

Telangana University
Department of Biotechnology
Question Bank – Internal Assessment - I

Semester-II Paper-II INDUSTRIAL BIOTECHNOLOGY

1. Which of the following is a principle of microbial growth in industrial fermentation?

- A) Autolysis
- B) Cell lysis
- C) Exponential growth phase**
- D) Sporulation

2. Which method is commonly used to increase the yield of microbial biomass?

- A) Using minimal media
- B) Reducing oxygen supply
- C) Optimizing pH and temperature**
- D) Decreasing nutrient concentration

3. Which of the following is NOT commonly used in industrial cultures?

- A) Viruses**
- B) Bacteria
- C) Fungi
- D) Algae

4. Cyanobacteria used in industrial applications belong to which group?

- A) Bacteria
- B) Fungi
- C) Actinomycetes
- D) Algae**

5. Which microorganism is known for antibiotic production?

- A) Escherichia coli
- B) Saccharomyces cerevisiae
- C) Streptomyces spp.**
- D) Chlorella spp.

6. The purpose of primary screening is to:

- A) Improve yield
- B) Select mutants
- C) Detect desired metabolic activity**
- D) Preserve culture

7. Secondary screening is done to:

- A) Detect general growth
- B) Evaluate production potential**
- C) Identify morphology
- D) Isolate pure culture

8. Which of the following is used to preserve industrially important microorganisms?

- A) Autoclaving
- B) Freezing
- C) Lyophilization**
- D) UV treatment

9. Which technique is commonly used to maintain microbial strains for long-term use?

- A) Incubation at 37°C
- B) Sub-culturing every week
- C) Cryopreservation**
- D) Autoclaving

10. Strain improvement using mutagens is an example of:

- A) Natural selection
- B) Artificial selection
- C) Mutation breeding**
- D) Genetic engineering

11. Which technique allows combining DNA from different organisms?

- A) UV mutagenesis
- B) Selection pressure
- C) Recombinant DNA technology**
- D) Fermentation

12. Which of the following is an example of a primary metabolite?

- A) Ethanol**
- B) Penicillin
- C) Streptomycin
- D) Erythromycin

13. Which of the following techniques is commonly used in secondary screening?

- a) Molecular docking simulations
- b) Large-scale compound library screening
- c) In vitro and in vivo validation studies**
- d) Epidemiological studies

14. What type of screening is used to assess toxicity and drug-likeness properties?

- a) Primary screening
- b) Secondary screening**

- c) Clinical trials
- d) Epidemiological studies

15. Which of the following is Ideal Characteristics of Strain _____

- a) Rapid growth
- b) Genetic stability
- c) Non-toxicity to humans
- d) All of these

16. Which of the following methods is commonly used for isolating industrial microorganisms from soil samples?

- a) Streak plate method
- b) Replica plating
- c) Pour plate method
- d) Slide culture technique

17. Which of the following is NOT a method used for the preservation of microbial strains?

- a) Lyophilization
- b) Cryopreservation
- c) Subculturing
- d) Autoclaving

18. What is the main advantage of lyophilization for preserving microorganisms?

- a) It sterilizes the culture
- b) It allows long-term storage with minimal viability loss
- c) It enhances mutation rate
- d) It eliminates contamination

19. Which of the following is used to prevent contamination during maintenance of pure cultures?

- a) Open flame
- b) UV radiation
- c) Aseptic techniques
- d) Boiling

20. Which of the following bacteria is widely used for the production of acetic acid?

- a) Lactobacillus acidophilus
- b) Acetobacter aceti
- c) Escherichia coli
- d) Bacillus subtilis

21. Spirulina is industrially used as a source of:

- a) Ethanol
- b) Protein and pigments

- c) Antibiotics
- d) Plastic

22. The most important genus of actinomycetes used in antibiotic production is:

- a) Streptococcus
- b) Staphylococcus
- c) Streptomyces
- d) Mycobacterium

23. Streptomyces griseus is known for producing:

- a) Penicillin
- b) Griseofulvin
- c) Streptomycin
- d) Cephalosporin

24. Which fungus is used in the production of citric acid?

- a) Aspergillus niger
- b) Saccharomyces cerevisiae
- c) Candida albicans
- d) Rhizopus stolonifer

25. Penicillium chrysogenum is used for the production of:

- a) Tetracycline
- b) Streptomycin
- c) Penicillin
- d) Insulin

26. Saccharomyces cerevisiae is commonly used in:

- a) Vinegar production
- b) Antibiotic production
- c) Alcoholic fermentation
- d) Enzyme digestion

27. Which of the following is a commonly used fermenter for aerobic microbial processes?

- a) Air-lift fermenter
- b) Packed bed reactor
- c) Anaerobic sludge digester
- d) Rotary drum fermenter

28. A stirred-tank bioreactor is best suited for:

- a) Solid-state fermentation
- b) Surface fermentation
- c) Submerged liquid fermentation
- d) Photosynthetic fermentation

29. Which type of bioreactor uses no mechanical agitation but relies on gas flow?

- a) Stirred tank reactor
- b) Air-lift bioreactor
- c) Bubble column bioreactor
- d) Both B and C

30. Which bioreactor is commonly used for immobilized cell systems?

- a) Stirred tank
- b) Packed bed
- c) Air-lift
- d) Bubble column

31. Which fermentation process allows for continuous removal of product and addition of nutrients?

- a) Batch
- b) Fed-batch
- c) Continuous
- d) Solid-state

32. The function of baffles in a fermenter is to:

- a) Introduce nutrients
- b) Enhance oxygen transfer by reducing vortex formation
- c) Control pH
- d) Measure temperature

33. Which of the following is a primary criterion for selecting an industrial microorganism?

- a) Ability to grow slowly
- b) Production of desired product in high yield
- c) Sensitivity to contamination
- d) Dependency on complex nutrients

34. Which characteristic is least important when selecting a microorganism for industrial fermentation?

- a) High yield of product
- b) Genetic stability
- c) High nutritional requirements
- d) Fast growth rate

35. What is the significance of strain improvement in industrial microbiology?

- a) To make organisms pathogenic
- b) To reduce their growth rate
- c) To increase product yield and resistance
- d) To decrease product purity

36. Which of the following is widely used for industrial enzyme production?

- a) *Streptococcus pyogenes*
- b) *Aspergillus oryzae*
- c) *Escherichia coli* O157:H7
- d) *Plasmodium falciparum*

37. Which of the following is a typical carbon source in fermentation media?

- a) Ammonium sulfate
- b) Glucose
- c) Peptone
- d) Magnesium sulfate

38. Antifoaming agents are added to fermentation media to:

- a) Increase biomass
- b) Prevent contamination
- c) Reduce foam formation
- d) Lower viscosity

39. In large-scale industrial fermentation, the most important factor in media design is usually:

- a) Color of the medium
- b) Cost-effectiveness
- c) Aroma
- d) Presence of vitamins

40. Which component helps in maintaining pH during fermentation?

- a) Buffering agents
- b) Glucose
- c) Vitamins
- d) Trace metals