



**FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA**  
**SCHOOL OF LIFE SCIENCES**  
**DEPARTMENT OF MICROBIOLOGY**  
**2019/2020 ACADEMIC SESSION**  
**SECOND SEMESTER FINAL EXAMINATION**

**MCB321: General Microbiology II**

**LEVEL: 300**

**CREDIT UNIT: 3**

**LECTURERS: 1. Prof. Safiya Y. Daniyan**

**DATE: 10<sup>TH</sup> July, 2021**

**Time Allowed: 2 Hrs**

**INSTRUCTIONS: Answer ALL questions in SECTION A (in the answer sheet provided) and ANY ONE QUESTION EACH from SECTION B and C**

**SECTION A**

1. \_\_\_\_\_ is the metabolic process by which organic molecules are converted into acids, gases or alcohol in the absence of oxygen or any electron transport chain.
2. *Salmonella spp.* is an example of a \_\_\_\_\_ foodborne pathogen.
3. Two sampling plans for assessing the microbiological quality and safety of foods are sampling by \_\_\_\_\_ and by \_\_\_\_\_.
4. The three most common types of fermentation are \_\_\_\_\_ fermentation, \_\_\_\_\_ fermentation and \_\_\_\_\_ fermentation.
5. \_\_\_\_\_ are food products produced from milk.
6. The two main stages of fermentation are \_\_\_\_\_ fermentation and \_\_\_\_\_ fermentation
7. \_\_\_\_\_ is any type of close or long-term biological interaction between two different biological organisms
8. The three main types of water treatment are \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.
9. Two ways of preserving milk include \_\_\_\_\_ and \_\_\_\_\_
10. Functionally-defined cells that are able to initiate adaptive immune responses by presenting antigen to T cells are known as \_\_\_\_\_

11. \_\_\_\_\_ is a process of growing a biological entity in an artificial medium.
12. Four infectious microorganisms which may be found in water are bacteria, Algae, \_\_\_\_\_ and \_\_\_\_\_
13. \_\_\_\_\_ is a mixture of organic matter, minerals, gases, liquids, and organisms that together support life.
14. The two types of elective culture methods are \_\_\_\_\_ and \_\_\_\_\_
15. The \_\_\_\_\_ is the foremost physical initial barrier to infections.
16. \_\_\_\_\_ is a biological interaction where one organism attacks, kill or engulfs other organisms (prey).
17. \_\_\_\_\_ can utilise harmless elements from particular pathogens to prime the immune system, so that if the pathogen is actually encountered, it is met with a stronger secondary ('memory') response and dealt with more quickly.
18. The immune system consists of two branches which are the \_\_\_\_\_ and the \_\_\_\_\_
19. Water purification stages include the following except:
- (a) Sedimentation tank
  - (b) Coagulation basin
  - (c) Putrification
  - (d) Filtration
20. Inorganic indicators of water quality include:
- (a) Crudeness
  - (b) Total dissolved solids
  - (c) Electrification
  - (d) All of the above
21. Key to the adaptive immune response is the
- (a) Heart
  - (b) Cytomyte
  - (c) Lymphocyte
  - (d) Lymph node
22. Which of the following do not affect microbial behaviour in foods
- (a) Temperature

- (b) pH
- (c) Water Activity
- (d) None of the above

23. The spleen essentially serves as a \_\_\_\_\_ for the blood.

- (a) Lymph node
- (b) Vessle
- (c) Reservoir
- (d) Catalyst

24. *E. coli* is an example of a

- (a) Bacteria
- (b) Fungi
- (c) Infection
- (d) Virus

25. Industrial fermentation types include:

- (a) Continuous
- (b) Fed-Batch
- (c) only (a)
- (d) Both (a) and (b)

26. Which of the following is not a type of vinegar?

- (a) Herbal
- (b) Ceratoid
- (c) Balsamic
- (d) Cider

27. Which of the following is not found in milk?

- (a) Fats
- (b) Vitamins
- (c) Minerals
- (d) None of the above

28. Which of the following is a technique for detecting form, pattern and arrangement of microbes in the soil?

- (a) Light microscopy
- (b) Atomic microscopy
- (c) Soil microscopy
- (d) Soil test

29. Which of the following is not a type of symbiotic interaction:

- (a) Mutualism

- (b) Parasitism
- (c) Bacterialism
- (d) Competition

30. Commensalism is a negative ecological interaction in which a product of an organism has a negative effect on another **(TRUE or FALSE)**
31. Algal blooms can lead to the death of many species of fish but the algae themselves do not benefit from the death of the fishes. This is an example of Ammensalism **(TRUE or FALSE)**
32. All immune cells originate in the bone marrow **(TRUE or FALSE)**
33. Once activated, T cells differentiate into plasma cells that are capable of secreting antibody molecules into the circulation **(TRUE or FALSE)**
34. Cytokines form an important family of proteins that function as immune mediators **(TRUE or FALSE)**
35. Chemokines are a subset of cytokines **(TRUE or FALSE)**
36. In Aerobic water treatment, organic carbon is converted to CO<sub>2</sub> **(TRUE or FALSE)**
37. Centrifugation helps to supports bacterial spoilage of foods **(TRUE or FALSE)**
38. Introducing microorganisms into skim milk produces sour cream **(TRUE or FALSE)**
39. Actinomycetes are microorganisms found in the soil **(TRUE or FALSE)**
40. Milk contains carbohydrates **(TRUE or FALSE)**

## **SECTION B**

- 1(a). Describe how plasmid is transferred in bacteria.
- 1(b). What is the difference between conjugative plasmid and non-conjugative plasmid
2. Explain with illustration, Transformation as mechanism of gene transfer

## **SECTION C**

- 1(a). Describe the principle of infectious disease

- 1(b). Name 4 infectious diseases and their causative agents endemic in Nigeria.
- 2(a). Describe cycle of infection and its significance in the control of infectious diseases
- 2(b). Write short note on characteristics of infectious agents