Msc Botany
Semester III Internal II
Question bank paper III : Stress physiology

I.Multiple choice questions

1. Metal stress in plants mainly results in

a) Increased growth

b) Enzyme inhibition

c) Enhanced photosynthesis

d) Cell elongation

Answer: b) Enzyme inhibition

2. Aluminum toxicity is commonly observed in

a) Alkaline soils

b) Neutral soils

c) Acidic soils

d) Saline soils

Answer: c) Acidic soils

3. Excess manganese in plants causes

a) Chlorosis

b) Necrosis and brown spots

c) Increased flowering

d) Delayed senescence

Answer: b) Necrosis and brown spots

4. Iron toxicity is generally associated with

a) Well-drained soils

b) Flooded or waterlogged soils

c) Sandy soils

d) Dry soils

Answer: b) Flooded or waterlogged soils

5. Zinc toxicity in plants affects

a) Protein synthesis

b) Chlorophyll synthesis

c) Root elongation

d) All of the above

Answer: d) All of the above

6. Allelochemicals are

a) Plant hormones

b) Toxic metals

c) Secondary metabolites influencing other plants

d) Nutrients

Answer: c) Secondary metabolites influencing other plants

7. Which of the following is an allelochemical

a) Auxin

b) Gibberellin

c) Phenolic acids

d) Cytokinin

Answer: c) Phenolic acids

8. Allelopathy mainly affects

a) Photosynthesis only

b) Seed germination and growth

c) Respiration only

d) Transpiration only

Answer: b) Seed germination and growth

9. Allelochemicals are released into the environment through

a) Root exudation

b) Volatilization

c) Decomposition

d) All of the above

Answer: d) All of the above

10. Salt stress primarily causes

a) Increased water uptake

b) Osmotic stress

c) Enhanced nutrient absorption

d) Cell division

Answer: b) Osmotic stress

11. High salt concentration in soil leads to

a) Water stress in plants

b) Increased turgor

c) Faster growth

d) Improved yield

Answer: a) Water stress in plants

12. Salt succulence refers to

a) Salt exclusion

b) Storage of salt in leaves

c) Salt secretion

d) Salt elimination through roots

Answer: b) Storage of salt in leaves

13. Regulation of salt content in plants occurs by

a) Ion exclusion

b) Ion compartmentation

c) Salt glands

d) All of the above

Answer: d) All of the above

14. Salt tolerance in plants is mainly due to

a) Reduced transpiration

b) Osmotic adjustment

c) Reduced respiration

d) Increased flowering

Answer: b) Osmotic adjustment

15. Ultraviolet-B radiation wavelength range is

a) 100–280 nm

b) 280–320 nm

c) 320–400 nm

d) 400–700 nm

Answer: b) 280–320 nm

16. UV-B radiation primarily damages

a) Cell wall

b) DNA and proteins

c) Vacuole

d) Mitochondria

Answer: b) DNA and proteins

17. UV-B radiation affects photosynthesis by

a) Increasing chlorophyll content

b) Damaging PSII

c) Increasing CO_2 fixation

d) Enhancing electron transport

Answer: b) Damaging PSII

18. UV-B induced chemical changes in plants include

a) Increased phenolics

b) Reduced flavonoids

c) Reduced antioxidants

d) Increased respiration only

Answer: a) Increased phenolics

19. UV-B defense mechanisms in plants include

a) DNA repair

b) Antioxidant production

c) UV-absorbing compounds

d) All of the above

Answer: d) All of the above

20. UV-B radiation influences gene expression by

a) Suppressing all genes

b) Activating stress-responsive genes

c) Preventing transcription

d) Inhibiting translation

Answer: b) Activating stress-responsive genes

II.Fill in the blanks

1. 1. Excess accumulation of metals in plants leads to ____ stress.

Answer: Metal

2. Aluminium toxicity primarily affects ____ growth in plants.

Answer: Root

3. Manganese toxicity causes brown spots on ____ leaves.

Answer: Older

4. Iron toxicity commonly occurs in ____ soils.

Answer: Waterlogged

5. Zinc is required for the synthesis of the plant hormone ____.

Answer: Auxin

6. Chemical substances released by plants that affect neighboring plants are called ____.

Answer: Allelochemicals

7. The phenomenon involving chemical interaction between plants is known as ____.

Answer: Allelopathy

8. Allelochemicals may be released into the environment through ____, leaching, or volatilization.

Answer: Root exudation

9. High salt concentration in soil leads to ____ stress in plants.

Answer: Salt

10. Salt stress causes ____ stress by reducing water availability to roots.

Answer: Osmotic

11. Excess sodium ions disturb ____ balance in plant cells.

Answer: Ionic

12. Salt elimination in halophytes occurs through ____ glands.

Answer: Salt

13. Salt succulency helps plants by ____ excess salts in vacuoles.

Answer: Storing

14. Accumulation of compatible solutes helps plants maintain ____ balance.

Answer: Osmotic

15. UV-B radiation ranges between ____ nm in wavelength.

Answer: 280–320

16. UV-B radiation damages ____ and proteins in plant cells.

Answer: DNA

17. Exposure to UV-B radiation reduces the rate of ____.

Answer: Photosynthesis

18. Flavonoids act as ____ compounds against UV-B radiation.

Answer: Protective

19. UV-B induces the expression of ____ related genes.

Answer: Defense

20. Increased UV-B radiation alters the ____ composition of plants.

Answer: Chemical

III,One word answers

1.Mineral nutrition

2.Growth regulators

3.Allelochemicals

4.Ion toxicity

5.Metal toxicity

6.UV-B radiation

7.Metal stress

8.Water stress

9.Gene expression

10.Zinc