under-decolorization or over-decolorization will produce incorrect results.

QUESTION 9 MULTIPLE CHOICE

Which of the following specimens are classified as requiring Biosafety Level 3 (BSL-3) containment and practices during processing in the microbiology laboratory? (Choose two.)

A **Sputum for Mycobacterium tuberculosis culture**

B Cerebrospinal fluid for routine bacterial culture

C **Tissue homogenate for Brucella melitensis culture**

D Blood culture for Staphylococcus aureus

E Stool for Entamoeba histolytica antigen testing

ANSWER **A** · **C**

WHY Mycobacterium tuberculosis and Brucella melitensis are Risk Group 3 pathogens that require BSL-3 containment, including a Class I or II biological safety cabinet for any procedure that may generate aerosols, sealed centrifuge rotors, and respiratory protection. CSF, blood cultures for S. aureus, and stool for amoeba antigen testing are handled under standard BSL-2 practices.

mometrix.com