

PARUL UNIVERSITY
COLLEGE OF AGRICULTURE
B.Sc. (Hons.) Agriculture Regular Summer 2018 - 19 Examination

Semester: 2

Date: 08/04/2019

Subject Code: 20110153

Time: 02:00pm to 04:30pm

Subject Name: Fundamentals of Crop Physiology

Total Marks: 50

Instructions

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Do as Directed.**A. Fill in the blanks. (Each of 0.5 marks)****(05)**

1. The two O—H bonds form an angle of _____.
2. The most abundant lipid in cell membrane is _____.
3. _____ is responsible for the synthesis of starch.
4. Ability of substance to have high inter molecular attraction between similar molecules is called _____.
5. TCA cycle is also known as _____.
6. The term *Hormone* was given by _____.
7. Chemicals which act as natural phytohormone are called as _____.
8. Cytokinin is also called _____.
9. _____ is known as ripening hormone.
10. _____ is the central metabolic pathway.

B. Multiple choice type questions. (Each of 0.5 mark)**(10)**

1. Reaction of TCA cycle occur in _____.

| | |
|-------------------------|----------------|
| a) Mitochondrial matrix | c) Chloroplast |
| b) Ribosome | d) Nucleus |
2. _____ ATP are produced from one acetyl CoA.

| | |
|------|-------|
| a) 4 | c) 12 |
| b) 8 | d) 24 |
3. _____ are the most common respiratory substrate in plants.

| | |
|------------------|-------------------|
| a) Fats | c) Proteins |
| b) Carbohydrates | d) Organic acids. |
4. Which is the following is regulatory enzymes of TCA cycle _____.

| | |
|-----------------------------|---|
| a) Citrate synthase | c) α - ketoglutarate dehydrogenase |
| b) Isocitrate dehydrogenase | d) All of the above |
5. TCA cycle is _____ in nature.

| | |
|---------------|----------------------|
| a) Amphibolic | c) Anabolic |
| b) Catabolic | d) None of the above |
6. Main function of golgi-complex is _____.

| | |
|--------------------|---|
| a) Fermentation | c) Respiration |
| b) Phosphorylation | d) Packaging of materials for secretion |
7. Which of the following is C4 plant _____.

| | |
|-----------|----------|
| a) Cotton | c) Apple |
| b) Cactus | d) Corn |
8. Which of the following is C3 plant _____.

| | |
|------------|--------------|
| a) Apple | c) Sugarcane |
| b) Sorghum | d) Cactus |
9. _____ Proposed that plants can convert light energy into chemical energy

| | |
|------------------------|-----------------|
| a) Julius Robert Mayer | c) Samuel Ruben |
| b) Martin Kamen | d) Calvin |
10. How many ATP are produced during anaerobic glycolysis

| | |
|------|------|
| a) 4 | c) 2 |
| b) 8 | d) 6 |

11. The molecular weight of water is _____.
 - a) 14
 - b) 18
 - c) 10
 - d) 08
12. Maximum enzymes are found in _____.
 - a) Lysosomes
 - b) Mitochondria
 - c) Nucleus
 - d) ER
13. Besides producing secretory vesicles, the function of Golgi body is _____.
 - a) Lysosome formation
 - b) Formation of spindle fibers
 - c) Formation of E.R.
 - d) All the above
14. Which of the following is Growth Promoters _____.
 - a) IAA
 - b) Gibberellin
 - c) Cytokinin
 - d) All of the above
15. Mitochondria supply most of the necessary biological energy through _____.
 - a) Breaking down sugars
 - b) Reducing NADP
 - c) Oxidizing substrates of TCA cycle
 - d) Breaking down proteins
16. Phospholipid synthetase enzyme occur in _____.
 - a) RER
 - b) SER
 - c) Golgi body
 - d) Glyoxisome
17. Suicide bags of cells are _____.
 - a) RER
 - b) SER
 - c) Golgi bodies
 - d) Lysosome
18. The name mitochondria was first given by _____.
 - a) Robert Brown
 - b) Benda
 - c) Altmann
 - d) L.S. Jorge
19. _____ process causes loss of two protons and two electrons.
 - a) Deamination
 - b) Carboxylation
 - c) Dehydrogenation
 - d) CO₂ reduction
20. Site of glycolysis is _____.
 - a) Cytoplasm
 - b) Chloroplast
 - c) Mitochondria
 - d) Nucleus

Q.2 Do as Directed.

A. Define the following. (Any five)

(05)

1. Plant Physiology
2. Meristem
3. Osmotic pressure
4. Quantasome
5. Glycolysis
6. Plasmolysis
7. Photosynthesis

B. Answer the following. (Any Five)

(05)

1. Why mitochondria are known as power house of cell?
2. Why water is said to be the liquid of life?
3. Enlist the properties of water.
4. Explain: Imbibition.
5. Give the significance of osmosis in plants.
6. Give the difference between plant cell and animal cell.
7. Give the Importance of crop physiology in agriculture.

Q.3 Write short notes. (Any five)

(10)

1. Give the short note on chloroplast with labelled diagram.
2. Explain: Hypertonic, Hypotonic and Isotonic solution.
3. Write down the short note on chlorophyll in detail..
4. Explain the energetic of TCA cycle.
5. Give the difference between C₃, C₄ and CAM cycle.
6. Explain redox reaction with example.

Q.4 Attempt any Three/Long Questions/Example

(15)

1. Give the characteristics, function and biosynthesis of Cytokinin.
2. Explain the process of Glycolysis in detail with diagram.
3. Give the characteristics, function and biosynthesis of ethylene.
4. Draw the labelled diagram of plant cell and explain any one in detail.