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**M. Sc. (Second Semester)
EXAMINATION, May - June, 2022
ZOOLOGY
Paper Second
[Tool and Techniques in Biology]**

Time : Three Hours]

[Maximum Marks:80

Note : Attempt all sections as directed.

(Section - A)

(Objective/Multiple Choice Questions)

(1 mark each)

Note : Attempt all questions :

Choose the correct answer :

1. What is the principle of centrifuge
- (A) Size reduction principle
 - (B) Filtration principle
 - (C) Evaporation principle
 - (D) Sedimentation

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2. is a process used quite often in the dairy industry.
- (A) Centrifuse sepration
 - (B) Sedimentation theory
 - (C) Crystal growth
 - (D) None of the above
3. Centrifugation is based on
- (A) Patrick's Law
 - (B) Mc Laren's Law
 - (C) Stoke's Law
 - (D) Stain's Law
4. When is electrophoresis not used?
- (A) Separation of Protein
 - (B) Separation of Amino Acid
 - (C) Separation of Lipids
 - (D) Separation of Nucleic acid
5. The speed of migration of Ions in electric field depends upon
- (A) Shape and size of molecule
 - (B) Magnitude of charge and shape of molecule.
 - (C) Magnitude of charge, shape and mass of molecule
 - (D) Magnitude of charge and mass of molecule

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6. Which type of filter paper are mostly used in paper chromatography.
- (A) Butter paper
 - (B) Sample paper
 - (C) Whatmann filter paper
 - (D) Plain paper
7. What is the principle of paper chromatography?
- (A) Partition
 - (B) Adsorption
 - (C) (A) and (B) both
 - (D) None of the above
8. When the power of ocular lens is 10x and objective lens is 20x the magnification is
- (A) 30 times
 - (B) 20 times
 - (C) 200 times
 - (D) 2000 times
9. Which of the following light is suitable for getting maximum resolution?
- (A) Red
 - (B) Green
 - (C) Blue
 - (D) Orange

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10. The magnification of electron microscope is about
- (A) 2000 times
 - (B) 3000 times
 - (C) 1000 times
 - (D) 4000 times
11. Finger printing involves
- (A) Agglutinations
 - (B) Chromatography
 - (C) Electrophoresis
 - (D) Both (B) and (C)
12. Elisa is used to detect viruses where the key reagent is
- (A) Alkaline phosphate
 - (B) Catalase
 - (C) DNA probe
 - (D) RNA se
13. The Elisa has been used as a diagnostic tool in
- (A) Medicine
 - (B) Plant pathology
 - (C) Quality control
 - (D) All of these

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14. Equilibrium centrifugation is also known as

- (A) Isotonic
- (B) Isopycnic
- (C) Gradient
- (D) Sucrose

15. Which of the following is not a type of sterilization?

- (A) Batch
- (B) Continuous
- (C) Filter
- (D) submerged

16. Which of the following instrument works on the principle of batch sterilization.

- (A) Incubator
- (B) Autoclave
- (C) Centrifuge
- (D) LAF

17. The highest feasible temperature for batch sterilization is

- (A) 124° C
- (B) 120° C
- (C) 122° C
- (D) 121° C

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18. Amino acids sequence in DNA can be determined by the order of their

- (A) r RNA
- (B) t RNA
- (C) Nucleotides
- (D) m RNA

19. How many amino acids make up a protein

- (A) 10
- (B) 20
- (C) 30
- (D) 50

20. What is the bond between amino acids called

- (A) Ionic bond
- (B) Acidic bond
- (C) Peptide bond
- (D) Hydrogen bond

Section - B

(Very Short Answer Type Questions)

(2 marks each)

Note: Attempt all questions. Answer using 2-3 sentences.

1. What are the different types of chromatography?

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2. Give the kinds of Electron Microscope.
3. What is the principle of phase contrast microscope.
4. Define electrophoretic mobility.
5. Define fixation.
6. Principle of cytological technique.
7. What is freeze technique.
8. Define Media preparation.

Section - C

(Short Answer Type Questions)

(3 marks each)

Note : Attempt all question. Answer precisely using 75 word.

1. Define Lambert-Beers Law.
2. Describe the uses of flow cytometer.
3. Describe different support material used in electrophoresis.
5. What is the use of phase plate in phase contrast microscope.
6. What is the chemical basis of fixation by formaldehyde.
7. What are inoculation?
8. Principle of sterilization.

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Section - D

(Long Answer Type Questions)

(5 marks each)

Note : Attempt all question. Answer precisely using 150 words.

1. Give the principle and working of colorimeter.

OR

Give the principle and working of ultracentrifuge.

2. Explain briefly structure and function of light microscope.

OR

Discuss about difference between transmission and scanning electron microscope.

3. Describe the principle of cytochemical technique.

OR

Discuss about chemical basis of staining of carbohydrate.

4. Describe various method of media preparation.

OR

What is nucleic acid hybridization technique?