



**ISLAMIAH MAT HR SEC SCHOOL,  
KILAKARAI, RAMANATHAPURAM DT.**

**XII COMMON PUBLIC EXAMINATION, MARCH -2024 (22-03-2024)**

**TENTATIVE ANSWER KEY**

Question type A

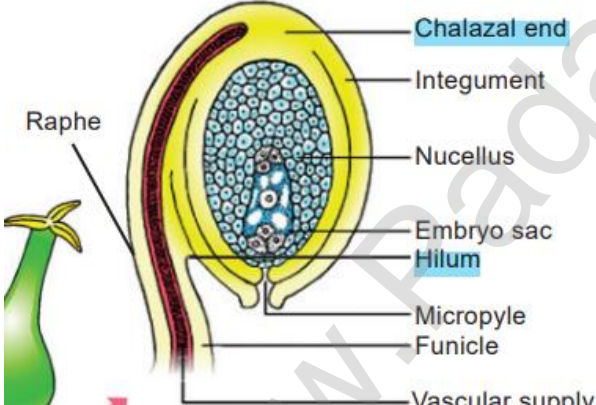
**SUB: BIO-BOTANY**

**MARKS: 35**

<b>Q.NO</b>	<b>CONTENT</b>	<b>MARKS</b>	<b>MODE OF QUESTION</b>
	<b>PART - I</b>		
<b>I.</b>	<b>CHOOSE THE CORRECT ANSWER</b>	<b>8 X 1 = 8</b>	<b>BOOK BACK / BOOK INSIDE/ CREATIVE</b>
1	<b>b) Dobson</b>	1	<b>BOOK BACK</b>
2	<b>d) Dominant epistasis</b>	1	<b>BOOK BACK</b>
3	<b>a) 10</b>	1	<b>BOOK BACK</b>
4	<b>d) (A) is correct, (R) is wrong</b>	1	<b>BOOK BACK</b>
5	<b>d) 400 – 700 nm</b>	1	<b>BOOK INSIDE</b>
6	<b>d) (1)-(iv), (2)-(iii), (3)-(i), (4)-(ii)</b>	1	<b>BOOK BACK</b>
7	<b>(c) Brazil</b>	1	<b>BOOK BACK</b>
8	<b>(c) confer resistance to antibiotics</b>	1	<b>BOOK BACK</b>

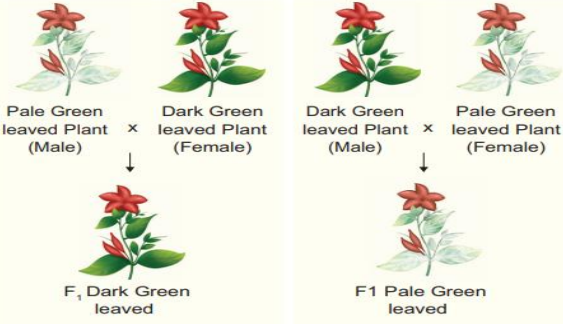
Q.NO	CONTENT	MARKS	MODE OF QUESTION
II.	<b>PART -II</b> ANSWER ANY FOUR OF THE FOLLOWING	4 X 2 = 8	BOOK BACK / BOOK INSIDE/ CREATIVE
9	<b>Rediscovered Mendelism</b> Hugo de Vries, Carl Correns and Erich von Tschermak.	2	BOOK BACK
10	<b>Phytoremediation</b> Use of plants to bring about remediation of environmental pollutants.	2	BOOK BACK
11	<b>Enzymes required for genetic engineering</b> restriction enzymes, DNA ligase and alkaline phosphatase.	2	BOOK INSIDE
12	<b>Embryoids</b> The callus cells undergoes differentiation and produce somatic embryos, known as Embryoids (or) Somatic embryogenesis is the formation of embryos from the callus tissue directly and these embryos are called Embryoids	2	BOOK BACK
13	<b>Pyramid of energy is always upright</b> The bottom of the pyramid of energy is occupied by the producers. There is a gradual decrease in energy transfer at successive trophic levels from producers to the upper levels. Therefore, the pyramid of energy is always upright.	2	BOOK BACK
14	<b>Microbial inoculants used to increase the soil fertility</b> They are efficient in fixing nitrogen, solubilising phosphate and decomposing cellulose. They are designed to improve the soil fertility	2	BOOK BACK

Q.NO	CONTENT	MARKS	MODE OF QUESTION
III.	<b>PART -III</b> ANSWER ANY <b>THREE</b> OF THE FOLLOWING	3 X 3 = 9	<b>BOOK BACK /</b> <b>BOOK INSIDE/</b> <b>CREATIVE</b>
15	<p><b>Genetic mapping</b> The diagrammatic representation of position of genes and related distances between the adjacent genes is called genetic mapping</p> <p><b>Uses of genetic mapping</b></p> <ul style="list-style-type: none"> <li>• It is used to determine gene order, identify the locus of a gene and calculate the distances between genes.</li> <li>• They are useful in predicting results of dihybrid and trihybrid crosses.</li> <li>• It allows the geneticists to understand the overall genetic complexity of particular organism.</li> </ul>	3	<b>BOOK BACK</b>
16	<p><b>Cryopreservation</b> Cryopreservation, also known as Cryo-conservation, is a process by which protoplasts, cells, tissues, organelles, organs, extracellular matrix, enzymes or any other biological materials are subjected to preservation by cooling to very low temperature of <math>-196^{\circ}\text{C}</math> using liquid nitrogen. At this extreme low temperature any enzymatic or chemical activity of the biological material will be totally stopped and this leads to preservation of material in dormant status.</p>	3	<b>BOOK BACK</b>
17	<b>Difference between habitat and niche</b>	3	<b>BOOK BACK</b>

