Question Bank- Second Semester- Plant Physiology

Questions sec 1

Fill the blanks with missing words:

1- The cell cycle is regulated by ----------.
2- The phase of plant development that gives rise to new organs and to the basic plant form is called ----------.
3- The cork cambium produces the ----------.
4- Lateral roots arise from the **----------.**
5- ---------- is the initial phase of growth when the rate of growth is very slow.

Put true (T) or false (F) at the end of the following sentences and correct the false ones:

1-Growth is reversible change in Mass.
2- Development is Irreversible change in state.

Choose correct answer:

1- The vascular cambium gives rise to: a-secondary xylem b-secondary phloem c-secondary xylem and secondary phloem
2- The cork cambium produces the: a- periderm 2-cork cells only c-epidermis

Define the following:

Growth rate, Hormone, Development, Differentiation, Dedifferentiation

Answer:

1-What occurs at the cellular level when a plant grows?
2- Draw the S-shaped, or sigmoid growth curve.

Questions sec 2 &3& 4

Choose correct answer:

1-Which plant hormone is helpful in making RNA and protein?
a. Gibberellins b. Auxin c. Cytokinins d. Ethylene

2=Which of the following plant hormone is responsible for seed germination?
a) Auxin b) Gibberellin c) Ethylene d) Abscisic acid

3- Which of the following plant hormone causes a delay in leaf senescence?
a) Abscisic acid b) Ethylene c) Auxin d) Cytokines

4- The effect of apical dominance can be overcome by which of the following hormone:
a. IAA b. Ethylene c. Gibberellin d. Cytokinin

5-Which side of a stem contains more auxin?

a) The shaded side
b) The side in the light
c) The shaded and non-shaded contain the same amount of auxin

Fill the blanks with missing words:

1-Seeds will germinate when ---------- is removed or inactivated.
2-The most common cytokinin base in plants is ----------.
3-Natural auxin named ----------.
4-The ---------- is the precursor of ethylene.
5- The ---------- is the precursor of auxin.
6- The ---------- is the precursor of Abscisic acid.
7- Without ---------- stem parenchyma cell grows very large and does not divide.
8- More cytokinins than auxin in tissue culture causes ---------- to develop from the callus
9- More auxin than cytokinin in tissue culture causes ---------- to form.

Define the following:
Plant Hormone, Apical dominance, Zeatin, Triple Response, Epinasty

Discuss:
1- General functions of the following plant hormones:
Auxins - Gibberellins - Abscisic acid- cytokinins - Ethylene
2- Cytokinins as anti-aging hormones
3- Induction of seed germination and control dormancy by GAs

Which Plant Hormone primarily responsible for the following:
1- Bolting
2-Cell enlargement
3-Cell division
4-hyper elongation of stems
5-stomatal closure
6-Fruit Ripening

Draw:
1-scheme of Auxin biosynthesis pathways?
2-scheme of Gibberellins biosynthesis pathways?
3-scheme of Ethylene biosynthesis pathways?

Questions sec 5

Put true (T) or false (F) at the end of the following sentences and correct the false ones:
1-At sunset, most of the phytochrome is in the Pr form, during the night, Pfr is converted back into Pr or breaks down.
2-A plant flowers or not depends on the amount of Pfr left (which relates to the amount of night).
3- Pr is the form synthesized by the plant; only form in the dark; light inhibits synthesis of Pr.
3- Short-day plants need low Pr.

4-Long-Day plants need Low Pfr.
5-Pfr promotes flowering in short day plants.
6-Pfr is the active form, triggers or inhibits responses such as flowering.

Choose correct answer:

1- Pfr promotes flowering in:
a- long day plants b- short day plants c- Day-neutral plants

2- a plant flowers or not depends on:
a- amount of Pfr b- amount of Pr c- Pr +Pfr

3- Pr is synthesized in the dark in cytosol by the plant:
a- Chloroplast b- Nucleus c- Both

Questions sec 6

Put true (T) or false (F) at the end of the following sentences:

1- The two major signals for inducing flowering are light (photoperiod) and temperature (heat treatment).
2- SDPs are long night plants , which flower under the night length shorter than their critical night length of 24h cycle.
3- Exogenous application of GA can substitute for photoperiod, especially in LDP's.
4- The flowering stimulus moves in the phloem from the leaves to the meristems where flowers are to be initiated.
5- The flowering signal is grafting transmittable.
6- Florigen - name given to the proposed flowering "hormone".
7- In many species the requirement for vernalization can be overcome by treatment with GA.
8- Anthesin is a hypothetical hormone that may stimulate flowering in LDP when associated with GA.

