P - III (1+1+1) H / 20 (N)

2020

ZOOLOGY (Honours)

Paper Code : XII - A & B

[New Syllabus]

Full Marks : 50 Time : Two Hours

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।

Turn Over

Paper Code : XII-A

Full Marks : 10 Time : Thirty Minutes

Choose the correct answer.

Each question carries 1 mark.

1. Gyrase is an example of .....
   (A) Helicase
   (B) Primase
   (C) Topoisomerase
   (D) Ligase

2. Choose the correct matching.
   (A) DNA polymerase I : Has only 3'→5' exonuclease activity
   (B) DNA polymerase III: Has less processivity
   (C) β subunit of DNA polymerse III: Acts as clamp loader
   (D) α subunt of DNA polymerase III: Has the polymerase activity.

3. Amber codon is
   (A) UAG
   (B) AUG
   (C) UGA
   (D) UAA

Turn Over

4. DNA ligase

(A) adds nucleotide in 5'-3' direction and join the phosphodiester bond between two adjacent DNA strands.

(B) adds nucleotide in 3'-5' direction and join the phosphodiester bond between two adjacent DNA strands.

(C) does not add nucleotide only joins phosphodiester bond between two adjacent DNA strand.

(D) removes RNA nucleotides and joins phosphodiester bond between two adjacent DNA strands.

5. Which of the following is not the property of cancer cells

(A) Angiogenesis

(B) Apoptosis inhibited

(C) Anchorage independent

(D) Telomere shortening

6. Fragments of DNA formed after treatment with endonucleases are separated by the technique

(A) Polymerase Chain Reaction

(B) Southern Blotting

(C) Colony hybridization

(D) Electrophoresis

7. Dideoxynucleotides are used in

(A) chemotherapy

(B) DNA repair

(C) Sanger method for DNA sequencing

(D) Maxam-Gilbert method of DNA sequencing

Turn Over

8. A RNA virus can be detected by

(A) RT-PCR

(B) Realtime PCR

(C) Normal PCR

(D) Realtime RT-PCR

9. cDNA is

(A) circular DNA

(B) coiled DNA

(C) cytoplasmic DNA

(D) complementary DNA

10. Restriction endonucleases

(A) are synthesized by bacteria as part of their defence mechanism

(B) are present in mammalian cells for degradation of DNA when the cells die

(C) are used in genetic engineering for ligating two DNA molecules

(D) are used for in vitro DNA synthesis

2020

ZOOLOGY (Honours)

Paper Code : XII-B

[New Syllabus]

Full Marks : 40 Time : One Hour Thirty Minutes

The figures in the margin indicate full marks.
Write your answer maximum within one page for the questions carrying 4 *marks each and maximum within three pages for the questions carrying* 12 *marks each.*

Unit-1

(Molecular Biology)

1. Answer any *two* questions: 4x2= 8

   (a) Write short note on replisome.

   (b) Write a note on chemical structure of nucleic acids.

   (c) Write short note on rolling circle replication.

   (d) Write a note on translocational activation of proto oncogenes.

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

(a) Describing an experiment, prove that DNA replication occurs in semi-conservative manner. Compare DNA polymerase-I and DNA polymerase-III of prokaryotes. What is the importance of 5' to 3' exonuclease activity of DNA polymerase-I? Briefly describe the function of Telomerase in DNA replication. 6+2+2+2= 12

(b) Differentiate between tumor Suppressor genes and oncogenes. Describe the process of regulation of cell cycle by pRB gene. Write a note on molecular mechanism of Spontaneous mutations. 2+5+5 = 12

(c) Describe how tautomers can induce mutation. Write a note on frame-shift mutation. Discuss how mutation can affect human health with suitable examples. 4+4+4= 12

Unit-2

(Biotechnology)

3. Answer any *two* questions: 4 x 2= 8

(a) Write short note on restriction endonuclease.

(b) Give a flow chart of bioremediation of pesticide

(c) Write a note on application of DNA finger printing in forensic science

(d) What is reporter gene? Describe blue-white selection by reporter gene.

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

(a) Define monoclonal antibody. Describe the hybridoma technology to generate monoclonal antibody. 2+10=12

(b) What is Western Blotting? State the principle of Western Blot method. Write the process and applications of Western Blotting. 2+2+6+2=12

(c) Mention the criteria for good PCR primer. Write a note on real time PCR. Describe the application of PCR in diagnosis of genetic disease. 3 + 5 + 4 =12
