



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

**XII COMMON PUBLIC EXAMINATION, MARCH -2025 (18-03-2025)**

**TENTATIVE ANSWER KEY**

**Question type A**

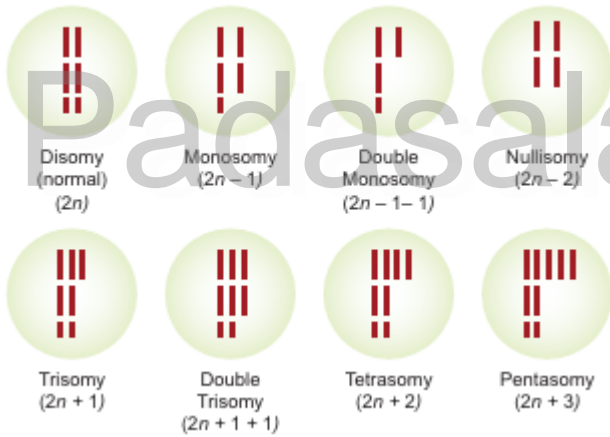
**SUB: BIO-BOTANY**

**MARKS: 35**

Q.NO	CONTENT	MARKS	MODE OF QUESTION
<b>I.</b>	<b>PART -I</b> <b>CHOOSE THE CORRECT ANSWER</b>	<b>8 X 1 = 8</b>	<b>BOOK BACK / BOOK INSIDE/ CREATIVE</b>
1	<b>a. 7</b>	1	<b>BOOK INSIDE</b>
2	<b>d. 2-10 %</b>	1	<b>BOOK BACK</b>
3	<b>c. Seed</b>	1	<b>BOOK BACK</b>
4	<b>d. DNA</b>	1	<b>BOOK INSIDE</b>
5	<b>d. Meristem culture</b>	1	<b>BOOK BACK</b>
6	<b>a. Appiko movement</b>	1	<b>BOOK BACK</b>
7	<b>c. Soil</b>	1	<b>BOOK BACK</b>
8	<b>c. Skin colour in humans</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>Mellitophily</b> Pollination by Bees is called Entomophily	2	BOOK BACK				
10	<b>Pollenkitt</b> A sticky covering found on the surface of the pollen that helps to attract insects.	2	BOOK BACK				
11	<b>Signification of Ploidy</b> <b>ANY 2 POINTS</b> <ul style="list-style-type: none"><li>• Many polyploids are more vigorous and more adaptable than diploids.</li><li>• Many ornamental plants are autotetraploids and have larger flower and longer flowering duration than diploids.</li><li>• Autopolyploids usually have increase in fresh weight due to more water content.</li><li>• Aneuploids are useful to determine the phenotypic effects of loss or gain of different chromosomes.</li><li>• Many angiosperms are allopolyploids and they play a role in an evolution of plants.</li></ul>	2	BOOK INSIDE				
12	<b>Micropropagation performed in plants</b> Pineapple, banana, strawberry and potato.	2	BOOK BACK				
13	<b>Objective of Plant breeding</b> <b>Any 2 points</b> <ul style="list-style-type: none"><li>• To increase yield, vigour and fertility of the crop</li><li>• To increase tolerance to environmental condition, salinity, temperature and drought.</li><li>• To prevent the premature falling of buds, fruits etc</li><li>• To improve synchronous maturity.</li><li>• To develop resistance to pathogens and pests.</li><li>• To develop photosensitive and thermos-sensitive varieties.</li></ul>	2	BOOK INSIDE				
14	<b>Different Bio-Medicine &amp; Botanical Medicine</b> <table><tr><td>Bio-medicines</td><td>Botanical medicines</td></tr><tr><td>Medically useful</td><td>Parts of medicinal</td></tr></table>	Bio-medicines	Botanical medicines	Medically useful	Parts of medicinal	2	BOOK BACK
Bio-medicines	Botanical medicines						
Medically useful	Parts of medicinal						

