The exam is of three hour duration  
The exam consists of two parts.

Part A  
Ten compulsory short answer questions. Each question has a value of 5 marks

Part B  
7 essay questions; question 1 and 2 are compulsory; 3 other questions must be completed.  
A total of 5 questions must be completed.  
Each question has a value of 20 marks.

Part A  
Write brief notes on the following:

Question 1  Alkaline phosphatase total and its isoenzymes.

Question 2  Pseudohyponatraemia

Question 3  eGFR

Question 4  Acute phase reactants

Question 5  Metabolic acidosis and metabolic alkalosis

Question 6  Tests and samples required to investigate metabolic bone disease

Question 7  Anion and Osmolar Gap

Question 8  Ketone bodies

Question 9  Uncertainty of measurement

Question 10  HDL and LDL and the use of the Friedewald formula.
Part B

Note carefully:
5 questions must be completed in this section
Each question has a value of 20 marks.
Questions 1 and 2 are compulsory

Question 1  You have been asked to assist with the implementation of a more effective triage system in the Accident and Emergency Department especially in patients exhibiting potential cardiac pain. Discuss the tests and technology you might utilise.

Question 2  You have been asked to introduce a new method for creatinine. Discuss how you might go about method evaluation and determination of appropriate reference intervals for this assay.

Question 3  Discuss the criteria used in the diagnosis of diabetes mellitus and gestational diabetes mellitus. Critically discuss the tests used in the assessment of diabetic control and potential clinical complications of failed therapy.

Question 4  Discuss the key components of a laboratory quality system with particular reference to ISO 15189.

Question 5  Discuss the issues involved in implementing a quality control system for a newly acquired chemistry/immunochemistry analyser include issues such as run length, frequency of control, alternative systems of review and the actions you might take in the event of failed quality control and reported patients results.

Question 6  Describe the control and regulation of calcium levels. Include how this might be affected in disease states and tests that you might utilise to assess calcium homeostasis.

Question 7  Describe the laboratory methodology applicable to the diagnosis of a monoclonal gammopathy. Comment on the techniques and their performance.