

# Important Questions On Morphogenesis and Organogenesis in Plants

**Q1. Match the following-**

<b>COLUMN A</b>	<b>COLUMN B</b>
<b>a. Richmond lang effect</b>	<b>i. reversal of red drop</b>
<b>b. Emerson effect</b>	<b>ii. glycolysis inhibition by oxygen</b>
<b>c. Pasteur effect</b>	<b>iii. photosynthesis inhibition by oxygen</b>
<b>d. Warburg effect</b>	<b>iv. retardation of senescence in detached leaves</b>

**A. a-iv, b-i, c-ii, d-iii**

**B. a-i, b-iii, c- ii, d-iv**

**C. a-iii, b-ii, c-i, d-iv**

**D. a-ii, b-i, c- iii, d-iv**

**Ans- A**

**Q2. Given below are some statements about the hormone auxin. Which of the following is true for auxin?**

**P. IAA is the principal auxin type**

**Q. Auxin shows polar transport**

**R. Distribution of auxin is pH dependent**

**S. TIBA and NPA block auxin transport**

**A. P and Q**

**B. Q and R**

**C. P and S**

**D. P, Q, R, S**

**Ans- D**

**Q3. Given below are some terms related to nitrogen metabolism in plants. Match each term with their corresponding meanings-**

**a. Ammonification i. conversion of atmospheric nitrogen to ammonia**

**b. Denitrification ii. conversion of organic nitrogen to ammonia**

**c. Nitrification iii. conversion of nitrite to atmospheric nitrogen**

**d. Nitrogen fixation iv. conversion of ammonia to nitrate**

**A. a-ii, b-iii, c-iv, d-i**

**B. a-i, b-iii, c- ii, d-iv**

**C. a-iii, b-ii, c-i, d-iv**

**D. a-ii, b-i, c- iii, d-iv**

**Ans- A**

**Q4. Photosynthetic pigments are located in membrane on specific areas called as-**

**A. Oxysomes**

**B. Quantosomes**

**C. Photosystem**

**D. Antenna molecules**

**Ans- B**

**Q5. Plant cell wall is generally made up of-**

**A. Cellulose and pectin**

**B. Cellulose**

**C. Chitin**

**D. Murin**

**Ans- B**

**Q6. The given below is a list of reproductive structures which are found in vascular and non-vascular plants.**

- (A) Archegonia
- (B) Megaspore
- (C) Capsule
- (D) Fern frond
- (E) Pollen
- (F) Corolla

**Out of these, which of the following represents structures primarily found in gametophytic life cycle of these plants?**

- A. A, C, F
- B. A, B, E
- C. B, D, E
- D. C, D, F

**Ans- B**

**Q7. A caretenoid less mutant plant was grown under normal sunlight then-**

- A. Increased photosynthesis rate
- B. Increased chlorophyll synthesis
- C. Reduced photorespiration
- D. Increased chlorophyll oxidation and necrosis

**Ans- D**

**Q8. Match the following-**

<b>COLUMN A (Plant hormone)</b>	<b>COLUMN B (function)</b>
<b>a. Gibberellins</b>	<b>i. Seed dormancy</b>
<b>b. Ethylene</b>	<b>ii. Cell division</b>
<b>c. Cytokinesis</b>	<b>iii. Fruit ripening</b>
<b>d. Abscisic acid</b>	<b>iv. Seed germination</b>

- A. a-iv, b-iii, c-ii, d-i
- B. a-i, b-iii, c- ii, d-iv
- C. a-iii, b-ii, c-i, d-iv
- D. a-ii, b-i, c- iii, d-iv

**Ans- A**

**Q9. Match the following-**

<b>COLUMN A (essential elements)</b>	<b>COLUMN B (deficiency symptoms)</b>
<b>a. Boron</b>	<b>i. Die- back disease</b>
<b>b. Copper</b>	<b>ii. Intervienal chlorosis</b>
<b>c. Iron</b>	<b>iii. Little leaf disease</b>
<b>d. Zinc</b>	<b>iv. Terminal leaf necrosis</b>

- A. a-iv, b-i, c-ii, d-iii
- B. a-i, b-iii, c- ii, d-iv
- C. a-iii, b-ii, c-i, d-iv
- D. a-ii, b-i, c- iii, d-iv

**Ans- A**

**Q10. Given below are some names of inhibitors involved in the process of photosynthesis with their corresponding function. Which of the following pair is incorrect?**

- a. FCCP - Make membrane permeable to ions**
- b. Malonate - Prevent succinate oxidation**
- c. Cyanide - Inhibit cytochrome oxidase**
- d. Acetoacetate - Inactivate enolase**

**Ans- D**

### ANSWERS

- |             |             |             |              |             |             |
|-------------|-------------|-------------|--------------|-------------|-------------|
| <b>1. A</b> | <b>2. D</b> | <b>3. A</b> | <b>4. B</b>  | <b>5. B</b> | <b>6. B</b> |
| <b>7. D</b> | <b>8. A</b> | <b>9. A</b> | <b>10. D</b> |             |             |

### SOLUTIONS

#### Solution-1

COLUMN A	COLUMN B
a. Richmond lang effect	iv. retardation of senescence in detached leaves
b. Emerson effect	i. reversal of red drop
c. Pasteur effect	ii. glycolysis inhibition by oxygen
d. Warburg effect	iii. photosynthesis inhibition by oxygen

#### Solution-2

All statements are correct about the hormone auxin. IAA (indole acetic acid) is the principal auxin type found in plants. Auxin shows polar transport. Distribution of auxin is pH dependent where the cytoplasmic pH is always more acid than cell wall. TIBA and NPA block auxin transport by inhibiting the transporter proteins. Hence, D is the correct option.

