Objective - Section A

1. ---------- is the study of chemistry of matter and the development of tools to measure properties of matter.
A. Inorganic chemistry
B. Quantum chemistry
C. Geochemistry
D. Analytical chemistry

2. ---------- are formed by coagulation of albuminous material in the kidney tubules. Their presence in urine always indicates some form of kidney disorder.
A. Ketone bodies
B. Bile pigment
C. Proteinuria
D. Casts

3. Determination of protein content in C.S.F. is helpful in the diagnosis of acute meningitis. ---------- is the major protein present in C.S.F.
A. Albumin
B. BSA
C. Globulin
D. Globin

4. Reaction (pH) of semen is normally ----------.
A. Alkaline
B. Acidic
C. Neutral
D. Highly acidic

5. Lipoproteins are involved in the transport of fat in blood stream. HDL is known as 'Good Cholesterol' since it carries cholesterol ----------.
A. From liver to extrahepatic tissue
B. From liver to kidneys
C. From peripheral tissues to liver
D. From peripheral tissues to heart

6. Urea is an end product of protein metabolism. It is synthesized in the ----------. Its increased level is found in renal diseases.
A. Small intestine
B. Large intestine
C. Liver
D. Muscles

7. One normal solution of H_2SO_4 contains ---------- gram of H_2SO_4 per liter of solution.
A. 4.9
B. 49
C. 9.8
D. 98

8. The following method is commonly used for the estimation of albumin in biochemistry labs:
A. Biuret method
B. ASOT assay
C. ABG analysis
D. BCG method

9. A medical lab technologist is estimating total protein of a control sample (with value 8.0 g/dL) in lab. He performed test 3 times and obtained following results: 6.0 g/dL, 6.0 g/dL, 6.2 g/dL. Comment on the quality of test:
A. Accurate and precise
B. Imprecise but accurate
C. Precise but inaccurate
D. Imprecise and inaccurate

10. ---------- in stool was detected by benzidine based tests and is not now used due to carcinogenicity of benzidine.
A. Lactose intolerance
B. Reducing substance
C. Crystal
D. Occult blood

Short Questions - Section B

Each question carries 2 marks. Attempt any 13 questions.

Q1. Enlist differences between mixture and compound.
Q2. Convert 37.5° Centigrade to Fahrenheit.
Q3. Why centrifuge is an essential equipment of every medical laboratory? Give 2 reasons.
Q4. Draw the atomic structure of Oxygen.
Q5. What are the units of weight, volume, energy, and length?
Q6. Differentiate between oxidation and reduction.
Q7. How you will prepare 1 Molar solution of NaCl?
Q8. Describe the significance of bilirubin in blood.
Q9. Write complete name of S.G.P.T. and S.G.O.T. enzymes of liver.
Q10. What is the normal range of cholesterol in blood?
Q11. Name any conditions in which blood uric acid level is increased from normal.
Q12. Differentiate between dehydration and oedema.
Q13. Enlist 4 reagents used in a chemical pathology lab.
Q14. Name fat-soluble vitamins.
Q15. Describe significance of the presence of creatinine urea in urine.
Q16. Briefly describe metabolism of iron in the blood.
Q17. What is the importance of thymol turbidity test?

Long Questions - Section C

Each question carries 7 marks. Attempt any 2 questions.

Q1. a. Derive and explain Henderson-Hasselbalch equation. (4)
b. What is titration? Briefly explain its procedure. (3)

Q2. a. Briefly describe the sources, classification, metabolism, and importance of proteins. (4)
b. How elements have been arranged in the periodic table? (3)

Q3. a. What is chemical pathology? Describe its scope and relationship with other branches of pathology. (4)
b. Mention the principle of operation of following apparatus: (3)
i) Calorimeter ii) Centrifuge iii) Flame photometer