

Sardar Patel University
B.Sc. Biotechnology Fourth Semester
Saturday, 7th April 2018
10:00 a.m. to 1:00 p.m.
US04CBIT01 (Fundamentals of Biotechnology-II)

Total Marks: 70

Note: Figures to the right indicates marks.

[10]

Q.I Multiple Choice Questions

- 1) Gene product that decrease in concentration in response to a molecular signal are referred to as _____
 a) Inducible
 b) Repressible
 c) Supressible
 d) Irrepressible
- 2) In *E. coli* trp operon, five genes for the enzymes are required to convert _____ to tryptophan.
 a) Chlorismate
 b) Phosphoribosyl Anthralinate
 c) Indole
 d) Anthralinate
- 3) _____ results in the synthesis of RNA using a DNA template.
 a) Replication
 b) Transcription
 c) Translation
 d) Reverse Transcription
- 4) _____ prevents premature binding of tRNA to A site.
 a) IF 1
 b) IF 3
 c) EF-TU
 d) EF-G
- 5) In prokaryotes Shine & Dalgarno sequence is
 a) a ribosome binding site
 b) located upstream of the start codon
 c) help in aligning the ribosome with the start codon
 d) All of these
- 6) Following are the stop codon except
 a) UAA
 b) UAG
 c) UGA
 d) UGG
- 7) Which type of restriction endonuclease requires Mg^{+2} ions for cleavage?
 a) Type I
 b) Type III
 c) Type II
 d) All of these
- 8) _____ are often called as molecular scissors.
 a) Restriction endonuclease
 b) Helicase
 c) Ligase
 d) Polymerase
- 9) Which of the following is not an antigen presenting cells?
 a) B cells
 b) Dendritic cells
 c) T cells
 d) Macrophage
- 10) Which type of bonds involved in Ag-Ab interaction?
 a) Ionic
 b) Hydrogen
 c) Hydrophobic
 d) All of these

P.T.O

- Q.II Answer the following questions in short. (Attempt any 10) [20]**
- Write in brief about the concept of gene.
 - Define the terms: Promoters & Exons
 - What is stable ternary complex?
 - Mention about prokaryotic ribosomes.
 - Write the function of release factors in prokaryotic translation.
 - Give the significance of translation.
 - Define restriction enzymes. Write its application.
 - Write about the unit definition of restriction enzyme.
 - What are adaptors & linkers?
 - List out the properties of APC.
 - Differentiate between B & T lymphocytes.
 - Write about antibody affinity.
- Q.III a) Explain in detail operon concept with an example of lac operon [06]**
b) Write short note on RNA polymerase. [04]
- OR**
- Q.III Give an account on rho dependent & rho independent mechanism of termination in prokaryotic transcription. [10]**
- Q.IV a) Explain with the help of diagram the process of initiation in prokaryotic translation. [06]**
b) Discuss in detail activation of amino acids. [04]
- OR**
- Q.IV Describe the process of elongation in prokaryotic translation. [10]**
- Q.V a) Define cohesive & blunt end cutters restriction enzymes with suitable examples. [06]**
b) Give the principle of nomenclature of restriction enzyme with examples. [04]
- OR**
- Q.V a) Describe restriction modification system with an experiment. [06]**
b) Write about the types of restriction endonuclease. [04]
- Q.VI a) Explain in detail precipitation reactions in fluid. [05]**
b) Discuss in detail mechanism of natural killer cells. [05]
- OR**
- Q.VI a) Explain the structure & function of thymus as a primary organ. [05]**
b) Give an account on Mancini method & give its application. [05]