2020

ZOOLOGY (Honours)

Paper Code : ZHT - VI - A & B

[New Syllabus]

Important Instructions
for Multiple Choice Question (MCQ)

- Write Subject Name and Code, Registration number, Session and Roll number in the space provided on the Answer Script.

  Example : Such as for Paper III-A (MCQ) and III-B (Descriptive).

  Subject Code : | III | A | & | B |

  Subject Name : | |

- Candidates are required to attempt all questions (MCQ). Below each question, four alternatives are given [i.e. (A), (B), (C), (D)]. Only one of these alternatives is 'CORRECT' answer. The candidate has to write the Correct Alternative [i.e. (A)/(B)/(C)/(D)] against each Question No. in the Answer Script.

  Example — If alternative A of 1 is correct, then write :

  1. — A

- There is no negative marking for wrong answer.

মাল্টিপল চয়েস প্রশ্নের (MCQ) জন্য জরুরী নির্দেশাবলী

- উত্তরপত্রে নির্দেশিত স্থানে বিষয়ের (Subject) নাম এবং কোড, রেজিস্ট্রেশন নম্বর, সেশন এবং রোল নম্বর লিখতে হবে।

  উদাহরণ — যেমন Paper III-A (MCQ) এবং III-B (Descriptive)।

  Subject Code : | III | A | & | B |

  Subject Name : [   ]

- পরীক্ষার্থীদের সবগুলি প্রশ্নের (MCQ) উত্তর দিতে হবে। প্রতিটি প্রশ্নে চারটি করে সম্ভাব্য উত্তর, যথাক্রমে (A), (B), (C) এবং (D) করে দেওয়া আছে। পরীক্ষার্থীকে তার উত্তরের স্বপক্ষে (A) / (B) / (C) / (D) সঠিক বিকল্পটিকে প্রশ্ন নম্বর উল্লেখসহ উত্তরপত্রে লিখতে হবে।

  উদাহরণ — যদি 1 নম্বর প্রশ্নের সঠিক উত্তর **A** হয় তবে লিখতে হবে :

  1. — A

- ভুল উত্তরের জন্য কোন নেগেটিভ মার্কিং নেই।

Paper Code : ZHT - VI - A

Full Marks : 10   Time : Thirty Minutes

Choose the correct answer.

Answer *all* the following questions,
each question carries 1 mark.

1. The most abundant lipid in cell membrane is —

    (A) Phospholipid

    (B) Steroid

    (C) Cholesterol

    (D) Cutin

2. Which of the following participate in the formation of spindle fibre?

    (A) Actin

    (B) Tubulin

    (C) Troponine

    (D) Myosin

3. All are membrane bounded cell organelles except —

    (A) Mitochondria

    (B) Spherosomes

    (C) Ribosomes

    (D) Lysosomes

4. At metaphase, chromosomes are attached to the spindle fibres by their —

   (A) Centromere

   (B) Satellite

   (C) Secondary constriction

   (D) Kinetochore

5. Number of ATP and Water molecules formed per four electrons transported through electron transport chain are —

   (A) 4 and 1

   (B) 4 and 2

   (C) 6 and 2

   (D) 3 and 1

6. Genetic alteration of a bacteria by incorporation of foreign DNA is known as —

   (A) Transduction

   (B) Transfection

   (C) Transformation

   (D) Infection

7. Down's syndrome is a result of —

   (A) Trisomy

   (B) Nullisomy

   (C) Monosomy

   (D) Tetrasomy

8. Kappa particles indicate —

(A) Cytoplasmic inheritance

(B) Mutation

(C) Nuclear inheritance

(D) Nucleo-cytoplasmic inheritance

9. Which of the following is not heritable?

(A) Point mutation

(B) Chromosome mutation

(C) Somatic mutation

(D) Gene mutation

10. Who coined the term "gene"?

(A) H. J. Muller

(B) T. Boveri

(C) W. S. Sutton

(D) W. L. Johenssen

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ZOOLOGY (Honours)

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Full Marks : 40   Time : One Hour Thirty Minutes

The figures in the margin indicate full marks.

Write your answer within one page for the questions carrying 4 marks each and within three pages for the questions carrying 12 marks each.

Unit - 1

(Cell Biology)

1. Answer any *two* questions :   4×2=8

   (a) Write a short note on synaptonemal complex.

   (b) Describe the polymerization process of actin filament.

   (c) Write a note on active transport mediated by Na-K ATPase.

   (d) Describe Metaphase I of meiotic cell division with proper diagram.

2. Answer any *one* question :   12×1=12

   (a) Describe the fluid mosaic model of plasma membrane and state its merits. Mention the factors influencing the fluidity of the membrane. Distinguish between prokaryotic and eukaryotic ribosome.   (4+2)+2+4=12

   (b) What is Lamp brush chromosome? Why it is so named? Write the features of Lamp brush chromosome. Describe the structure and functions of Lamp brush chromosome.   1+1+2+(4+4)=12

(c) Describe the nucleosome model of chromatin. Describe the molecular events occurring during different phases of cell cycle. Differentiate between mitotic and meiotic cell divisions. 4+5+3=12

Unit - 2

(Genetics)

3. Answer any *two* questions : 4×2=8

(a) What is Robertsonian translocation? Give an example of consequence of Robertsonian translocation in human. 2+2=4

(b) Consider three yellow, round peas, labelled A, B, and C. Each was grown into a plant and crossed to a plant grown from a green, wrinkled pea. Exactly 100 peas issuing from each cross were sorted into phenotypic classes as follows :

A : 51 yellow, round

49 green, round

B : 100 yellow, round

C : 24 yellow, round

26 yellow, wrinkled

25 green, round

25 green, wrinkled

What were the genotypes of A, B and C? (Use gene symbols of your own choice.)

(c) Write a note on cytological basis of crossing over.

(d) Mention the characteristics of sex-linked inheritance.

4. Answer any *one* question : 12×1=12

(a) How the results of reciprocal crosses differ between Mendelian inheritance and cytoplasmic inheritance? Give example of human disease caused by Mitochondrial gene mutation. How inheritance pattern of cytoplasmic genes differs from nuclear genes? What do you mean by cytohet?

3+4+3+2=12

(b) Briefly describe Aneuploidy. Mention some consequences of Aneuploidy in human. What are paracentric and pericentric inversion? 6+4+2=12

(c) 'Autosomal gene is also responsible for determination of female Drosophila' — Justify the statement with proper cross. Describe the role of different genes in sex determination of Drosophila. 4+8=12

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