

(6 Pages)

Reg. No. :

**Code No. : 30315 E Sub. Code : JAZO 11/
SAZO 11/AAZO 11**

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2021.

First/Third Semester

Zoology — Allied

CELL BIOLOGY, GENETICS AND BIOTECHNOLOGY

(For those who joined in July 2016–2020 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The unit membrane concept was proposed by
 - (a) Watson (b) Bateson
 - (c) Robertson (d) Morgan

2. The type of chromosomes found in the salivary gland cells of chironomid larva are
- (a) Autosomes
 - (b) Allosomes
 - (c) Heterosomes
 - (d) Polytene chromosomes
3. What percent of thymine would you have if adenine is 35% according to Chargaff?
- (a) 14%
 - (b) 35%
 - (c) 16%
 - (d) 17%
4. In living cells, protein synthesis takes place in the
- (a) Nucleus
 - (b) Nucleolus
 - (c) Cytoplasm
 - (d) Plasma membrane
5. *Erythroblastosis foetalis* is concerned with the inheritance of
- (a) ABO blood group
 - (b) Rh blood group
 - (c) Mn blood group
 - (d) Ss blood group

6. The dihybrid F_2 ratio for the complementary gene interaction is
- (a) 9:3:3:1 (b) 9:7
(c) 1:1:1:1 (d) 9:3:4
7. The underlying cause for the appearance of syndromes in human beings is
- (a) Linkage (b) Crossing over
(c) Mutation (d) Non-disjunction
8. The Y chromosome linked character among the following is
- (a) Colour blindness
(b) Haemophilia
(c) Hypertrichosis
(d) Skin colour
9. The science application of biological processes is called as
- (a) Biochemistry (b) Biophysics
(c) Biotechnology (d) Bioinformatics
10. Cloned genes are generally expressed in the form of
- (a) Numbers (b) Proteins
(c) Lipids (d) Hormones

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Highlight the passive transport mechanism present in plasma membrane.

Or

- (b) Describe the various components of nucleus structure.

12. (a) Explain the types of RNA and their functions.

Or

- (b) Comment on the diagnosis and treatment of cancer.

13. (a) Explain any five simple mendelian traits in man.

Or

- (b) Discuss about the significance of Rh blood group in man.

14. (a) Comment on hypertrichosis and its inheritance in man.

Or

- (b) Explain the underlying cause for the Down's syndrome in man.

15. (a) Discuss the basic concepts of genetic engineering.

Or

- (b) Explain the analysis of cloned genes in host cells.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Describe the ultra structure and functions of mitochondria.

Or

- (b) Explain the structure and functions of polytene chromosomes.

17. (a) Describe the composition and structure of DNA.

Or

- (b) Explain the steps in the process of protein synthesis.

18. (a) Explain the inheritance of ABO blood groups in human beings.

Or

- (b) Discuss the inheritance of skin colour in man.

19. (a) Discuss the chromosomal theory of sex determination in man.

Or

- (b) Explain the inborn errors of metabolism in man.

20. (a) Discuss about the types of cloning vectors and their usage.

Or

- (b) Explain the various methods for the introduction of cloned genes in to host cells.
-