

P - III (1+1+1) H / 21 (N)

2021

BOTANY (Honours)

Paper Code : IX - 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
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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
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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. The T₂ phage is called _____ .
 - (A) ss DNA phage
 - (B) ss RNA phage
 - (C) ds DNA phage
 - (D) ds RNA phage

2. Which bacterium is used in the production of insulin by genetic engineering?
 - (A) *Saccharomyces*
 - (B) *Rhizobium*
 - (C) *Escherichia*
 - (D) *Mycobacterium*

3. Klenow fragment is derived from —
 - (A) DNA Ligase
 - (B) DNA Pol-I
 - (C) DNA Pol-II
 - (D) Reverse Transcriptase

4. Which of the following foods is not made by fermentation?
 - (A) Beer
 - (B) Orange Juice
 - (C) Bread
 - (D) Cheese

5. Which of the following is exposed on the outer surface of a Gram-negative bacterium?
- (A) O-antigen of lipopolysaccharide (LPS)
 - (B) Polysaccharide portion of lipoteichoic acid (LTA)
 - (C) Braun lipoprotein
 - (D) Electron transport system components
6. Viral genome inserted to the bacterial DNA is termed as _____.
- (A) Lysogeny
 - (B) Prophage
 - (C) Lytic cycle
 - (D) Virulent phage
7. Restriction enzymes were discovered by —
- (A) Smith and Nathans
 - (B) Alexander Fleming
 - (C) Berg
 - (D) None
8. Periplasm is —
- (A) the area between the inner and outer membranes of gram-negative bacteria
 - (B) the area between the inner and outer membranes of Gram-positive bacteria
 - (C) the interior portion of mitochondria
 - (D) the area outside the cell membrane that is influenced by the polymers
9. Southern blotting is —
- (A) Attachment of probes to DNA fragments
 - (B) Transfer of DNA fragments from electrophoretic gel to a nitrocellulose sheet
 - (C) Comparison of DNA fragments to two sources
 - (D) Transfer of DNA fragments to electrophoretic gel from cellulose membrane

10. Synthetic seeds are produced by the encapsulation of somatic embryos with _____.
- (A) Sodium acetate
 - (B) Sodium nitrate
 - (C) Sodium chloride
 - (D) Sodium alginate
11. Which of the statements regarding Gram staining is wrong?
- (A) *Mycobacterium tuberculosis* stains blue because of the thick lipid layer
 - (B) *Streptococcus pyogenes* stains blue because of a thick peptidoglycan layer
 - (C) *Escherichia coli* stains pink because of a thin peptidoglycan layer
 - (D) *Mycoplasma pneumoniae* is not visible in the Gram's stain because it has no cell wall
12. Which of the following bacteria lack a cell wall and are therefore resistant to penicillin?
- (A) Cyanobacteria
 - (B) Mycoplasmas
 - (C) Bdellovibrios
 - (D) Spirochetes
13. _____ is used as a vector for cloning into higher organisms.
- (A) Retrovirus
 - (B) Baculovirus
 - (C) *Salmonella typhimurium*
 - (D) *Rhizopus nigricans*

14. Which of the following statements are true about the peplomers?
- (A) It is an individual unit of capsids
 - (B) It is a spike-like projection on the enveloped viruses
 - (C) It is a projection on the viral membrane
 - (D) It is a spike-like projection on the capsids
15. Haploid plants can be obtained from _____.
- (A) Anther culture
 - (B) Bud culture
 - (C) Leaf culture
 - (D) Root culture
16. The cocci which mostly occur in single or pairs are —
- (A) Streptococci
 - (B) Diplococci
 - (C) Tetrads
 - (D) None of these
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P - III (1+1+1) H / 21 (N)

2021

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 : 4×3=12
 - (i) What are biopesticides? Explain with examples. 2+2
 - (ii) Write a short note on bacterial genome. 4
 - (iii) What are the microbial sources and uses of dextran? 2+2
 - (iv) Write down the nature and function of glycocalyx. 2+2
 - (v) State the general characteristics of a virus. 4

2. Answer any *two* of the following questions : 10×2=20
 - (i) Define binary fission. Briefly discuss the process in bacteria. Point out the physical conditions conducive to bacterial growth. 2+3+5=10
 - (ii) What is fermentation? Describe the steps involved in industrial production of vinegar. 2+8=10
 - (iii) With suitable sketch describe the structural organization and chemistry of TMV. 10
 - (iv) What is polyauxotroph? What is the difference between F⁺ and Hfr strains? Define F⁻ strain. 2+4+2=10

Group - B

3. Answer any *three* of the following questions : 4×3=12
- (i) What is a callus? Define cellular totipotency. 2+2
 - (ii) Discuss the karyotype concept of chromosome study. 4
 - (iii) Mention the composition of a tissue culture medium. 4
 - (iv) What is artificial seed? How is it prepared ? 2+2
 - (v) Enumerate the role of pBR322 as a cloning vector. 4
4. Answer any *two* of the following questions : 10×2=20
- (i) What is cybrid? State the advantages of protoplast culture. Explain organogenesis. 2+4+4=10
 - (ii) Give a brief history of plant tissue culture 10
 - (iii) Write down the concept of recombinant DNA technology. What is the principle of FISH? 6+4=10
 - (iv) What is the application of tissue culture in agriculture and forestry? 5+5=10
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