REV-01
MSB/81/86

2022/07

# M.Sc. BOTANY
## SECOND SEMESTER
## BIOCHEMISTRY & ADVANCE PHYSIOLOGY
## MSB – 202

( Use Separate Answer Scripts for Objective & Descriptive )

**Duration : 3 hrs.** **Full Marks : 70**

## [ PART-A : Objective ]

**Time : 20 min.** **Marks : 20**

***Choose the correct answer from the following:*** ***1X20=20***

1. The main limiting factor which limits the rate of photosynthesis on a clear day
   a. Light b. Carbon dioxide
   c. Chlorophyll d. Water

2. The decreased rate of photosynthesis at high concentration of oxygen is referred to as
   a. Pasture effects b. Emerson effects
   c. Warburg effects d. Red drop

3. The ultimate biological energy comes from
   a. Sun light b. ATP
   c. Mito chondra d. Glucose

4. Photo oxidation of water in photosynthesis is in association of
   a. Pigment system I b. Pigment system II
   c. Plastocyanin d. Cytochrome B6

5. Which of the following is known as assimilatory power of dark reaction
   a. Water and oxygen b. NADH
   c. ATP and NADPH d. Carbon dioxide

6. Delay in senescence is caused by the spray of
   a. IBA b. Cytokinine
   c. ABA d. GA

7. Which of the following affects of auxins on plants are the basis for commercial application?
   a. Callus formation b. Stem curvature
   c. Induction of roots in cuttings d. All of these

8. Dimorphic chloroplasts are found in leaves of
   a. C4 plants b. C3 plants
   c. CAM plants d. All plants

9. In which form of sugar the symplastic loading takes place?
   a. Glucose b. Sucrose
   c. Maltose d. Arabinose

10. Ferrodoxin is a
    a. Heme iron protein
    b Non heme iron protein
    c. Copper containing protein
    d Sulpher containing protein

11. Which of the following is an example of epimers?
    a. Glucose & Galactose
    b. Glucose & Ribose
    c. Mannose & Glucose
    d. Galactose & Mannose

12. Which of the following amino acid act as neurotransmitter
    a. L-ornithine
    b. L-citrulline
    c. Creatine
    d. γ-aminobutyric acid

13. The coenzyme form of Vitamin B5 takes part in chemical reactions is
    a. TPP
    b. FMN
    c. Coenzyme A
    d. NAD

14. α-helix has a pitch of
    a. 5.5Å
    b. 5.1Å
    c. 4.4Å
    d. 5.4Å

15. Which of the following is found in insect circulating fluid
    a. Trehalose
    b. Isomaltose
    c. Chitin
    d. Cellobiose

16. Which of the following statement is incorrect about fatty acids
    a. Non-essential fatty acids can be synthesized from acetyl CoA
    b. Essential fatty acids are unsaturated
    c. Most naturally occurring fatty acids have even number of carbon atoms
    d. Unsaturated fatty acids provides more energy than saturated one of the same sizes when oxidised

17. Which will die first in girdled plant
    a. Fruits
    b. Roots
    c. Shoots
    d. All of the above

18. Which of the following is germination stimulatory substance?
    a. Thiourea
    b. Coumarin
    c. ABA
    d. Phthalides

19. Which of the following is supposed to be precursor of florigen?
    a. Cytokinin
    b. ABA
    c. Auxin
    d. Gibberellin

20. Phasic development theory for vernalization was given by
    a. Lysenko
    b. Melchers
    c. Both
    d. None of the above

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## PART-B : Descriptive

Time : 2 hrs. 40 min. Marks : 50

*[ Answer question no.1 & any four (4) from the rest ]*

1. Write the physiological role and mechanism of action of auxin. **5+5=10**

2. What is Ramachandran's plot. Write about the structures of proteins **2+8=10**

3. Write short notes on **5+5=10**
   a. Derived lipids
   b. Collagen structure

4. Write short notes on **2+2+6 =10**
   a. Diffusion
   b. Osmosis
   c. Deficiency symptoms of Nitrogen, Calcium and Potassium in plants

5. What is kranz anatomy ? Write the differences between $C_3$and $C_4$ pathways of carbon fixation **10**

6. What is dormancy? Write the mechanisms of breaking dormancy in seeds. **2+8=10**

7. Write the physiological role of gibberellins and ethylene. **5+5=10**

8. Describe the process of photorespiration and its significance **7+3=10**

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