



BRAINWARE UNIVERSITY

Term End Examination 2019 - 20

Programme – Bachelor of Science (Honours) Biotechnology

Course Name - General Microbiology

Course Code – BBTC101

(Semester – 1)

Time allotted: 2 Hours 30 Minutes

Full Marks: 60

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group –A

(Multiple Choice Type Question)

20 x 1 = 20

1. *Choose the correct alternative from the following (Answer any Twenty)*
 - (i) The first classification of bacteria was done in:

a. 1786	b. 1867
c. 1687	d. 1787
 - (ii) Viroids are composed of:

a. RNA	b. DNA
c. Nucleic acids	d. None of these
 - (iii) Amoebiasis is prevented by:

a. eating balanced food	b. eating plenty of fruits
c. drinking boiled water	d. using mosquito nets
 - (iv) In Amoeba and Paramecium osmoregulation occurs through

a. pseudopodia	b. nucleus
c. contractile vacuole	d. general surface
 - (v) The cocci which mostly occur in single or pairs are

a. Streptococci	b. Diplococci
c. Tetracocci	d. None of these
 - (vi) The structure responsible for motility of bacteria is

a. Pilli	b. Flagella
c. Sheath	d. Capsules

- (xv) Which of the following are functions of Maintenance media?
- | | |
|---|--|
| a. used for assay of vitamins, amino acids | b. used for determining the bacterial content |
| c. used for determining the type of growth produced by bacteria | d. used for the maintenance of the viability and physiological characteristics |
- (xvi) Which of the following bacteria requires nicotinic acid as a growth factor in their media?
- | | |
|----------------------------|-------------------------------------|
| a. <i>Proteus vulgaris</i> | b. <i>Nitrosomonas</i> sp. |
| c. <i>E. coli</i> | d. <i>Leuconostoc mesenteroides</i> |
- (xvii) Generation time of *Escherichia coli* is:
- | | |
|---------------|--------------|
| a. 20 minutes | b. 20 hours |
| c. 20 days | d. 200 hours |
- (xviii) The organism which obtain their energy from chemicals are designated as:
- | | |
|-----------------|----------------|
| a. Prototrophs | b. Chemotrophs |
| c. Organotrophs | d. Autotrophs |
- (xix) The organism which grows best above 45°C are called:
- | | |
|------------------|-----------------|
| a. Psychrophilic | b. Mesophilic |
| c. Thermophilic | d. Any of these |
- (xx) Lag phase is also known as:
- | | |
|---------------------------------|------------------------|
| a. period of initial adjustment | b. transitional period |
| c. generation time | d. none of these |
- (xxi) Some organisms can use reduced inorganic compounds as electron donors and are termed as
- | | |
|----------------|----------------------|
| a. Lithotrophs | b. Phototrophs |
| c. Chemotrophs | d. Photoorganotrophs |
- (xxii) An organism that expends energy to grow in a habitat with a low water activity in order to maintain internal solute concentrations to retain water is
- | | |
|--------------------------|----------------|
| a. osmotolerant | b. acidophile |
| c. aerotolerant anaerobe | d. alkalophile |
- (xxiii) Bacteria and fungi multiply best
- | | |
|---------------|--------------------|
| a. below 16°C | b. between 16-38°C |
| c. above 38°C | d. none of these |

- (xxiv) Organisms, using organic compounds as electron donors are called:
- | | |
|----------------|-----------------|
| a. Lithotrophs | b. Phototrophs |
| c. Chemotrophs | d. Organotrophs |
- (xxv) Starvation proteins are produced by a culture during which of the following segments of the growth curve?
- | | |
|---------------------|----------------------|
| a. Lag phase | b. Exponential phase |
| c. Stationary phase | d. Death phase |

Group – B

(Short Answer Type Questions)

4 x 5 = 20

Answer any *four* from the following

- | | |
|---|---|
| 2. Differentiate between prokaryotes and eukaryotes. | 5 |
| 3. Briefly explain the distinctive features of viruses. | 5 |
| 4. Elucidate the preservation methods for the maintenance of microbial organisms in viable condition over long periods. | 5 |
| 5. Classify microbes on the basis of nutritional requirements. | 5 |
| 6. Describe in brief the morphology of “lambda” phage along with its life cycles. | 5 |
| 7. Diagrammatically represent ‘Endospore’. | 5 |

Group – C

(Long Answer Type Questions)

2 x 10 = 20

Answer any *two* from the following

- | | | |
|-----|--|---|
| 8. | (a) Classify bacteria on the basis of morphology and staining reaction. | 5 |
| | (b) Describe “Pasteur’s series of experiments”. | 5 |
| 9. | (a) What is the generation time of a bacterial population that increases from 15,000 cells to 1,50,00,000 cells in four hours of growth? | 5 |
| | (b) Describe in detail “Breed method” and “Electronic counter” for direct measurement of bacterial cells. | 5 |
| 10. | (a) Explain “Chemostat” and “Turbidostat”. | 5 |
| | (b) Describe diagrammatically “Transformation”. | 5 |
| 11. | (a) What is “Thermal death point”? | 2 |
| | (b) Differentiate between moist heat and dry heat. | 2 |
| | (c) Explain the process of “Autoclaving”. | 2 |
| | (d) What are the characteristics of an ideal disinfectant? What is Rideal-Walker test? | 4 |
