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39	A	B	C	D	E

PRACTICE QUESTIONS

Canadian Alliance of Medical Laboratory Professionals Regulators (CAMLPR)

TRN

Transfusion Medicine (Science)

EDITION

Demo

QUESTIONS

9

FORMAT

Limited Edition PDF

Before you begin

What this is

9 practice questions for Canadian Alliance of Medical Laboratory Professionals Regulators (CAMLPR) **TRN**, 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, **TRN**
- 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 donor unit is labeled group O, Rh-negative. Which of the following recipient populations is this unit most appropriate for, considering ABO compatibility and the conservative transfusion practice of using Rh-negative units for specific recipients?

- ☐ A Group A, Rh-positive recipient with no anti-D detected
- ☐ B Group O, Rh-positive recipient of childbearing potential
- ☒ C Group B, Rh-negative recipient
- ☐ D Group AB, Rh-positive recipient

ANSWER C

WHY Group O red cells are compatible with all ABO recipients. To prevent alloimmunization to the D antigen, Rh-negative red cells are preferentially selected for Rh-negative recipients and for Rh-negative recipients of childbearing potential. Among the choices, only the Group B, Rh-negative recipient meets both criteria for O Rh-negative red cells.

QUESTION 2

SINGLE CHOICE

A patient with active bleeding and a fibrinogen level of 1.0 g/L (reference 2.0–4.0 g/L) is being managed in the operating room. Which blood component is most appropriate to raise the fibrinogen level?

- ☐ A Fresh frozen plasma (FFP)
- ☐ B Platelet concentrate
- ☒ C Cryoprecipitate
- ☐ D Albumin 25%

ANSWER C

WHY Cryoprecipitate contains fibrinogen, factor VIII, von Willebrand factor, factor XIII, and fibronectin. It is the component of choice when the specific goal is to raise a low fibrinogen level, particularly in acquired hypofibrinogenemia associated with massive hemorrhage or DIC. FFP is used for multiple factor deficiencies but is not the most concentrated source of fibrinogen.

QUESTION 3

SINGLE CHOICE

A patient's antibody screen is negative, but the crossmatch is incompatible with a single donor unit. Repeat testing of the donor unit confirms the same ABO/Rh. The most likely explanation is:

- ☐ A An ABO subgroup on the donor red cells not detected by routine typing
- ☒ B A clinically significant antibody directed against a low-frequency antigen present on the donor cells
- ☐ C Contamination of the donor unit causing rouleaux
- ☐ D An error in the patient's antibody screen cell panel

ANSWER B

WHY When the antibody screen is negative but a crossmatch with a specific donor is positive, the antibody is typically directed against a low-frequency antigen that is not represented on the screening cells but is present on that donor's red cells. Examples include anti-Wra, anti-Cw, anti-Lua, and similar antibodies. Antibody identification panels typically do not include cells positive for low-frequency antigens, hence the negative screen.

QUESTION 4

SINGLE CHOICE

A patient develops fever, chills, and hypotension within 30 minutes of starting a red cell transfusion. There is no respiratory distress or cutaneous involvement. Which transfusion reaction is most consistent with this presentation?

- ☐ A Febrile non-hemolytic transfusion reaction (FNHTR)
- ☐ B Acute hemolytic transfusion reaction (AHTR)
- ☐ C Transfusion-associated circulatory overload (TACO)
- ☒ D Bacterial contamination/septic transfusion reaction

ANSWER D

WHY High fever with chills and hypotension early in transfusion is suggestive of a septic transfusion reaction due to bacterial contamination of the unit, particularly gram-negative endotoxin-producing organisms in red cells. FNHTR presents with temperature rise but typically without significant hypotension. AHTR usually presents with hemoglobinuria, flank pain, and signs of hemolysis. TACO presents with respiratory distress and hypertension.

QUESTION 5

SINGLE CHOICE

An Rh-negative mother delivers an Rh-positive infant. The maternal postpartum antibody screen is negative. What is the appropriate dose of Rh immune globulin (Rhlg) to administer?

