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**1. Water potential is equal to**

- (a)  $T_s + O.P.$
- (b)  $= T.P.$
- (c)  $^xI'p + Y,$

**Answer and Explanation:**

**1. (d):** Water potential is the difference in the free energy or chemical potential per unit molal volume of water in a system and that of pure water at the same temperature and pressure.

**2. Transpiration is least in**

- (a) good soil moisture
- (b) high wind velocity
- (c) dry environment
- (d) high atmospheric humidity.

**Answer and Explanation:**

**2. (d):** Transpiration is least in high atmospheric humidity. The rate of transpiration is directly proportional to the saturation deficit. In other words, transpiration rate depends upon the gradient of vapour pressure. Hence, at high atmospheric humidity transpiration rate is low.

**3. Phenyl mercuric acetate (PMA) results in**

- (a) reduced photosynthesis
- (b) reduced transpiration
- (c) reduced respiration
- (d) killing of plants.

**Answer and Explanation:**

**3. (b):** Phenyl mercuric acetate (PMA) results in reduced transpiration. PMA is an antitranspirant. These are some chemicals whose limited application on the leaf surface reduce or checks transpiration. A good antitranspirant increases leaf resistance but does not affect the mesophyll resistance.

**4. Stomata open and close due to**

- (a) circadian rhythm
- (b) genetic clock
- (c) pressure of gases inside the leaves
- (d) turgor pressure of guard cells.

**Answer and Explanation:**

**4. (d):** The pressure that develops in a cell due to osmotic diffusion of water inside it, is called turgor pressure. Stomata open and close due to turgor pressure of guard cells. When turgid, they swell and bend outward. As a result, the stomatal aperture opens. When they are flaccid, the tension from the wall is released and the stomatal aperture closes.

**5. Movement of leaves of sensitive plant, *Mimosa pudica* are due to**

- (a) thermonasty
- (b) seismonasty
- (c) hydrotropism
- (d) chemonasty.

**Answer:**

- (b) seismonasty

**6. Phytochrome is involved in**

- (a) phototropism
- (b) photorespiration
- (c) photoperiodism
- (d) geotropism.

**Answer and Explanation:**

**6. (c):** Phytochrome is a photoreceptor molecule which mediates several developmental and morphogenetic responses of plants to light. This is called photoperiodism. Borthwick, Hendicks and Parker in 1952, discovered phytochrome, which is a pigment received light existed in two inter convertible forms active form and inactive form.

**7. Gibberellins promote**

- (a) seed germination

(b) seed dormancy

(c) leaf fall

(d) root elongation

**Answer and Explanation:**

**7. (a):** Gibberellins promotes seed germination. Gibberellins are weakly acidic growth hormones having ring structure and which causes cell elongation of intact plants in general and increased internodal length of genetically dwarfed plants. Gibberellins are synthesized in the apical shoot buds, root tips and developing seeds. During seed germination, especially of cereals gibberellin stimulates the production of some messenger RNAs and then hydrolytic enzymes like amylases, lipases, proteases. The enzymes solubilize the reserve food of the seed.

**8. Cut or excised leaves remain green for long if induced to root or dipped in**

(a) gibberellins

(b) cytokinins

(c) auxins

(d) ethylene.

**Answer and Explanation:**

**8. (b):** Cytokinin are plant growth hormones which are basic in nature cytokinins induce formation of new leaves chloroplasts in heaves, which inturn keeps the leaves green for a longer duration of time. Cytokinins applied to marketed vegetables can keep them fresh for several days. Shelf life of cut shoots and flowers is krolonged by employing the hormones.

**9. Hormone primarily connected with cell division is**

(a) IAA

(b) NAA

(c) cytokinin/zeatin

(d) gibberellic acid

**Answer and Explanation:**

**9. (c):** Cytokinin has a very specific effect on cell division (cytokinesis), hence the name cytokinin. They contain kinetin and related compound generally called as kinins chemically, cytokinins are degradation product of adenine, ATP, NAD and NADP. Cytokinins are essential for cytokinesis though chromosome doubling can occur in their absence. Cytokinins bring about division even in permanent cells.

**10. Carbon dioxide joins the photosynthetic pathway in**

- (a) PS I
- (b) PS II
- (c) light reaction
- (d) dark reaction.

**Answer and Explanation:**

**10. (d):** The dark reactions or Blackman's reactions or biosynthetic phase involves three steps: (i) which is fixation of CO<sub>2</sub>, (ii) Reduction of CO<sub>2</sub> and (iii) synthesis of other compound from glucose. It is independent of light. Pigment System I is relatively very weakly fluorescent while pigment system II is strongly fluorescent. Light energy absorbed by pigment in the two systems is ultimately trapped by the P<sub>700</sub> and P<sub>680</sub>. Light reaction is associated with the grana of the chloroplasts. It takes place in the presence of light only.