	Habitat	Niche		
	1. A specific physical space occupied by an organism (species)	A functional space occupied by an organism in the same eco-system		
	2. Same habitat may be shared by many organisms (species)	A single niche is occupied by a single species		
	3. Habitat specificity is exhibited by organism.	Organisms may change their niche with time and season.		
18	<b>Forests help in maintaining the climate</b> Forests play a major role in regulating the CO level the atmosphere. As a result global warming in highly reduced.		3	BOOK BACK
19	<b>Structure of an ovule</b> 		3	BOOK INSIDE

Q.NO	CONTENT	MARKS	MODE OF QUESTION
	<b>PART -IV</b>		
IV.	ANSWER ALL THE QUESTION	2 X 5 = 10	BOOK BACK / BOOK INSIDE/ CREATIVE
20 (a)	<b>Single Cell Protein</b> Single cell proteins are dried cells of microorganism that are used as protein supplement in human foods or animal feeds. <b>Applications of Single-Cell Protein</b>	5	BOOK INSIDE

	<ul style="list-style-type: none"> <li>• It is used as protein supplement</li> <li>• It is used in cosmetics products for healthy hair and skin</li> <li>• It is used in poultry as the excellent source of proteins and other nutrients, it is widely used for feeding cattle, birds, fishes etc.</li> <li>• It is used in food industry as aroma carriers, vitamin carrier, emulsifying agents to improve the nutritive value of baked products, in soups, in ready-to-serve-meals, in diet recipes</li> <li>• It is used in industries like paper processing, Leather processing as foam stabilizers.</li> </ul>		
20 (b)	<p><b>Millets</b> Millet is the term applied to a variety of very small seeds originally cultivated by ancient people in Africa and Asia. They are gluten-free with less glyceemic index.</p> <p><b>Types</b> (a) Major millets - E.g: Ragi (Eleusine coracana) (b) Minor millets - E.g: Foxtail millet (Setaria italica)</p>	5	BOOK BACK
21 (a)	<p><b>Chloroplast inheritance</b> Chloroplast Inheritance It is found in 4 O' Clock plant (Mirabilis jalapa). In this, there are two types of variegated leaves namely dark green leaved plants and pale green leaved plants. When the pollen of dark green leaved plant (male) is transferred to the stigma of pale green leaved plant (female) and pollen of pale green leaved plant is transferred to the stigma of dark green leaved plant, the F1 generation of both the crosses must be identical as per Mendelian inheritance. But in the reciprocal cross the F1 plant differs from each other. In each cross, the F1 plant reveals the character of the plant which is used as female plant. This inheritance is not through nuclear gene. It is due to the chloroplast gene found in the ovum of the female plant which contributes the cytoplasm during fertilization since the male gametes contribute only the nucleus but not cytoplasm</p>	5	BOOK BACK

			
21 (b)	<p><b>Microsporogenesis:</b> The stages involved in the formation of haploid microspores from diploid microspore mother cell through meiosis is called Microsporogenesis. The primary sporogenous cells directly, or may undergo a few mitotic divisions to form sporogenous tissue. The last generation of sporogenous tissue functions microspore mother cells. Each microspore mother cell divides meiotically to form a tetrad of four haploid microspores (microspore tetrad). The microspore tetrad may be arranged in a tetrahedral, decussate, linear, T shaped or isobilateral manner. Microspores soon separate from one another and remain free in the anther locule and develop into pollen grains</p> <p><b>The stages in the development of microsporangia</b></p> <ol style="list-style-type: none"> <li>Anther primordium</li> <li>Differentiation of archesporial cell</li> <li>Formation of parietal and sporogenous cell</li> <li>Formation of wall layers</li> <li>Sporogenous stage</li> <li>Pollen tetrad stage</li> <li>Microspore stage</li> <li>Pollen grain stage</li> </ol>	5	BOOK BACK



M.MATHAN., M.Sc., M.Ed., M.Phil.,  
PGT IN BOTANY,  
ISLAMIAH MAT HR SEC SCHOOL,  
KILAKARAI, RAMANATHAPURAM DT.,  
9865330431

kindly send me your key Answers to our email id - padasalai.net@gmail.com

- Daily classes by **Namakkal Well Experienced Staff**
- Two years integrated program for **XI and XII – NEET and JEE.**
- We provide online test for both **NEET and JEE.**
- Weekly intensive test for **NEET and JEE.**
- We teach from basics make you achievers.
- Learn with interest without stress.
- Daily practice test and monthly cumulative test for state board.
- Extra care for slow learners.