The Royal College of Pathologists
Pathology: the science behind the cure

FRCPath Part 1 in Clinical Biochemistry
Sample MCQs

Question 1

A 35-year old woman presents with increasing shortness of breath. She is a smoker (20 pack-years) and has a past history of chronic obstructive pulmonary disease. She admits to drinking 5 units of alcohol/week. Chest x-ray shows increased lucency of both mid-zones.

She has the following liver profile:

Bilirubin	15 µmol/L	(0 – 17)
Albumin	37 g/L	(36 – 52)
Alanine aminotransferase	47 U/L	(0 – 45)
Alkaline phosphatase	108 U/L	(30 – 135)

Which investigation is most likely to suggest a diagnosis?

A Alpha-1 antitrypsin phenotype
B Caeruloplasmin
C Mitochondrial antibody
D Smooth muscle antibody
E Transferrin saturation

Question 2

Theoretically, osmolality can be measured using any of the colligative properties of a solution.

In clinical laboratories, which colligative property is most commonly used to ascertain the osmolality of serum and urine.

A Depression of freezing point
B Elevation of boiling point
C Lowering of vapour pressure
D Osmotic pressure
E Oncotic pressure

Question 3

A 25 year old prima gravida female experiences massive obstetric haemorrhage during birth. The bleeding is difficult to control and the massive blood loss / transfusion protocol is initiated.

What acid base abnormality would most likely be encountered as a result of the citrate in the transfused units?

A Metabolic acidosis
B Metabolic alkalosis
C Respiratory acidosis
D Respiratory alkalosis.
E Mixed metabolic acidosis and respiratory alkalosis

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Question 4

Which feature most reliably distinguishes monoclonal gammopathy of undetermined significance (MGUS) from multiple myeloma in an asymptomatic patient?

A Absence of Bence Jones protein in the urine
B Haemoglobin concentration >100 g/L
C Normal serum free light chain concentration
D Normal renal function
E Plasma cell infiltration of bone marrow of <10%