



Q1/ Choose the correct answer of the following (Multiple Choice Questions):

20 MARKS

1. An enzyme that is an ATP-dependent enzyme is called:
 - a) *DNA Polymerase* Enzyme.
 - b) *DNA Ligase* Enzyme.
 - c) *Reverse Transcriptase* Enzyme.
 - d) *Restriction* Enzyme.
2. Which of the following is a primary participant in cloning an isolated gene?
 - a) Restriction Endonuclease.
 - b) Vector.
 - c) Host Organism.
 - d) All of these.
3. What enzymatic activity does the polymerase require for use in TaqMan probe based on Real Time PCR assay?
 - a) *Endonuclease* Activity.
 - b) *Type II Restriction* Activity.
 - c) *Exonuclease* Activity.
 - d) *Methylase* Activity.
4. The analysis and determining molecular weight of macromolecules is one purpose of:
 - a) *RT-PCR*.
 - b) *DNA Ligase* Analysis.
 - c) *RFLP-PCR*.
 - d) *Gel Electrophoresis* Analysis.
5. Which of the following statements describing the Gold biotechnology is NOT False?
 - a) Utilizing microorganisms and toxins to cause diseases in humans.
 - b) Making the rapid organization and analysis of biological data possible.
 - c) Making wine, cheese, and beer by fermentation.
 - d) Production of vaccines and antibiotics and development of diagnostic tests.

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Q2/ Give the reasons of the followings:

- A. *Saccharomyces cerevisiae* is added before making bread dough.
- B. *Reverse transcriptase* (RT) is a multifunctional enzyme.
- C. In Agarose gel Electrophoresis, 6X loading buffer is used.

Q3/ Enumerate TWO of the followings:

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- A) Detection in real time PCR Products.
- B) DNA Manipulative Enzymes.
- C) Applied Research of PCR technique
- D) Gel Electrophoreses Types.

Q4/ Answer the followings:

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- A. Explain different types of DNA Cleavage Styles, with giving examples?
- B. What is the principle of RT-PCR?
- C. Explain the essential of DNA photocopy reaction components?