FIRST YEAR HIGHER SECONDARY EXAMINATION MARCH 2016
FINALIZED SCHEME OF VALUATION

Subject - Biology - Part A Botany **Code No. 317**

Qn.No	SUB QTN	Scoring Indicators	Split Score	Total Score
1		a) Pasteur	1	1
2		d) Chlorophyll a	1	1
3		• The members of Rhodophyceae are known as red algae. • Presence of red pigment r-phycoerythrin, Chlorophyll a and d. • The food is stored as floridean starch. . Cel wall is made up of cellulose, pectin, poly sulphate esters. . Present in fresh water, brackish water, salt water. • Red thalli of most of the red algae are multicellular. • Vegetatively reproduced by fragmentation. • Asexually reproduced by non-motile spores. • Sexually reproduced by non-motile gametes . • Sexual reproduction is oogamous with post-fertilization developments. (Any two distinguishing features of Rhodophyceae give 2 scores)	1+1	2
		OR	**OR**	**OR**
		• **Mycorrhiza** is the symbiotic association of a fungus with root system / Fungal association in the roots of Pinus. • **Corolloid roots** are the specialised roots of Cycas / Roots associated with nitrogen fixing cyanobacteria.	1 1	2
4		**Active transport**:- Transport of substances from low concentration to a higher concentration (uphill transport). Requires ATP to carry substances across the cell membrane. (Any one response of the above give 1 score) **Facilitated diffusion:**- Transport of substances from higher concentration to lower concentration. Substances move across the cell membrane without the expenditure of energy. (Any one response of the above give 1 score)	1 1	2
5		• Chlorosis / loss of chlorophyll and yellowing in leaves. • Necrosis / death of tissues. • Stunted plant growth. • Premature fall of leaves and buds. • Inhibition of cell division. • Delay in flowering etc. (Any four deficiency symptoms give 2 scores)	1/2 x 4= 2	2

6		• Respiration is an amphibolic pathway as it involves both anabolism (synthesis of substrates) and catabolism (breaking down of substrates). (Any explanation showing respiration is an amphibolic pathway give full score 2) or (Any Schematic representation showing respiration is an amphibollic pathway give full score 2).	1 +1	2
7		**Alcoholic fermentation**:- Pyruvic acid is converted to carbondioxide and ethanol . **Lactic acid fermentation** :- Pyruvic acid is converted to lactic acid. (Schematic representation of reaction steps of alcoholic and lactic acid fermentation give full score 2 /any one difference between alcoholic and lactic acid fermentation give full score 2)	1 1	2
8	a	i) ABA or NAA (Synthetic hormone)	1	3
	b	• Promote bolting in rosette plants(internode elongation just prior to flowering. • Increase the length of grapes stalk/increase in length axis. • Delay of senescence. • Speed up malting process in brewing industry. (Any two correct physiological functions of gibberellin give 2 scores).	1+1	
9	a	Kranz anatomy	1	3
	b	• Tolerate higher temperature. • Show responses to high light intensities. • Lack of photorespiration. • Greater productivity of biomass. . At very low Co2 concentration C4 plants reach saturation level. .In C4 plants Co2 fixation takes place both in mesophyll cells and bundle sheath cells. (Any two advantages of C4 plants give 2 scores Or Explanation about C4 pathway give 2 scores Or Schematic representation of C4 photosynthetic pathway give 1 score)	1+1	
10	a	iii) Pachytene	1	3
	b	• Conservation of specific chromosome number of each species . • Increases genetic variability in the population of organisms from one generation to the next. • Formation of haploid gametes. • Reduction of chromosomes by half. (Any two significances of meiosis give 2 scores)	1+1	
11	a	Liliaceae / Lily family	1	3

	b	• Bisexual • Actinomorphic • Six tepals in fused condition with valate aestivation./(3+3) • Six stamens in epipetalous condition/(3+3) • Tricarpellary, trilocular,syncarpous,superior ovary/ G (3) • Axile placentation etc (Any four floral features or floral formula of liliaceae with four floral features give full score 2)	1/2 x 4 =2	
12		• Fluid mosaic model of plasma membrane. • Cell membrane is composed of lipids that are arranged in a bilayer. • Lipids are arranged within the membrane with polar head towards the outer sides . • Hydrophobic tails towards the inner part. • Lipid component of the membrane mainly consist of phosphoglycerides. • Cell membrane also possess proteins and carbohydrates. • Membrane proteins can be integral or peripheral. • Peripheral proteins lie on the surface of membrane while the integral proteins are partially or totally buried in the membrane • The quasi-fluid nature of lipid enables lateral movement of proteins within the overall bilayer. (Any three correct structural features of plasma membrane give 3 scores) Or Singer and Nicolson model or Fluid mosaic model give 2 scores	1 x 3 = 3	3
13		• Meristematic tissue cork cambium or phellogen develops in the cortex. • Phellogen cut off cells on both sides. • The outer cells differentiate into suberised cork or phellem. • The inner cells differentiated into parenchymatous sec.cortex or phelloderm . • Phellogen,phellum and phelloderm are collectively known as periderm. • Due to the activity of cork cambium ,pressure build up on the remaining layers peripheral to it and finally become die and slough off. • At certain region ,the phellogen cut off closely arranged parenchymatous cells on outer side with lens shaped opening called lenticels. (Any three events or its explanation during periderm formation give 3 scores or	1x3	3
		OR	**OR**	**OR**

		• The cambial ring become active and begins to cut off new cells both towards the inner and outersides. • The cells cut off towards innerside and form sec.xylem. • The cells cut off towards periphery and form sec.phloem. • The cambium is greatly more active on the innerside than the outerside and form more secondary xylem than sec.phloem. . Formation of annual rings . Heart wood, sap wood formation. • The primary xylem remains more or less intact. • Cambium forms narrow bands of parenchyma which passes through the sec.xylem and sec.phloem in radial direction and form secondary medullary rays. (Any three events about the cambial ring activity give full score 3) Or Diagrammatic representation of the activity of cambial ring with correct 3 labelling give full score 3)	1x3	3
		TOTAL SCORE	**30**	**30**