



- This is a comparison of the differences between DNA versus RNA, including a quick summary and a detailed table of the differences.
 - **DNA contains the sugar deoxyribose, while RNA contains the sugar ribose.** The only difference between ribose and deoxyribose is that ribose has one more -OH group than deoxyribose, which has -H attached to the second (2') carbon in the ring.
 - **DNA is a double-stranded molecule, while RNA is a single-stranded molecule.**
 - **DNA is stable under alkaline conditions, while RNA is not stable.**
 - DNA and RNA perform different functions in humans. **DNA is responsible for storing and transferring genetic information, while RNA directly codes for amino acids and acts as a messenger between DNA and ribosomes to make proteins.**
 - DNA and RNA base pairing is slightly different since DNA uses the bases adenine, thymine, cytosine, and guanine; RNA uses adenine, uracil, cytosine, and guanine

Refer: <https://www.insightsonindia.com/2020/07/01/pcr-testing-is-a-double-edged-sword/>

3. With reference to the recent developments in science, which one of the following statements is not correct?
- (a) Functional chromosomes can be created by joining segments of DNA taken from cells of different species.
 - (b) Pieces of artificial functional DNA can be created in laboratories.
 - (c) A piece of DNA taken out from an animal cell can be made to replicate outside a living cell in a laboratory.
 - (d) Cells taken out from plants and animals can be made to undergo cell division in laboratory petri dishes.

Ans: (a)

Explanation: **here the directive word is incorrect!!**

- **Option (a) is incorrect since it is difficult to envisage how this can be achieved because it is one thing to create an artificial chromosome and quite another to make it functional.**
- Option (b) is Artificial Gene Synthesis whereas Option D is Plant and Animal Tissue Culture Technology. Option C is Cloning.
- Artificial gene synthesis, sometimes known as DNA printing is a method in synthetic biology that is used to create artificial genes in the laboratory. The method has been used to generate functional bacterial or yeast chromosomes containing approximately one million base pairs.