

Roll No.

D-1012

**M. Sc. (Fourth Semester) (Main/ATKT)
EXAMINATION, 2020**

ZOOLOGY

(Optional Group—B)

Paper Fourth

(Cellular Organization and Molecular Organization)

Time : Three Hours] [Maximum Marks : 80

Note : Attempt all Sections as directed.

Section—A 1 each

(Objective/Multiple Choice Questions)

Note : Attempt all questions.

Choose the correct answer :

1. Cancer cells are :
 - (a) BHK
 - (b) Veo
 - (c) HL-8
 - (d) Hela cells
2. Which one of the following genes is involved in the conversion of proto-oncogenes into oncogenes causing cancer ?
 - (a) metastasis genes

- (b) angiogenesis genes
 - (c) tumour suppressor genes
 - (d) transposons
3. Which of the following is associated with bacterial cells ?
 - (a) Ribosomes
 - (b) Nucleus
 - (c) Chloroplasts
 - (d) Lysosomes
4. The cell is not applied for :
 - (a) Algae
 - (b) Virus
 - (c) Bacteria
 - (d) Fungi
5. Distribution of intrinsic proteins in the plasma membrane is :
 - (a) Random
 - (b) Symmetrical
 - (c) Asymmetrical
 - (d) None of the above
6. Which cell organelle is involved in apoptosis ?
 - (a) Lysosome
 - (b) ER
 - (c) Golgi
 - (d) Mitochondria
7. The function of centrosome is :
 - (a) Formation of spindle fibers

[3]

D-1012

- (b) Osmoregulation
 - (c) Secretion
 - (d) Protein synthesis
8. Microfilaments are composed of a protein called :
- (a) Tubulin
 - (b) Actin
 - (c) Myosin
 - (d) Chitin
9. The membrane around the vacuole is known as :
- (a) Tonoplast
 - (b) Elaioplast
 - (c) Cytoplast
 - (d) Amyloplast
10. What does HIV-positive mean ?
- (a) Either antibodies against HIV or the virus particles themselves are present in the blood.
 - (b) You have been tested for HIV
 - (c) Your WBC count is high
 - (d) You have been informed about HIV
11. Simian Virus 40 (SV40) is an example of :
- (a) Caulimovirus
 - (b) Polyomavirus
 - (c) Plant virus
 - (d) Retrovirus

(B-14) P. T. O.

[4]

D-1012

12. A hormone or ligand can be considered as :
- (a) First messenger
 - (b) Second messenger
 - (c) Third messenger
 - (d) Fourth messenger
13. Transcription in SV40 is controlled by :
- (a) Late genes
 - (b) Early genes
 - (c) Promoter
 - (d) Regulatory element
14. Protein kinase A is :
- (a) inhibited by *c*-AMP
 - (b) affected by *c*-AMP
 - (c) activated by *c*-AMP
 - (d) activated by covalent binding of *c*-AMP
15. The longest stage in the cell cycle is :
- (a) Prophase
 - (b) Metaphase
 - (c) Interphase
 - (d) None of the above
16. The antibiotic obtained from the yeast is :
- (a) Saccharin
 - (b) Ephedrine
 - (c) Polymixin
 - (d) Campestrin

(B-14)

[5]

D-1012

17. Yeast produces an enzyme complex which is responsible for fermentation :

- (a) Aldolase
- (b) Invertase
- (c) Dehydrogenase
- (d) Zymase

18. Which phase implies the exist of cells from the cell cycle ?

- (a) G₁
- (b) G₂
- (c) G₀
- (d) S

19. Cyclin is associated with :

- (a) Cylosis
- (b) Mitosis
- (c) Glycolysis
- (d) Leptospirosis

20. A cell without a cell wall is termed as :

- (a) Tonoplast
- (b) Symplast
- (c) Apoplast
- (d) Protoplast

Section—B

2 each

(Very Short Answer Type Questions)

Note : Attempt all questions.

1. Define HIV.

(B-14) P. T. O.

[6]

D-1012

2. What do you mean by translocase ?

3. Define peroxisomes.

4. What do you mean by nucleolus ?

5. Define DNA sequencing.

6. What do you mean by cell surface changes ?

7. What is the difference between protooncogenes and oncogenes ?

8. Draw a well labelled diagram of GPCR.

Section—C

3 each

(Short Answer Type Questions)

Note : Attempt all questions.

1. What are the important features of viruses ?

2. How is yeast applicable in gene cloning ?

3. Draw a well labelled diagram of secretory pathway across the ER.

4. Illustrate intracellular digestion.

5. How normal cells are different from cancer cells ?

6. What is the role of cytoskeleton ?

7. Write in brief about tumor suppressor genes.

8. Explain transforming agent in cancer.

Section—D

5 each

(Long Answer Type Questions)

Note : Attempt all questions.

1. Describe regulation of cells cycle in eukaryotes.

Or

Describe the role of GC in cell secretion.

2. Describe structure and function of lysosomes.

Or

Describe synthesis of mitochondrial proteins.

(B-14)

[7]

D-1012

3. Explain genetic basis of human cancer.

Or

Write in brief about genome complexity.

4. Describe signal transduction mechanism.

Or

Give an account on chromosomal abnormalities in human cancer.

D-1012

(B-14)