1. Recombinant DNA is introduced into host cells after making them:
   A. Resistant B. Competent
   C. Anaerobic D. Mutated (B)

*Explanation :* Host cells are made competent so that they can take up DNA present in their surroundings.

2. Ampicillin resistance gene acts as a:
   A. Restriction enzyme
   B. Selectable marker
   C. Vector
   D. Foreign gene (B)

*Explanation :* The ampicillin resistance gene helps in selecting transformed cells, so it acts as a selectable marker.

3. The ultimate goal of recombinant DNA technology is to produce:
   A. DNA fragments B. Desired protein
   C. Antibiotics only D. Host cells (B)

*Explanation :* Recombinant technology aims to produce the desired protein by expressing the foreign gene under suitable conditions.

4. A protein produced by expressing a foreign gene in a heterologous host is called:
   A. Native protein
   B. Recombinant protein
   C. Enzyme inhibitor
   D. Structural protein (B)

*Explanation :* Expression of a protein-encoding gene in a heterologous host produces a recombinant protein.

5. Continuous culture system helps cells remain in:
   A. Lag phase
   B. Death phase
   C. Log (exponential) phase
   D. Stationary phase (C)

*Explanation :* In continuous culture, fresh medium keeps cells in their most active log (exponential) phase.

6. Bioreactors are used for:
   A. Destroying microorganisms
   B. Large-scale production of desired products
   C. DNA digestion only
   D. Separating DNA fragments (B)

*Explanation :* Bioreactors provide optimal conditions for large-scale production of products like enzymes and recombinant proteins.

7. Which type of bioreactor is most commonly used?
   A. Simple tube reactor
   B. Stirred tank bioreactor
   C. Glass slide reactor
   D. Dry chamber reactor (B)

*Explanation :* Stirred tank bioreactors are commonly used because they provide proper mixing and oxygen availability.

8. The bubbles in a sparged stirred tank bioreactor help in:
   A. DNA replication
   B. Increasing oxygen transfer area
   C. Removing proteins
   D. Stopping cell growth (B)

*Explanation :* Sterile air bubbles increase the surface area for oxygen transfer in the bioreactor.

9. Separation and purification of products together are called:
   A. Fermentation B. Transformation
   C. Downstream processing D. Cloning (C)

*Explanation :* Separation and purification steps after production are collectively called downstream processing.

10. Which of the following is NOT a component of downstream processing?
    A. Preservation B. Separation
    C. Purification D. Expression (D)

*Explanation :* Downstream processing includes separation, purification, formulation, and preservation; expression is part of gene product formation.