



**VIRTUAL UNIVERSITY OF PAKISTAN**  
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## Entry Test Sample for Ph.D in Biotechnology Program

**Note: There will be 100 subject based MCQS. Time duration will be 120 minutes.**

1. Addition of detergents to microbes, cause the:
  - a) damage to lipoproteins of cell membrane
  - b) damage to nucleic acid
  - c) damage to glycoprotein of cell membrane
  - d) all of these
2. Affinity chromatography is mostly used for the separation of:
  - a) Non-biological molecules
  - b) Synthetic molecules
  - c) Biological molecules
  - d) Both a & c
3. Which of the following is an antibody secreting cell?
  - a) T cell
  - b) Macrophages
  - c) Plasma cell
  - d) NK cell
4. Bacteria can remain in \_\_\_\_\_ phase using chemostat.
  - a) Lag
  - b) Log
  - c) Stationary
  - d) Death
5. The Shine-Dalgarno sequence is:
  - a) another name for a stop codon
  - b) the reading frame of a gene
  - c) a short sequence that acts as a ribosomal binding site
  - d) All of the above
6. Which of the DNA repair mechanisms can be template-independent and require polymerase activity?
  - a) Post-replication repair
  - b) Mismatch repair
  - c) Light-dependent repair
  - d) Base-excision repair
7. Which of the following represent function of chaperons?
  - a) help to configure ribosome and mRNA to start translation
  - b) bring proteins and the ribosomes that are translating them from the cytosol to the rough ER
  - c) target proteins emerging from the Golgi apparatus to rough ER
  - d) assist in protein folding

8. The enzyme directly responsible for almost all carbon fixations on Earth is:

- a) Rubisco                      b) PEP carboxylase                      c) ATP synthase                      d) Phosphofructokinase

9. Widely used restriction enzymes in recombinant DNA technology are:

- a) Type I restriction enzymes                      b) Type I and II restriction enzymes  
c) Type II restriction enzymes                      d) Type I, II and III restriction enzymes

10. Phosphorylation commonly occurs on:

- a) Ser, Thr                      b) Ser, Tyr                      c) Ser, Thr, lys                      d) Ser, Thr, Tyr