

**First Year Higher Secondary Second Terminal Evaluation December 2018**

**Answer Key**

**BOTANY**

**I**

1. Mycoplasma / PPLO
2. Ribosome
3. a. lenticels permit exchange of gases

**II**

4. the different type of cells present in xylem are vessels, trachieds, xylem fibres and xylem parenchyma
5. a. cell wall formation  
b. DNA replication and distribution to daughter cells  
c. help in respiration  
d. secretion process  
e. increase the surface area of plasma membrane and enzyme content (any four)
6. a. guttation is the loss of water from plants in the form of drops but transpiration is the loss of water from plants in vapour form  
  
b. guttation takes place through the opening at the tip of leaf (hydathodes) but transpiration takes place through stomata on the epidermis  
  
c. guttation takes place at night and early morning but transpiration takes place in day time (any two)
7. a. algae and fungi are the components of lichen  
  
b. lichens are pollution indicators / lichens do not grow in high air polluted areas (especially SO<sub>2</sub> Pollution) / lichens together with mosses first colonize on rock surface and help weathering of rocks (any one )
8. syngamy and triple fusion are the two events occurs in double fertilization / fusion of male gamete with egg to form zygote and fusion of male gamete with secondary nucleus (polar

nuclei) to form PEN / formation of zygote by syngamy and formation of PEN by triple fusion(any One )

9. a. in the soil, minerals are present in the form of charged particles (ions)

b. concentration of minerals in soil is usually lower than the concentration of minerals in the root

10. A. Conjoint closed

B. Conjoint open

1. phloem      2. Xylem      3. Phloem      4. Cambium      5. Xylem

11. on the basis of the diverse functions, essential elements are classified into 4 functional categories and are :

a. they are components of biomolecules

b. they are components of energy related compounds

c. they are activators or inhibitors of enzymes

d. they can change the osmotic potential of a cell

12. apoplast and symplast are the two pathways for water movement in plants./ on one pathway water moves through the cell wall and inter cellular spaces and in the second pathway, water moves through the cytoplasm, plasmodesmata and plasma membrane / in one pathway, water moves through the outer space and is called apoplast and in the second pathway, water moves through the inner space and is called symplast (any one )

13. **racemose inflorescence**

a. main axis or peduncle growth is indefinite or unlimited

b. flowers are borne laterally in an acropetal order

**cymose inflorescence**

a. main axis or peduncle growth is definite or limited

b. flowers borne in a basipetal order

14. some mosses provide food for herbaceous animals and birds / peat moss (sphagnum) have been used as fuel / peat moss is used as packing material for the trans shipment of living materials / mosses together with lichens decompose the rocks and make the substrate suitable for the growth of higher plants / they form dense mats on the soil and prevent soil erosion ( any two)

### III

15. a. Schleiden and Schwann

b. all living organisms are composed of cells and products of cells

all cells arise from pre – existing cells

16. a. parietal placentation – eg : mustard, argemone

b. axile palcentation – eg : china rose, tomato, lemon

c. marginal placentation – eg : pea

17. In cell A, water moves out of the cell first from the cytoplasm and then from the vacuole because the cell is placed in hypertonic solution. This causes the protoplast to shrink from the cell walls and cell become plasmolysed./ plasmolysis takes place / water moves from higher water potential to lower water potential ie, from cell to outside. (any one)

In cell B, there is no net flow of water towards the inside or outside because the cell is placed in isotonic solution. / the cell is said to be flaccid as water flows into the cell and out of the cell are in equilibrium / cell become flaccid (any one )

In cell C, water enters into the cell because cell is placed in hypotonic solution. / the cell become turgid as water moves into the cell / water moves from higher water potential to lower potential ie, from outside the cell to inside of the cell . (any one)

18. a. in meiosis chromosome number is reduced to half in daughter cells

b. maintains same chromosome number in successive generations of every species

- Increases genetic variability
- Helps in the process of evolution
- Helps to produce gametes in sexually reproducing diploid organisms. (any two)