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**M.Sc. (Second Semester)**  
**EXAMINATION, May - June, 2022**  
**BOTANY**  
**Paper Third**  
**(Plants Physiology)**

*Time : Three Hours]**[Maximum. Marks : 80***Note: Attempt all sections as directed.****Section - A****(Objective/Multiple Choice Questions)****(1 mark each)****Note: Attempt all questions. Choose the correct answer.**

1. Translocation of food takes place in plants-
- (A) Only Upward
  - (B) Only Downwards
  - (C) Upwards and Downwards both
  - (D) None of the above

2. If a cell is placed in hypertonic solution its volume will :
- (A) Decrease
  - (B) Increase
  - (C) turgid
  - (D) None of the above
3. In which plants stoma are open at night?
- (A) Mesophyte
  - (B) Hydrophyte
  - (C) Succulents
  - (D) All of the above
4. Which hormone is responsible for removal of water stress
- (A) Auxin
  - (B) Gibberellin
  - (C) Abscisic acid
  - (D) Cytokinin
5. Which hormone is responsible for flowering-
- (A) IAA
  - (B) GA
  - (C) Florigin
  - (D) ABA

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6. Enzyme catalysing rearrangement of atomic grouping without altering molecular weight or number of atoms is:
- (A) Ligase
  - (B) Isomerase
  - (C) Hydrolase
  - (D) None of the above
7. Microbial infection in plants is an example of:
- (A) Abiotic stress
  - (B) Biotic stress
  - (C) Mental stress
  - (D) None of the above
8. Acid rain by pollution is an example of-
- (A) Biotic stress
  - (B) Abiotic stress
  - (C) Mental stress
  - (D) None of the above
9. Blocking enzyme by blocking its active site is called as
- (A) Allsoteric inhibition
  - (B) Feed back inhibition
  - (C) Competitive inhibition
  - (D) Non competitive inhibition

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10. Zymogene or proenzyme is
- (A) Modulator
  - (B) Vitamin
  - (C) Enzyme precursor
  - (D) Hormone
11. G protein coupled receptors are referred to as:
- (A) Seven transmembrane receptors
  - (B) Five transmembrane receptors
  - (C) Cytosine
  - (D) None of the above
12. Miachelis Menton model is also referred to as :
- (A) Miachelis Menten plot
  - (B) Rapid Equilibrium model
  - (C) Eadie Hofstee plot
  - (D) None of the above
13. Which of the following is termed as catalytic efficiency-
- (A) Keat
  - (B) Keat/Km
  - (C) Vmax
  - (D) None of the above

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14. A low  $K_m$  value points out
- (A) A low affinity of enzyme towards its substrate
  - (B) High affinity of enzyme towards its substrate
  - (C) No affinity of enzyme towards its substrate
  - (D) None of the above
15. Which of the following hormone can replace vernalisalin
- (A) Cytokinin
  - (B) Ethylene
  - (C) Gibberelins
  - (D) None of the above
16. When water enters into the roots due to diffusion is termed as:
- (A) Active absorption
  - (B) Photoreaction
  - (C) Osmosis
  - (D) Passive absorption
17. If tree flowers thrice in a year [Oct, Jan and July] in northern India, it is said to be
- (A) Photo and thermosensitive
  - (B) Photo sensitive but thermoinsensitive
  - (C) Photosensitive and thermosensitive both
  - (D) None of the above

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18. Plants are able to perceive, light through various photoreceptors and downstream genes. Which of the following genes is not involved in light perception:
- (A) PIF3
  - (B) NRPI
  - (C) PHYE
  - (D) CRY3
19. Chloroplast distribution in a photosynthesizing cell is governed by blue light sensing. Phototropism [PHOT2] When the cells are irradiated with high intensity blue light, the chloroplasts:
- (A) Move to the side walls
  - (B) Arrange in the middle of the cells
  - (C) Are sparsely distributed
  - (D) Arrange in small clusters
20. The photoreceptor commonly involved in light entrainment of the biological clock in moulds and plants is:
- (A) Phytochrome
  - (B) Rhodopsin
  - (C) Carotenoids
  - (D) Cryptochrome

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**Section - B**

**(Very Short Answer Type Questions)**

**(2 marks each)**

**Note: Attempt all questions in two or three sentences.**

1. What are active sites?
2. What are 4 types of membrane transport?
3. What is phototropism?
4. What is photo-morphogenesis?
5. What is thigmo tropism?
6. What are Golgi bodies?
7. What component of phloem is involved in transporting food?
8. What is isotonic solution?

**Section - C**

**(Short Answer Type Questions)**

**(3 marks each)**

**Note: Attempt all questions in 75 words.**

1. What is verbalization?
2. What is munch hypothesis?
3. What are the different types of membrane transporters?
4. What is SAR in stress physiology?

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5. What is HR fundamental?
6. What are isoenzymes?
7. What is biotic stress?
8. What is induced fit model of enzyme action?

**Section - D**

**(Long Answer Type Questions)**

**(5 marks each)**

**Note: Attempt all questions in 150 words.**

1. Describe mechanism of water transport through xylem.

**OR**

Write a note on root microbe interaction in facilitating nutrient uptake.

2. Write an essay on signal transduction.

**OR**

Describe the role of cyclic nucleotide in signal transduction.

3. Write a note on abiotic stress.

**OR**

What do you know about freezing and heat stress.

4. Explain Allosteric mechanism.

**OR**

Give an account of photo-physiology of light induced responses.