UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Fourth Semester – 2020

Paper:Botany-IV (Plant Physiology and Ecology)

Course Code: BOT-203 / BOT-22300 Part – I (Compulsory) Time: 15 Min. Marks: 10

Roll No. in Fig. ……

Roll No. in Words. ……

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Signature of Supdt.:

ATTEMPT THIS PAPER ON THIS QUESTION SHEET ONLY.

Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer cutting and overwriting is not allowed. (10x1=10)

1. Part of the plant that perceives photoperiodic stimulus is
   - A. Leaf
   - B. Flower
   - C. Apical meristem
   - D. Whole seedling

2. Which of these best describes ABA's function?
   - A. To promote cell division at the shoot apical meristem
   - B. To prevent desiccation
   - C. To promote seed germination
   - D. To coordinate developmental patterning

3. Sudden fall down of tension in a column of water resulting from the indefinite expansion of tiny gas bubble is called
   - A. Cavitation
   - B. Hydraulic conductivity
   - C. Diffusion Resistance
   - D. Hyperpolarization

4. The water potential of pure water at atmospheric pressure is
   - A. -2 .3 MPa
   - B. +2.3 MPa
   - C. Zero MPa
   - D. 1.0 MPa

5. Hard, dry and brittle plant tissues with distorted leaves are deficiency symptoms of
   - A. Molybdenum
   - B. Boron
   - C. Copper
   - D. Iron

6. The Citric acid cycle of plant differs from mammalian Citric acid in that it is more
   - A. Rigid
   - B. Flexible
   - C. Persistent
   - D. None of the above

7. The light reactions of photosynthesis take place in

   A. Mitochondrion
   B. The thylakoid membrane
   C. Xylem
   D. The inner membrane of the chloroplast

8. The main auxin in higher plants having profound effects on plant growth and development is

   A. Indole-3-acetic acid (IAA)
   B. Indole-3-butric acid (IBA)
   C. 4-Chloroindole -3-acetic acid
   D. Dicamba

9. Which of the following are adaptations for avoiding unfavorable conditions?

   A. Migration
   B. Dormancy
   C. Body temperature regulation
   D. All of the above

10. What causes wind?

   A. Rain
   B. Changes in the angle of the Sun
   C. Clouds
   D. Differences in air pressure

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B.S. 4 Years Program / Fourth Semester – 2020

Roll No. ……

Paper:Botany-IV (Plant Physiology and Ecology)
Course Code: BOT-203 / BOT-22300 Part – II

Time: 2 Hrs. 45 Min. Marks: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Give short answers of the following: (20)

1. Using water potential terminology, explain why: Over-fertilizing your lawn will cause the leaves wilt, to become dry and fall off. (2)
2. Imagine two adjoining cells, the left one with a water potential of -0.5 MPa and the right one with a water potential of -0.2 MPa. Will the water move from Left to Right, or Right to Left? (2)
3. How does ABA affect the growth of plant roots? (2)
4. True or False: Compared to molecules of similar molecular weight, water has an unusually high boiling point. (1)
5. Xylem is described as a "vulnerable pipeline": vulnerable to what? (1)
6. A farmer is trying to grow corn but has difficulty getting access to water for irrigation. Her region gets a lot of rain in the spring, so when she plants the seeds the soil is nice and moist, but no rain falls during the summer when the plants are growing. For the past few years, she has managed to grow tall, healthy looking plants, but although they flower, they set few seeds. What advice can you give this farmer to help her get a good grain harvest next year? (2)
7. What is transect? Give its uses. (2)
8. What are physiognomic characteristics of a community? (2)
9. Differentiate between community and biome. (2)
10. Define soil profile (2)
11. Name some Succulent Xerophytes. (2)

Q.3. Give brief answers of the following. (3x10=30)

1. Compare and contrast the cellular functions and deficiency symptoms of K, Mg and Ca and Zn (10)
2. What is succession? Give a detailed account of its Different types. (10)
3. Give a detailed account of Krebs Cycle in plants. (10)