

**FIRST YEAR HIGHER SECONDARY EXAMINATION ANSWER KEY, SEPT. 2021**

**FY 226**

**BOTANY**

- I
1. Mycorrhiza
  2. S-phase
  3. Ethylene
  4. Bisexual flower
  5. Nitrosomonas/nitrobactor/Nitrococcus (any one)
  6. Yeast (any 3x1 (from 1 to 6)=3 SCORE)
- II
7. a, Green Algae b, Phaeophyceae c, Red algae d, Laminarin / Mannitol  $\frac{1}{2} \times 4 = 2$
  8. Reticulate & Parallel  $1+1=2$
  9. i-d ii- c iii-b iv-a  $\frac{1}{2} \times 4 = 2$
  10. Mitochondria are the sites of aerobic respiration./ They produce cellular energy in the form of ATP, hence they are called 'power houses' of the cell. 2
  11. cell growth, formation of intercellular junctions, secretion, endocytosis, cell division, transport of the molecules across it (any two)  $1+1=2$
  12. a, The membrane system is responsible for trapping the light energy and also for the synthesis of ATP and NADPH called light reaction  
B, In the membrane system or granna of Chloroplast  $1+1=2$
  13. a, Kranz Anatomy 1  
b, maize & sorghum (or any other examples)  $\frac{1}{2} + \frac{1}{2} = 1$
  - 14, Lag phase/Exponential phase/Stationary phase (Any Two)  $1+1=2$
  - 15, Formation of ATP/Formation of NADP/Splitting of water/Oxygen release (any two)  $1+1=2$
  16. Apoplast & Symplast  $1+1=2$
  - 17, Cell wall formation/DNA replication and distribution to daughter cells./ help in respiration,/ secretion processes,/ to increase the surface area of the plasma membrane/ and enzymatic content.  $1+1=2$
  - 18 a, Carboxylation, Reduction, Regeneration  $\frac{1}{2} \times 3 = 1 \frac{1}{2}$   
b, Sucrose/ starch  $\frac{1}{2}$
  19. a, Gelidium / Gracilaria b, used to grow microbes / preparations of ice-creams and jellies.  $1+1=2$
  20. the protoxylem lies towards the centre (pith) and the metaxylem lies towards the periphery of the organ. This type of primary xylem is called endarch.

In roots, the protoxylem lies towards periphery and metaxylem lies towards the centre. Such arrangement of primary xylem is called exarch. 1+1=2

21.a, radial b, conjoint open 1+1=2

22.The central dark coloured and more durable wood is heart wood

The peripheral light coloured and less durable wood is sap wood 1+1=2

23 Ethanol & CO<sub>2</sub> 1+1=2

24. a,Antiport b, Symport 1+1=2

(Answer any 9 questions from 7 to 24) :9x2 =18

**III 25,** The breakdown of glucose in the presence of oxygen to produce more amount of energy is called as aerobic respiration./ The breakdown of glucose in the absence of oxygen to produce energy is called as anaerobic respiration

In aerobic respiration there is the release of energy, carbon dioxide, and water./ In anaerobic respiration there is the release of a less amount of energy, carbon dioxide, lactic acid, & ethanol.

1+1+1=3

26,a,Fabaceae 1

b,Zygomorphic/ Bisexual/5 sepals/Gamosepalous/5 petals/papilionaceous corolla/vexillary aestivation/diadelphous androecium/ovary superior/mono carpellary/marginal placentation (any two) 1+1=2

27 a, Metaphase 1

B, Spindle fibres attach to kinetochores of chromosomes./ Chromosomes are moved to spindle equator and get aligned along metaphase plate through spindle fibres to both poles. 1+1

28(a) The element must be absolutely necessary for supporting normal growth and reproduction. In the absence of the element the plants do not complete their life cycle or set the seeds.

(b) The requirement of the element must be specific and not replaceable by another element. In other words, deficiency of any one element cannot be met by supplying some other element.

(c) The element must be directly involved in the metabolism of the plant. 1+1+1=3

29 a, . The ratio of the volume of CO<sub>2</sub> evolved to the volume of O<sub>2</sub> consumed in respiration is called the respiratory quotient (RQ) or respiratory ratio. 2

b, 1 1

30,a &b –iv or v c & d -i or iii e & f –ii or vi ½ x6=3

[(Any 3 questions from 25 to 30) 3x3= 9]

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**Total score -30**