2020

BOTANY (Honours)

Paper Code : IX-A & B

(New Syllabus)

Full Marks : 80 Time : Four 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।

Paper Code : IX - A

Full Marks : 16 Time : Thirty Minutes

Choose the correct answer.

Each question carries 1 mark.

1. Who discovered Polymerase Chain Reaction (PCR) technique —
   (A) Karry B. Mullis
   (B) Francies Crick
   (C) James D. Watson
   (D) Maurice Wilkins

2. A mass of unorganised, undifferentiated cells is called —
   (A) Embryo
   (B) Explant
   (C) Callus
   (D) Protoplast

3. The most widely used chemical for protoplast fusion as 'fusogen' is —
   (A) Mannitol
   (B) Mannose
   (C) Poly ethylene glycol (PEG)
   (D) Sorbitol

4. The oldest eukaryotic organisms are considered to be —
   (A) Fungi
   (B) Archaea
   (C) Mycoplasma
   (D) Diplomonads like Giardia

5. Name the unit of Replication —
   (A) Gene
   (B) Chromosome
   (C) Operon
   (D) Replicon

6. Name the term given to the ability of single cell to differentiate into every types of cell of an organism —

(A) Unipotency

(B) Multipotency

(C) Pluripotency

(D) Totipotency

7. GISH technique uses the principle of —

(A) DNA-DNA hybridization

(B) DNA-RNA hybridization

(C) DNA-Protein hybridization

(D) Protein-Protein hybridization

8. The Iodine used in Gram Staining serves as a —

(A) Mordant

(B) Stain

(C) Counter stain

(D) Decolourizer

9. Which of the following is NOT a plant growth regulator —

(A) Cytokinin

(B) Gibberllin

(C) Polyphenol

(D) Auxin

10. Which of the following ion is required for the activity of Type II restriction enzymes —

(A) Ca^{+2}

(B) Mn^{+2}

(C) Mg^{+2}

(D) Cl^{+2}

11. Which of the following is NOT a Gram positive bacteria —

(A) *Bacillus*

(B) *Sterptococcus*

(C) *Pseudomonas*

(D) *Mycobacteria*

12. Prions are —

(A) Misfolded DNA

(B) Viral DNA

(C) Primitive RNA

(D) Misfolded contagious protein

13. Plant with nuclear genome from one parent and chloroplast/mitochondria genome from another parent is a —

(A) Hybrid

(B) Heterosis

(C) Cybrid

(D) All of the above

14. In farm yard manure, the microorganisms decompose complex organic debris into dark amorphous substance known as —

(A) Smut

(B) Callus

(C) Compost

(D) Humus

15. Who among the following is better known as "Father of Tissue Culture" —

(A) Hamberlandt

(B) Hanning

(C) Pfizer

(D) Skoog

16. NAG and NAM of peptidoglycan cell wall is joined by —

(A) β-(1,4) glycosidic linkage

(B) α-(1,4) glycosidic linkage

(C) β-(1,4) and α-(1,4) glycosidic linkage

(D) α-(1,6) glycosidic linkage

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2020

BOTANY (Honours)

Paper Code : IX - B

(New Syllabus)

Full Marks : 64 Time : Three Hours Thirty Minutes

The figures in the margin indicate full marks.

Group - A

1. Answer any *three* of the following questions : 4×3=12
   (i) What are the main features of bacterial growth curve? 4
   (ii) Differentiate between Flagella and Pili. 4
   (iii) Write down the use of microbes as Biofertilizer. 4
   (iv) Mention the sources and uses of Protease. 2+2
   (v) What is Plasmid? Discuss in short the Ti plasmid of *Agrobacterium*. 1+3
   (vi) Give a brief idea of budding in bacteria. 4

2. Answer any *two* of the following questions : 10×2=20
   (i) Define Endospore. Briefly discuss the formation and function of Endospore in bacteria. 2+4+4=10
   (ii) Briefly narrate the mechanism of Transformation in Bacteria. 10
   iii) Distinguish between Lytic and Lysogenic cycle. 10
   (iv) Enumerate the chemical structure of bacterial Cell Wall. How does the cell wall of Gram Positive bacteria differ from Gram negative bacteria? 5+5=10

Group - B

3. Answer any *three* of the following questions : 4×3=12
   (i) What is the role of plant growth regulators in Plant tissue culture? 4
   (ii) Discuss the principle of Chromosome banding technique. 4
   (iii) Describe name and types of restriction endonuclease. 2+2
   (iv) Define cloning vector with example. 4
   (v) Mention the steps of PCR mechanism. State two important applications. 2+2
   (vi) What is the principle of GISH ? 4

4. Answer any *two* of the following questions : 10×2=20

(i) Describe the requirements of tissue culture laboratory. 10

(ii) Enumerate the method of Protoplast culture in a plant tissue culture laboratory. Point out the precautionary measures. 8+2=10

(iii) Briefly write down the concept of Genetic Engineering and Gene Delivery system in plants. 5+5=10

(iv) What is Somatic Embryogenesis? Describe the role of plant growth regulators in Somatic Embryogenesis. Mention its application. 2+6+2=10

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