FIRST YEAR HIGHER SECONDARY IMPROVEMENT EXAMINATION SEPTEMBER 2016

FINALIZED SCHEME FOR VALUATION

PART III PART .A BOTANY CODE No. 417 Total Score : 30

Q.No.	Value points	Score	Total
1.	d) (i) and (iii)	1	1
2.	c) Mitochondria	1	1
3.	• It is used in polishing. • It is used in filtration of oils and syrups.	½ ½	1
4.	• Heart wood • It is more durable ,thick and resistant to attacks of micro-organisms./any other quality of heart wood.	½ ½	1
5.	Cyclic electron transport: a)Only pigment system I is involved; d)Only ATP is formed Noncyclic electron transport: b)ATP and NADP are formed; c)Splitting of water occurs	½ X4	2
6.	Syngamy • One of the male gamete /sperm fuses with the egg cell/female gamete/ovum to form a zygote. Triple fusion • Second male gamete/sperm fuses with diploid secondary nucleus(polar nuclei in the central cell) to form primary endosperm nucleus. (Explanation of the two processes without the technical terms give full score 2)	½ ½ ½ ½	2
7	Dicot stem: • Open vascular bundles /with cambium • Limited number of vascular bundles. • Arranged in the form of a broken ring. • Presence of sclerechymatous bundle cap . • Xylem vessels are arranged in linearly. • Polygonal shaped xylem vessels. Monocot stem: • Closed/without cambium. • Numerous vascular bundles. • Vascular bundles are arranged in the scattered manner. • Presence of sclerenchymatous bundle sheath. • Xylem vessels are arranged in Y or V in shape. • Round shaped xylem vessels. • Presence of protoxylem lacuna. (Any two other differences from each type give full score 2) or diagram showing correct differences give full score 2	½+ ½ ½+ ½	2

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8.	i) Coleoptile ii) Plumule iii) Radicle iv) Aleurone layer/protein sheath	½ x4	2
9.	• Splitting of water molecules and accumulation of protons within the thylakoid lumen. • For the reduction of NADP+ to NADPH+ H+,protons are removed from the stroma. • During electron transport, protons are removed from stroma and released into the lumen of thylakoid. (Any two events related to chemiosmotic theory of photosynthesis give full score 2/ diagrammatic representation of chemiosmosis during photosynthesis/ any two events related to proton gradient)	1 1	2
10.	Prokaryotes- 70 S Eukaryotes – 80S/70S Ribosomes are present in mitochondria and chloroplast /Any other related differences of ribosomes, give full score 1 • Protein synthesis	½ ½ 1	2
11.	Facilitated diffusion i) Uniport ii) Antiport iii) Symport	½x4	2
12.	• The element must be essential for normal growth and reproduction. • Specific , not replaced by other element. • Directly involved in the metabolism of the plant. Mg(Magnesium)	½x4	2
13	A: a)Stomata closure — B: v) ABA A: b)Citric acid — B: iv)Kreb's cycle A: c)Glycolysis — B: i) Cytoplasm A: d)Heterophylly — B: ii)Plasticity	½x4	2
14.	Auxin- • Apical dominance • Root initiation • Prevention of premature fruit and leaf fall • Promote abscission of old mature leaves and fruits Gibberellin • Bolting • Delay of senescence • Stem elongation • Leaf expansion in tobacco Any other related 2 functions of auxin and gibberellin- give full score 2	½X4	2

15.	a) Diplotene b) Pachytene c) Zygotene d) Diakinesis	½x4	3
	Significances- • Formation of haploid gametes. • Increase genetic variability/ leads to evolution • Conservation of specific chromosome number in successive generation of a species Reduction in the number of chromosomes OR any two other significances	½ ½	
OR	OR	OR	
16.	A-Metaphase • Formation of spindle apparatus./ Metaphase plate • Chromosomes are arranged at the equator of spindle apparatus • Spindle fibres are attached to kinetochore of chromosome (any two other correct features of metaphase.)	½ ½ ½ ½ ½	
	B-Anaphase • Centromere split and chromatids separate. • Movement of daughter chromosomes towards the opposite poles of the cell any two other correct features of anaphase)	½	
17.	• Every part of the plant take care of its own gas exchange needs and there is very little transport of gases from one part of the plant to another. • Plant do not have great demands for gaseous exchange, the rate of respiration is far lower than that of animals.The availability of oxygen is not a problem,because oxygen is released within the cell during photosynthesis. • The distance for which the gases diffuse,even in large,bulky plants is not great as living cells in a plant are located quite close to the surface of the plant. • Presence of stomata and lenticels on the surface of plants • Presence of loosely arranged cells with inter cellular spaces (Anyother related points)	1 1 1	3
OR	OR	OR	
18.	• Glucose- 6-phosphate • Fructose-1,6-biphosphate / Fructose-1,6-bisphosphate • 1,3- bisphosphoglyceric acid/1,3- bisphosphoglyceric acid • 2-phosphoglyceric acid • Phosphoenol pyruvic acid • Pyruvic acid	½X6=3	
	Total Score	30	30