

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

2021

## BOTANY (Honours)

Paper Code : VIII - 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 : VIII - A**

Full Marks : 16

Time : Thirty Minutes

Choose the correct answer.

Each question carries 1 mark.

1. Which statement about phloem transport is correct?
  - (A) Gravity influence phloem transport
  - (B) Phloem transport occurs unidirectionally
  - (C) Sugar transported in phloem as non-reducing sugar
  - (D)  $\text{Ca}^{2+}$  is most abundant cation in phloem sap
2. The chief source of nitrogen for green plants are —
  - (A) Atmospheric nitrogen
  - (B) Nitrates
  - (C) Ammonium salts
  - (D) Low molecular weight organic nitrogenous compound
3. Which of the following acts as precursor of IAA biosynthesis?
  - (A) Tryptophan
  - (B) Methionine
  - (C) Putrescine
  - (D) Geranyle geranyle pyrophosphate
4. The light which stimulates flowering in an inducible plant —
  - (A) is perceived by the apical meristem
  - (B) is perceived throughout the plant
  - (C) is perceived by the leaves
  - (D) none of the above are correct

5. In which of the following organelles glycolate is oxidized to glyoxylate during photorespiration —
- (A) Chloroplast
  - (B) Peroxisome
  - (C) Mitochondria
  - (D) Endoplasmic reticulum
6. DCMU inhibits photosynthesis at photosystem during —
- (A)  $\text{phe} \rightarrow \text{Q}_A$
  - (B)  $\text{Q}_A \rightarrow \text{Q}_6$
  - (C)  $\text{Cyt } b_6f \rightarrow \text{PC}$
  - (D)  $\text{Q}_B \rightarrow \text{Cyt } b_6f$
7. Which of the following is released during conversion of succinate to fumarate in TCA cycle?
- (A)  $\text{CO}_2$
  - (B)  $\text{FADH}_2$
  - (C)  $\text{H}_2\text{O}$
  - (D) ATP
8. In plants, rate of transpiration is usually maximum in —
- (A) Morning
  - (B) Little before noon
  - (C) Afternoon
  - (D) Evening

9. Which of the following organic compounds are not plant phenolics?
- (A) Lignins
  - (B) Tannins
  - (C) Essential oils
  - (D) Flavonoids
10. The bond in protein structure that are not broken on denaturation —
- (A) Hydrogen bonds
  - (B) Peptide bonds
  - (C) Ionic bonds
  - (D) Disulfide bonds
11.  $\beta$  (1  $\rightarrow$  4) glycosidic linkages are found in —
- (A) Maltose
  - (B) Cellulose
  - (C) Sucrose
  - (D) Starch
12. Which of the following is not found within the lipid bilayer?
- (A) Fatty acid esters
  - (B) Cholesterol
  - (C) Oligosaccharides
  - (D) None of these
13. Protein part of the enzyme is called as —
- (A) Holoenzyme
  - (B) Prosthetic group
  - (C) Apoenzyme
  - (D) None of these

14.  $\beta$ -oxidation of fatty acids takes place in —
- (A) Mitochondria
  - (B) Glyoxysomes
  - (C) Both A and B
  - (D) Cytosol
15. In an exothermic reaction,  $\Delta H$  is —
- (A) Positive
  - (B) Negative
  - (C) Zero
  - (D) None of these
16. Quinine obtained from *Cinchona* is a/an —
- (A) Tannin
  - (B) Steroid
  - (C) Resin
  - (D) Alkaloid
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P - III (1+1+1) H / 21 (N)

2021

## BOTANY (Honours)

Paper Code : VIII - 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) Describe the stages of root nodule formation giving examples. 4
  - (ii) What is RQ? Why RQ value is respiratory substrate dependent? 1+3
  - (iii) Schematically explain Pentose phosphate pathway. 4
  - (iv) What are day neutral plants? Explain the role of light in flowering. 1+3
  - (v) How do plants respond to water stress? 4
  - (vi) How would you differentiate between : 2+2
    - (a) Exosmosis and Endosmosis.
    - (b) Osmotic pressure and Turgor pressure.
  
2. Answer any *two* of the following questions : 10×2=20
  - (i) What is transpiration? Mention the characteristic structure of guard cell that helps in transpiration. What is blue-light receptor? How it affects stomatal movement. 1+3+1+5
  - (ii) What is C<sub>4</sub> dicarboxylic acid pathway? What is its significance? How do they differ from C<sub>3</sub> plants in CO<sub>2</sub> fixation? 2+4+4
  - (iii) Give a brief account on the discovery of cytokinin. Discuss its role on morphogenesis in combination with auxin. What is Richmond-Lang effect of cytokinin? 3+5+2

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- (iv) Write notes on : 2½×4=10
- (a) Nitrate metabolism
  - (b) Heat Shock Proteins
  - (c) Vernalization
  - (d) Münch hypothesis

**Group - B**

3. Answer any *three* of the following : 4×3=12
- (i) Explain reducing and non-reducing sugar with examples. 4
  - (ii) Who proposed Fluid Mosaic model of plasma membrane? Illustrate in brief its structure and composition. 1+3
  - (iii) Describe the enzyme classification by IUBMB system. 4
  - (iv) Define and give explanation on entropy and enthalpy. 2+2
  - (v) What are organoleptic and microscopic drug evaluations? Discuss with examples. 2+2
  - (vi) Name the source-plant of Reserpine. Write its pharmaceutical uses. 1+3
4. Answer any *two* of the following questions : 10×2=20
- (i) Define hydrogen bonds with example. What are the factors influencing the strength of hydrogen bonds? Describe tertiary and quaternary structures of proteins. 2+3+5
  - (ii) Describe fundamentals of thermodynamics with emphasis on free energy concept. 10
  - (iii) Enumerate the structures of phospholipids and glycolipids. Differentiate between saturated and unsaturated fatty acids. 4+6
  - (iv) Give an account on nitrogen containing secondary plant products in higher plants.
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