



- c) The sequence of amino acids in a protein is known as its \_\_\_\_\_ structure.
- d) The two strands of DNA are held together by \_\_\_\_\_ bonds between complementary base pairs.
- e) The rotating component of a centrifuge that holds the samples is called the \_\_\_\_\_

2. Answer **any five** from the following questions: 2x5=10

- a) What are simple carbohydrates? Why are carbohydrates important in a diet? 1+1
- b) Why are amino acids considered the building blocks of proteins? What happens if you have an insufficient intake of amino acids? 1+1
- c) What are the key features of an electronic balance?
- d) How do you handle and clean a cuvette?



e) What is a standard solution? Why is NaOH commonly used as a standard solution in laboratories? 1+1

f) What are the common types of laboratory pipettes? In which situations is a micropipette preferred over a serological pipette? 1+1

g) What are lipids? What are the health implications of high lipid intake? 1+1

h) What are common sources of biomedical waste in healthcare settings?

i) What role does the regularity of packing in saturated fatty acids play in their higher melting point compared to unsaturated fatty acids?

j) What is the difference between a beaker and an Erlenmeyer flask?

3. Answer **any four** of the following:  $5 \times 4 = 20$

a) A solution of hydrochloric acid (HCl) is prepared by diluting 250 mL of a 6 M HCl solution to a final volume of 1 L. Calculate the molarity and normality of the diluted solution.

b) Explain the classification of monosaccharides based on the number of carbon atoms and the functional group they contain. Provide examples for each category.  $3+2$

c) Explain the difference between a normal solution and a molar solution. Provide a calculation example to illustrate the distinction between the two types of solutions.  $3+2$

d) Explain the importance of balancing a centrifuge and the potential risks associated with unbalanced samples. How can balance issues be resolved or prevented?  $3+2$



- e) Mention the general properties of amino acids.
- f) Highlight the key structural and functional differences between DNA and RNA.
- g) Describe the classification of biomedical waste as per the biomedical waste management rules
- h) Define carbohydrates. What are epimers explain with examples. Mention the biological importance of disaccharides.

1+2+2

Answer **any one** of the following questions:

10x1=10

- a) Describe the double helix structure of DNA in detail, highlighting the role of major and minor grooves. How does this structure contribute to the stability and function of DNA?

6+2+2