DNA 4

Question one:

A. Choose the correct answer:

1. change in the arrangements of nitrogenous bases is considered . …..mutation.
   (somatic – gene – chromosomal – gamete)
2. number of nucleotide on one strand in each turn of DNA is …..
   (5 – 10 – 10 pairs - 30)
3. scientist who was able to know the structure of genetic material that cause bacterial transformation is …….
   (Griffith – Avery – Hershey and chase - Franklin)
4. on measuring % of nitrogenous bases in certain nucleic acid was as follows: T:=26%, A=20%, G=23%, C=31% this nucleic acid is……
   (double stranded DNA – single stranded DNA – mRNA – all)

B. **Give reasons for:**

1. diameter of double helix is constant along its length.
2. virus containing RNA genome show higher mutation.
3. somatic cell of salamander contain fewer proteins than somatic cells of human although it has more DNA.
4. non histone proteins have important role inside the nucleus.

C. How the bacteriophage prove that DNA is the genetic materials? Explain with drawing only steps of attacking bacteriophage to bacteria.

Question two:

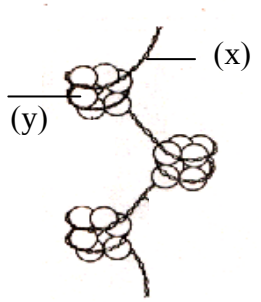
A. **What would happen in the following cases:**

1. Absence of DNA ligase from somatic cells of a child.
2. Damage of pair of nucleotides on both strands at the same time.
3. Absence of releasing factor during protein synthesis.

B. Define mutation – then compare between somatic and gamete mutation.

C. **study the following diagram then answer the following:**

1. What is the kind of genetic material x?
2. What is the kind of proteins found inside part y?
3. How the part x bind to part y?
4. What happen if part y disappear from structure of nucleosomes?



Question three:

A. **if the sequence of nucleotides in DNA is as follows:**

3^{-} …. A-A-G-T-T-T-CC-G-A-A-…. 5^{-}

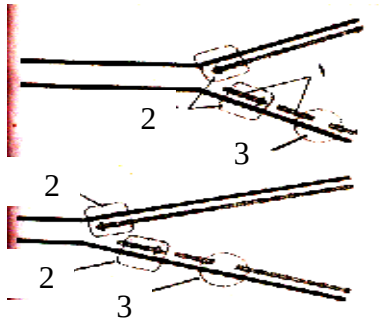
1) Write the complementary sequences in DNA strands.

2) if the nitrogenous bases T is replaced by A in the previous strand so What is the kind of this mutation?

3) What are the factors of the previous mutation?

B. **study the following diagram then answer the following:**

1. labelled the numbered structure (1-2-3)
2. what is the process that represent the following diagram?
3. what are the names of the enzymes 2 and 3?
4. what is the role of 2 and 2 in these process?



C. **Write a brief account about:**

a. Franklin research

b. spontaneous mutation