STATE COUNCIL OF EDUCATION RESEARCH AND TRAINING

BIO-BOTANY ANSWER KEY
HIGHER SECONDARY FIRST YEAR
PART-A
SECTION-I

Q.No.			
Section I	**Choose The Correct Answer:-**		**8 X 1 = 8**
1	C) They form blooms in polluted water bodies	1	
2	A) Heterospory	1	
3	A) Fasciculated roots	1	
4	B) Raceme is a racemose inflorescence having main axis shortened and flowers borne acropetally	1	8
5	B) (i) is correct and (ii) is wrong	1	
6	D) Lipids can rarely flip-flop, Proteins cannot	1	
7	D) 16 C	1	
8	A) Sucrose	1	
Section II	**Answer any four questions:-**		**4 X 2 = 8**
9	It is Lytic or Virulent Cycle of Phage (ii) Penetration (iv) Assembly and Maturation	1 + 1	2
10	(i) Monosaccharides are called reducing sugar because Monosaccharides contain free aldehyde or ketone group. Eg: Glucose	1	2
	(ii) Disaccharides do not have free aldehyde or ketone group Eg: Sucorse	1	
11	(A) Pitcher of Nepenthes – The apical part of the leaf	1	
	(B) Phyllode of Acacia – Modification of Petiole or Rachis	1	2
12	(i) Interphase is the longest phase	1	
	(ii) Mitosis and Cytokinesis is the shortest phase of the cell Cycle	1	2
13	(i) The outer membrane is smooth, highly permeable to small molecules and it contain proteins called Porins.	1	
	(ii) The inner membrane is convoluted called cristae. Cristae contain most of the enzyme for electron transport system	1	2
14	(i) Vinblastin (ii) Curcumin (or any other two relevant alkaloids)	1 + 1	2
Section III	**Answer any three questions:-**		**3 X 3 = 9**
15	Bryophytes produce biflagellate antherozoids that swims and reach the archegonium. Fuse with the egg to form diploid zygote. So water is essential for fertilization.	1½ + 1½	3

16 **(i) Accessory Organs:-**

1. They do not have direct role in reproduction
2. It protect the essential organs
3. It attract insects for pollination

1½

(ii) Reproductive Organs:- 3

1. They have direct role in reproduction
2. Pollination and fertilization is takes place 1½
3. It produce fruit and seeds

17 Structure of Coeonocytic Mycelium

Draw

3 3

18 The above picture refers to the cladistic analysis. 1

From the given figure it is easy to understand that Bryophytes are the most primitive group of plants than the other groups, whereas Angiosperms are the advanced group of organisms. Thus cladistics helps to elucidate mechanism of evolution. 2 3

19 A) Integral Protein
B) Hydrophobic Tail
C) Glycoprotein 1 + 1 + 1 3

2 X 5 = 10

Section IV Answer any two questions:-

20 A

Cl assification of Algae				
S. No	Class	Pigments	Flagella	Reserve Food
1.	Chlorophyceae	Chlorophyll a and b, Carotenoids, Xanthophyll	1,2,4 or more equal anterior whiplash flagella	Starch
2.	Phaeophyceae	Chlorophyll a and c, Xanthophyll	Two unequal whiplash and tinsel lateral flagella	Laminarin starch and fats
3.	Rhodophyceae	Chlorophyll a, r-Phycoerythrin	Absent	Floridean starch

Pigments – 2
Flagella – 2
Reserve Food –1
2 + 2 +1=5

20 B

Root zones			
Feature	**1. Meristematic Zone Region of cell division**	**2. Zone of Elongation**	**3. Zone of Maturation**
Position	It lies just above the root cap	It lies just above the meristematic zone	It lies above the zone of elongation
Types of cells	Meristematic cells, actively divide and continuously increase in number	Elongated cells	Mature differentiated cells
Functions	This is the main growing tip of the root	The cells increase the length and cause enlargement of the root	The cells differentiate into various tissues like epidermis, cortex and vascular bundles. It also produces rot hairs which absorb water and minerals form the soil

Position – 1
Types of cells – 2
Functions – 2
5

21 A (i) Pisum sativum belongs to Fabaceae Family 1

(ii) Diagnostic features of *Pisum sativum*

S. No	**Diagnostic features**	***Pisum sativum***
1.	Calyx	Sepals 5, synsepalous, green, valvate aestivation
2.	Corolla	Petals 5, green, papilionaceous corolla, descendingly imbricate aestivation
3.	Androecium	Stamens 10, diadelphous, (9)+1, anthers dithecous, basifixed, introse
4.	Gynoecium	Monocarpellary, unilocular with many ovules on mariginal placentation, ovary superior, style simple,
5.	Fruit	Legume

Calyx - ½
Corolla – ½
Androecium – 1
Gynoecium – 1
Fruit - 1
5

(Calyx and Corolla – Any two characters)

21 B	(i) At the end of the Meiosis cell division produces four daughter cells	1	
	(ii) Significance of Meiosis cell division:-		
	1. This maintains the definite constant number of chromosomes in organisms	1	
	2. Crossing over takes place and exchange of genetic material leads to variations among species. These variations are the raw materials to evolution.	1	5
	3. Meiosis leads to genetic variability by genes into gametes through independent assortment.	1	
	4. Adaptation of organisms to various environmental stress.	1	