- ☐ A No Rhlg required because the infant is only weakly Rh-positive
- ☒ B A standard postpartum dose of Rhlg within 72 hours of delivery
- ☐ C A double dose of Rhlg because the mother is postpartum for the first time
- ☐ D Rhlg is only required if a fetomaternal hemorrhage (FMH) test is positive

ANSWER B

WHY Rhlg is administered to all unsensitized Rh-negative mothers within 72 hours of delivery of an Rh-positive infant. A standard postpartum dose (approximately 300 µg, covering up to ~30 mL of fetal whole blood or ~15 mL of fetal red cells) is given routinely. An FMH test (e.g., rosette or Kleihauer-Betke) is performed to detect excessive fetomaternal hemorrhage that would require additional vials, not to determine whether any Rhlg is needed at all.

QUESTION 6

SINGLE CHOICE

Which of the following documents must be retained for the longest period according to Canadian transfusion medicine standards?

- ☐ A Daily reagent quality control records
- ☐ B Donor unit temperature charts
- ☒ C Patient transfusion records, including the final disposition of the unit
- ☐ D Daily staff competency assessments

ANSWER C

WHY Patient transfusion records, including the final disposition (transfused, returned, wasted, etc.) of each unit, must be retained for a minimum of 30 years (and in many jurisdictions longer) because they are part of the patient's medical record. Other QC records (e.g., reagent QC, temperature logs) typically have shorter retention requirements as defined by the Canadian Standards Association (CSA Z902) and accrediting bodies.

QUESTION 7

SINGLE CHOICE

The direct antiglobulin test (DAT) is positive in a patient who has received no transfusions in the past 3 months and has no history of autoimmune hemolytic anemia. What is the most appropriate next step?

- ☐ A Report as warm autoimmune hemolytic anemia and initiate prednisone
- ☐ B Repeat the DAT using a saline replacement technique to rule out a false positive
- ☒ C Perform an eluate and identify the antibody coating the red cells
- ☐ D Discard the result as a laboratory error and issue units without further workup

ANSWER C

WHY An unexplained positive DAT warrants further investigation because of its implications for transfusion compatibility and possible underlying conditions. Performing an eluate and identifying the antibody is the appropriate next step to determine whether the antibody is clinically significant (e.g., directed against ABO, Rh, or other blood group antigens) before transfusion. Other choices either misdiagnose the patient or ignore a clinically relevant finding.

QUESTION 8

SINGLE CHOICE

Which of the following is the most appropriate indication for therapeutic plasma exchange (TPE)?

- ☐ A Mild iron-deficiency anemia
- ☒ B Thrombotic thrombocytopenic purpura (TTP)
- ☐ C Chronic lymphocytic leukemia without symptoms
- ☐ D Stable angina

ANSWER B

WHY Therapeutic plasma exchange is a first-line therapy for thrombotic thrombocytopenic purpura (TTP), in which removal of ADAMTS13 autoantibodies and replacement of ADAMTS13 via plasma is the goal. TPE is also used in conditions such as severe myasthenia gravis, Guillain-Barré syndrome, and certain antibody-mediated diseases, but TTP is the most strongly indicated and is included in ASFA Category I indications.

QUESTION 9

MULTIPLE CHOICE

Which of the following clinical features are characteristic of a transfusion-related acute lung injury (TRALI) reaction? (Choose two.)

- ☒ A Acute onset of respiratory distress within 6 hours of transfusion
- ☐ B Hypoxemia with SpO2 less than 90% on room air
- ☐ C Bradycardia with prolonged PR interval
- ☒ D Bilateral pulmonary infiltrates on chest imaging
- ☐ E Hypertension with widened pulse pressure

ANSWER A - D

WHY TRALI is characterized by the acute onset (within 6 hours) of hypoxemia and non-cardiogenic pulmonary edema, with bilateral infiltrates on chest imaging and no evidence of circulatory overload. Hypoxemia (e.g., SpO2 < 90%) and bilateral pulmonary infiltrates are hallmark findings. Bradycardia with prolonged PR is not characteristic, and TRALI typically presents without the hypertension seen in TACO.