Choose correct answer:

1- Day length is sensed in the:
a- shoot apical meristem b- leaves

2- The flowering signal is generated in the leaf- the signal goes from the leaf to the apex:
a- is grafting transmittable b- is grafting untransmittable

3- In many species the requirement for vernalization can be overcome by treatment with:
a- IAA b-CKS 3- GA.

4- The main part sensitive to low temperature is:
a-leaves b-shoot apical meristem

5- After passing vernalization, plant can form:
a- Florigen b- vernalin c- Anthesin

Define the following:

Juvenility, Ripe to Flower, Photoperiodism, Short day plants, Critical day, Long day plants, Day-neutral plants, Vernalization, Devernalization, vernalin

Answer the following:

1-What are the methods to shorten the juvenility.

2-Darkness-broken experiment gives conclusion that dark-length decide the flower formation.

Questions sec 7

Put true (T) or false (F) at the end of the following sentences and correct the false ones:

1- Movements of locomotion include movement of completely unicellular or multicellular plant body as in gametes and zoospores.

2- Secondary roots growing at right angles to the force of gravity are Plagiogeotropic.

3- This autonomic movement of locomotion takes place due to the presence of cilia or flagella and movement of cytoplasm.

4- The entry of water to the lower side of the pulvinus causes the leaves to stand erect and exit of water causes them to drop.

5- Lateral roots and branches, which are not sensitive to gravitational stimulus, are Diageotropic.

6- When the growth is more on upper surface, petals show curvature on the lower side and ultimately the flower opens. Such movement is called hyponasty.

Fill the blanks with missing words:

1. The response of touch in Mimosia is caused by the movement of water in and out of the parenchymatous cells of the ----------.
2. Thermonasty movement caused in response to ----------.
3. The nastic movement caused in response to light is called ----------.
4. When growth movements occur in response to an external stimulus, which is not unidirectional but diffused, they are called ----------.
5. Secondary roots growing at right angles to the force of gravity are called ----------.
6. Plants perceive gravity in specialized cells, called ----------.
7. When the growth of the stem apices occurred in a zigzag manner, this movement called ----------.

Define the following:

Vital movements, Thigmonastic movement, Seismonastic movement, Thermonasty, Photonasty, Nastic Movements, Thigmotropism, Chemotropism, Phototropism, Geotropism, Nutation, Hyponasty

Answer the following:

1- What is role of auxins in Phototropism?

2- What is role of Calcium in gravitropism?

Questions sec 8 &9

Put true (T) or false (F) at the end of the following sentences and correct the false ones:

1. Conversion of nitrate and nitrite into ammonia, nitrogen gas and nitrous oxide (N_2O) is called nitrification.
2. Nitrifying bacteria like *Nitrosomonas* converts nitrate to nitrate.
3. Conversion of ammonia to nitrite (NO_2 -) and then nitrate (NO_3 -) is known as nitrification.
4. Conversion of organic nitrogen to ammonium ions by microbes present in the soil is called ammonification.

Fill the blanks with missing words:

1. Minerals are absorbed in the form of soil ---------- in the pore spaces between the soil particles and the root hair.
2. The ----------absorption is not affected by temperature and metabolic inhibitors.
3. The movement of ions into the cell is called ---------- and the movement of ions from the cell to outside is known as ----------.
4. Mineral nutrient deficiencies occur when the concentration of a nutrient ---------- below this typical range

Define the following:

Nitrogen fixation, Dentrification, Nitrate assimilation, Nitrification, Essential element, Ammonification, Passive absorption, Active absorption, Mineral, Nutrient, , Macronutrients, Micronutrients, Beneficial element

Answer the following:

1. What are the criteria of Essential element?
2. What are the biochemical role and physiological function of the essential elements of group one?
3. What are the biochemical role and physiological function of the essential elements of group two?
4. What are the biochemical role and physiological function of the essential elements of group three?
5. What are the biochemical role and physiological function of the essential elements of group four?