#### Solution-3

- a. Ammonification ii. conversion of organic nitrogen to ammonia
- b. Denitrification iii. conversion of nitrite to atmospheric nitrogen
- c. Nitrification iv. conversion of ammonia to nitrate
- d. Nitrogen fixation i. conversion of atmospheric nitrogen to ammonia

#### Solution-4

Photosynthetic pigments are located in membrane on specific areas called as Quantasomes which are located on the thylakoid membrane of chloroplasts where photosynthesis takes place. They consist of various photosynthetic pigments and redox carriers due to which they are considered as photosynthetic units. They are generally of 2 sizes- the smaller quantasome that represent the site of photosystem 1 and the larger one that represent the site of photosystem II. Each quantasome has about 240-270 chlorophyll molecules and forms two pigment systems namely- PS-I & PS-II. Hence, B is the right option.

#### Solution-5

Plant cell wall is the non-living component and the outmost layer of a cell. It is permeable in nature and varies in composition according to the organism. The interior contents of the cell is separated from the exterior environment by cell wall. It also provides support, shape and protection to the cell and its organelles. Plant cell walls are primarily consisted of the most abundant macromolecule on Earth i.e., cellulose. Cellulose is a long and linear polymer made up of hundreds of glucose molecules. Hence, B is the right option.

### Solution-6

Male reproductive organs of nonvascular and seedless vascular plants; produce motile sperm with two flagella. Archegonia. Megaspores are land plant spores that develop into female gametophytes. The microspores develop into male gametophytes that are released as pollen. Hence, archegonia, megaspore and pollen are the reproductive structures found in vascular and non-vascular plants. Therefore, B is the correct option.

**Solution-7** Carotenoids are the long- chain, lipid soluble and conjugated tetraterpenoid compounds which acts as accessory light harvesting- pigments and helps in absorbing the light in the wavelength region where generally chlorophylls not able to absorb strongly. They are subdivided into 2 classes- xanthophylls and carotenes. They also provide protection against photo- oxidation damage (photoprotection) by acting as quencher or scavenger. Through photochemical quenching protects from singlet oxygen which may damage photosystem. If they are not present in case of any mutation, it may lead to excessive chlorophyll oxidation and necrosis. Hence, D is the right option.

### Solution-8

a. Gibberellins	iv. Seed germination
b. Ethylene	iii. Fruit ripening
c. Cytokinesis	ii. Cell division
d. Abscisic acid	i. Seed dormancy

### Solution-9

COLUMN A (essential elements)	COLUMN B (deficiency symptoms)
a. Boron	i. Die- back disease
b. Copper	ii. Interviental chlorosis
c. Iron	iii. Little leaf disease
d. Zinc	iv. Terminal leaf necrosis

### Solution-10

- a. FCCP- acts as a uncoupler which make membrane permeable to protons
- b. Malonate - Prevent succinate oxidation during krebs cycle
- c. Cyanide - Inhibit cytochrome oxidase involved in electron transport chain
- d. Acetoacetate – it does not act as inhibitor

# CRASH COURSES

## Enrol for Ongoing CSIR NET Crash Courses

### CSIR NET General Aptitude Course 2021

Complete Study Plan to Boost the CSIR NET Score

#### What to Expect?

- Live Classes
- Quizzes
- Doubt Sessions
- PYQ Discussion
- Mock Tests
- Chapter-wise Tests
- Revision Tests
- Expert faculty

#### Course Language

- Bilingual

#### This Course Includes

-  **80+** Live Classes
-  **1000+** Practice Questions
-  Study Notes & Formula Sheets
-  **10+** Mock Tests

### CSIR NET Life Science 2021 Crash Course

Revision Plan to clear the exam

#### What to Expect?

- Live Classes
- Quizzes
- Doubt Sessions
- PYQ Discussion

#### Course Language

- English

#### This Course Includes

-  **200+** Live Classes
-  **3000+** Practice Questions
-  **200+** Study PDFs
-  **10+** Mock Tests

### CSIR NET Chemical Science 2021 Crash Course

Complete Revision Plan to ACE the Exam

#### What to Expect?

- Live Classes
- Quizzes
- Doubt Sessions
- PYQ Discussion
- Mock Tests
- Chapter-wise Tests
- Revision Tests
- Expert faculty

#### Course Language

- English

#### This Course Includes

-  **180+** Live Classes
-  **3000+** Practice Questions
-  **200+** Study PDFs
-  **10+** Mock Tests