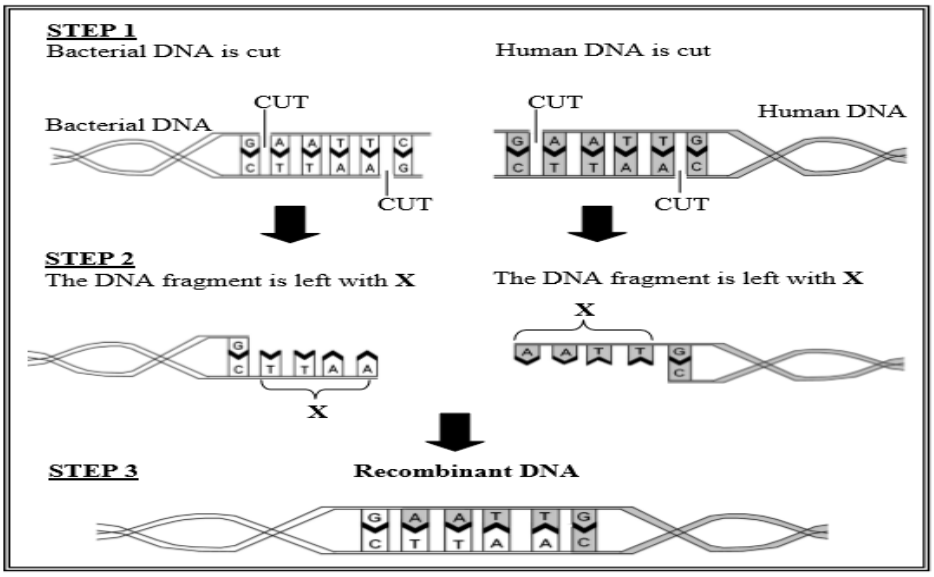
RISHIKUL SANATAN COLLEGE
Y13 BIOLOGY - 2021
TERM 1: COVID 19 EXTENDED HOLIDAY TASKSHEET 5

Day: 1

1. The diagram below shows some of the steps involved in Recombinant DNA Technology.



(i) What is another name for Recombinant DNA Technology?

(ii) Explain how the cutting of DNA is carried out in STEP 1 and state the name given to **X** in step 2.

(iii) Outline the next two steps of obtaining the desired product.

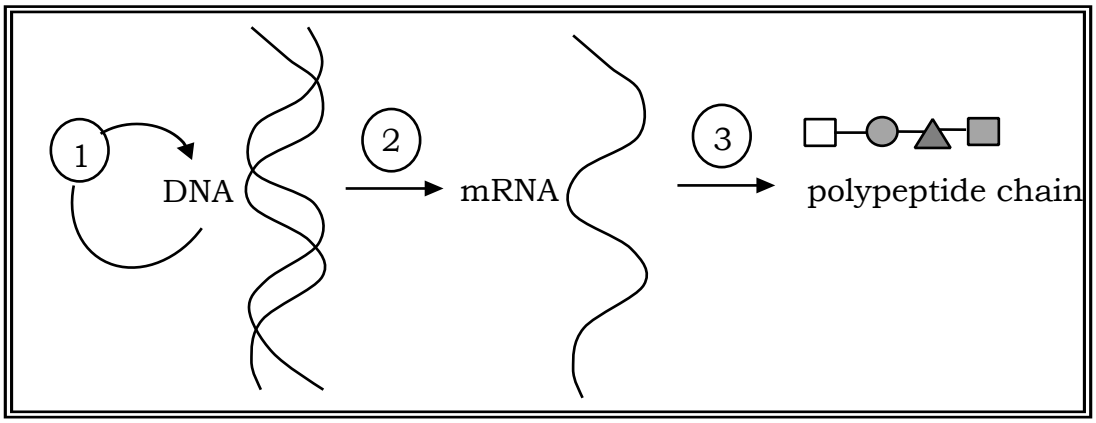
2. Genetic engineers use recombinant DNA technology to produce materials needed for research and advancement.

(i) Explain **one** such application of this type of technology in agriculture or medicine.

(ii) State **one** possible risk involved in this process. .

Day: 2

The diagram below shows the process of protein synthesis.
It was the accepted Central Dogma for a long time.



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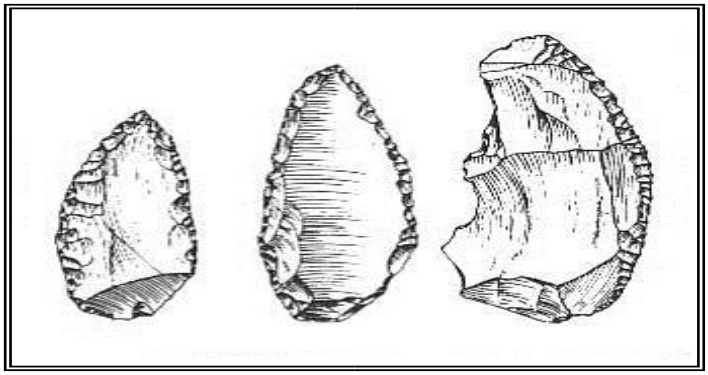
Briefly explain how retroviruses such as HIV changed this scientifically accepted theory.

Day: 3

1. Define the term organic evolution.

2. Discuss **four** important aspects of Oparin's Theory of Heterotroph Hypothesis.

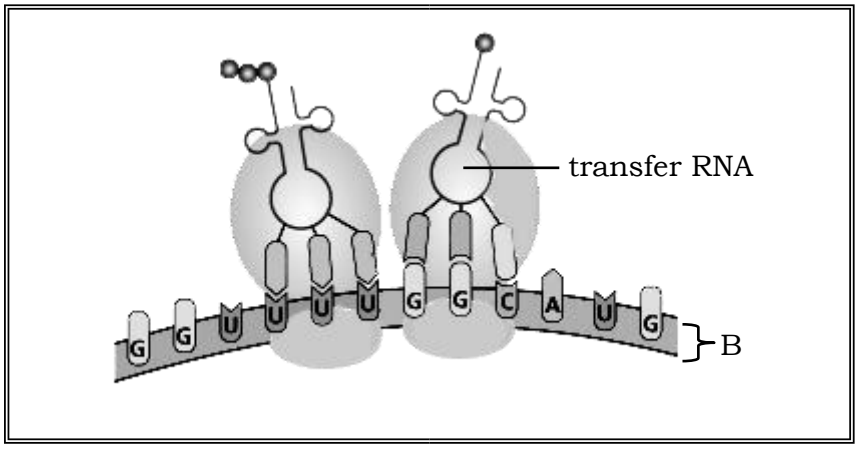
3. The diagram below shows stone tools known as points and scrappers.



This tool type was associated with *H. sapiens neanderthalensis* and are collectively known as _____ tools.

Day: 4

The diagram provided below shows a step in the process of protein synthesis occurring at the ribosomes. Use the diagram to answer the questions that follow.



Source*: http://docplayer.net*

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(i) State the name of Structure B.

(ii) Write the matching anticodons for all the codons shown in Structure B in the diagram.

(iii) Identify the type of information given by the codons on Structure B.

Day: 5

A science researcher collected the following crossover gene frequencies while studying the fruit fly, *Drosophila*. Bar-shaped eyes are indicated by the allele B, and carnation eyes are indicated by the allele C. Fused veins on wings (FV) and scalloped wings (S) are also located on the same chromosome.

Gene Combinations	Recombination Frequency (%)
FV-B	2.5
FV-C	3.0
B-C	5.5
B-S	5.5
FV-S	8.0
C-S	11.0

Construct a clearly labelled chromosome map showing relative distances of these genes.