Answer 4 Questions Only.

1. The organic compounds that build up the living body are known as biological molecules.

Fat

A ……………………………… B ………………………………

Oil

Biological molecules

←Base

C ……………………………… D ………………………………

[C, H, O, N sometime S]

Sugar→ P

Phosphate
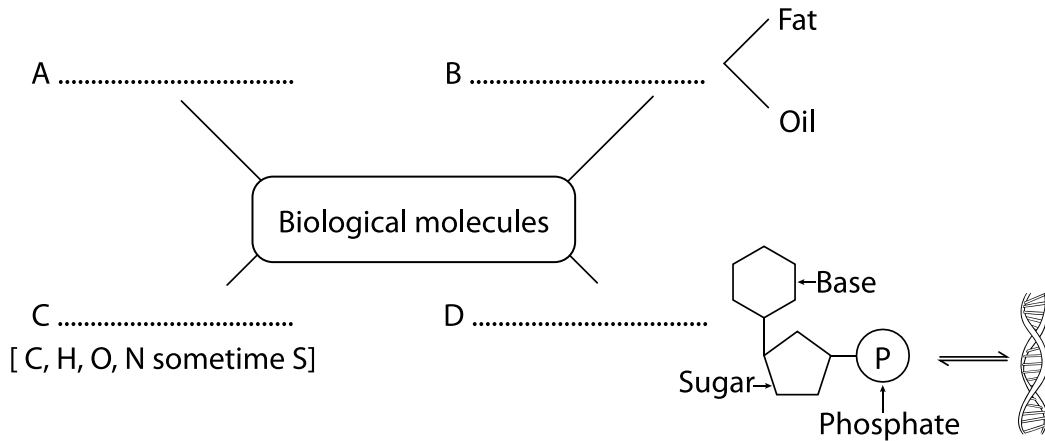
   i. Name the 4 types of biological molecules given in the diagram.
      A : ………………………
      B : ………………………
      C : ………………………
      D : ………………………
   ii. Name 1 similarity and one dissimilarly between A and B.
   iii. State the difference between fat and oil.
   iv. State two importance of proteins.
   v. What is the biomolecule, that transport hereditary characters from generation to generation?

2. A Fruit in a tree that detaches from the stalk takes $4s$ to fall to the ground.
   i. Prepare a velocity – time data table.
   ii. Sketch a velocity – time graph to describe the motion.
   iii. What is the height that it fell from? ($g = 10 \, ms^{-2}$)
   iv. What is its velocity when it reaches the ground?

3. A group of students in grade 10 have done the following activity to observe the action of amylase on starch.

Starch solution (2ml) → Mixture of, Starch + Amylase (mix well) ← Amylase enzyme (2ml)
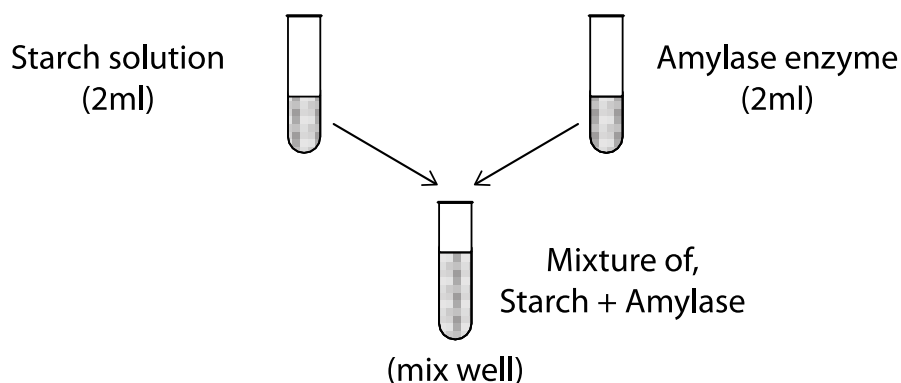
- Get a drop from the solution and place it on a white tile and add a drop of iodine.
- Repeat the above procedure after 5 minutes and 20 minutes.

Drop of solution on a white tile	Step	Colour Change
	After 1 minute add a drop of Iodine	(a) ……………………………..
	After 5 minutes add a drop of Iodine	(b) ……………………………..
	After 20 minutes add a drop of Iodine	(c) ……………………………..

    i. What is the colour change in (a), (b) and (c)?
    ii. Write the reason for the above observation.
    iii. Mention the organic compound that enzymes are made up of.
    iv. How do you prepare the,
        a. Iodine Solution
        b. Amylase Enzyme.
          For the above practical?

4. The information given below is not represented with standard symbols. Use the information given in the table to answer the questions.

Element	P	Q	R	S	T
Atomic Number	3	8	11	15	18

    i. Write the electronic configurations of R, S and T.
    ii. Write the letters for the elements that belong to the same group.
    iii. Which one is the inactive gas?
    iv. Write the valency of Q and S.
    v. Write the simple formula for the compound which made by Q and S.

5. An object has an initial velocity of $10ms^{-1}$. Then it accelerates uniformly to $25\ ms^{-1}$ in $5s$. It moves at this velocity for another $5s$. Finally, it has a uniform deceleration in $15s$ before coming to rest.
    i.   Sketch a velocity – time graph for this motion.
    ii. Calculate the acceleration in the first $5s$.
    iii. Calculate the deceleration in the last $15s$.
    iv. Calculate the total distance moved.
    v.   What is the average speed for this journey?

6. The atomic numbers of seven elements are A, B, C, D, E, F and H of 2nd and 3rd period are Z, Z+1, Z+2, Z+3, Z+4, Z+5, Z+6, Z+7. B has the highest electronegativity out of first 20 elements of the periodic table.
    i.   Write the atomic numbers of following elements.
        a. A
        b. B
        c. G
    ii. Write the period and group of element B.
    iii. Name an element belongs to group VIII
    iv. Out of above elements name a metal, nonmetal and metalloid.
    v.   Write the formula of compound formed by reacting elements D and A