

- (ix) Choose the correct statement about enzyme_____
- a) An Enzyme is a protein and is used as a catalyst to accelerate the reaction. b) Life would not exist without the presence of enzymes.
- c) Enzymes participate in cellular metabolic processes. d) All of these
- (x) Connect Lock and key hypothesis mechanism with
- a) Digestion of fat in the body. b) For enzyme specificity
- c) For the formation of vacuole d) Explosives
- (xi) Relate from the following, medium used for culturing should not _____
- a) Be sterilized b) Be cheap and readily available
- c) Contain desired products d) Allow high yield of undesired products
- (xii) Select the impeller diameter in CSTR_____
- a) is usually 1/2 of the vessel diameter. b) usually 1/3 of the vessel diameter.
- c) is usually 1/3 of the vessel diameter. d) equal to the vessel diameter
- (xiii) Which sparger are considered as single open or partially-closed pipe that provide air bubble stream?
- a) Perforated sparger b) Orifice sparger
- c) Nozzle sparger d) Porous sparger
- (xiv) Justify the function of draft tube
- a) Decrease the pressure b) Increase the velocity
- c) Maximize kinetic energy d) Minimize kinetic energy
- (xv) Write the full form of PBR _____
- a) Photobioreactor b) Photobioreaction
- c) Physicalbioreactor d) Packedbioreactor

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Explain the enrichment culture technique. (3)
3. Explain the terms chemostat and turbidostat (3)
4. What is enzyme immobilization and its purpose (3)
5. Explain the basic principles of bioprocess technology (3)
- OR**
- Compare between submerged and solid-state fermentation. (3)
6. How do you experiment to isolate antibiotic producing microorganisms? (3)
- OR**
- How do you produce recombinant products? (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Consider the classical Medium Optimization for explaining the methods (5)
8. Illustrate the effect of Specific Variables for Oxygen Mass Transfer in Shake Flasks (5)
9. Prioritize the consequence of Specific Variables for Oxygen Mass Transfer in Bubble Column Bioreactors (5)
10. Explain the Primary screening methods and its application (5)
11. Define the Effects of Physicochemical Properties of the Medium in Oxygen Mass Transfer (5)
- OR**
- Define single cell protein and draw a flow diagram for the production of single cell protein from carbohydrate (5)
12. Describe the steps involved in oxygen transfer from air to cell during fermentation? (5)
- OR**
- Fermentation process are commercially more popular compare to chemical process. (5)
- Enlist the advantages and disadvantages of each process in this context.