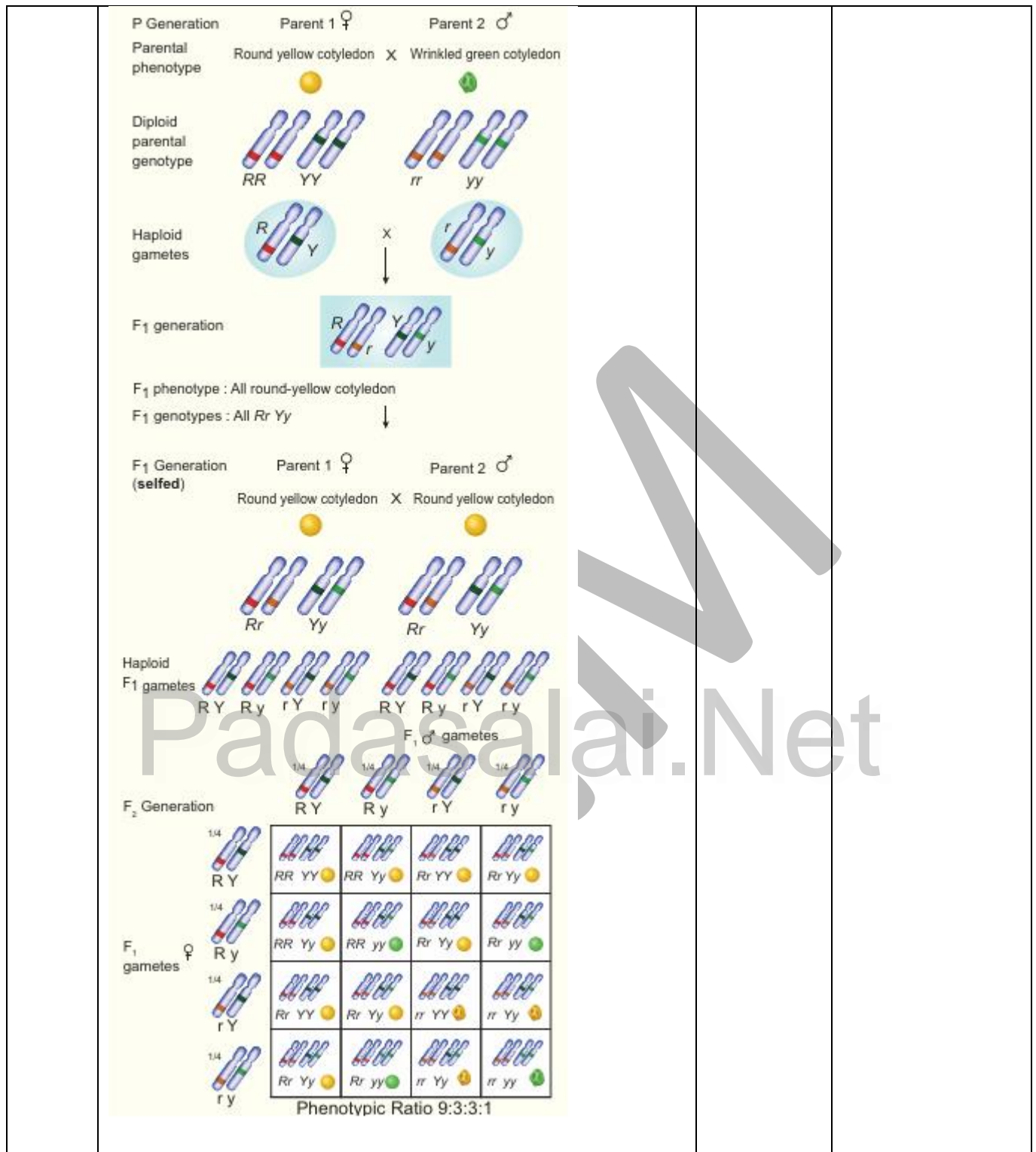
	<p>molecules obtained from plants that are marketed as drugs are called Bio-medicines.</p>	<p>plants which are modified as powers or pills or other forms, and marketed. These are called botanical-medicines.</p>		
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Q.NO	CONTENT	MARKS	MODE OF QUESTION
III.	<p><b>PART -III</b></p> <p><b>ANSWER ANY THREE OF THE FOLLOWING</b></p> <p>Question number 19 is Compulsory</p>	3 X 3 = 9	BOOK BACK / BOOK INSIDE / CREATIVE
15	<p><b>Draw Aneuploidy</b></p> <p><b>Any 3 types</b></p> 	3	BOOK BACK
16	<p><b>Advantage of Artificial Seed</b></p> <ul style="list-style-type: none"> <li>• Millions of artificial seeds can be produced at any time at low cost.</li> <li>• They provide an easy method to produce genetically engineered plants with desirable traits.</li> <li>• It is easy to test the genotype of plants.</li> <li>• They can potentially stored for long time under cryopreservation method.</li> <li>• Artificial seeds produce identical plants</li> <li>• The period of dormancy of artificial seeds is greatly reduced, hence growth is faster with a shortened life cycle.</li> </ul>	3	BOOK INSIDE

17	<b>Plant cultivated in Commercial agroforestry</b> <b>Any 3 plants name</b> Casuarina Eucalyptus Malai Vembu Teak and Kadambu trees	3	BOOK BACK
18	<b>Heterosis</b> The superiority of the F1 hybrid in performance over its parents is called heterosis or hybrid vigour	3	BOOK BACK
19	<b>Importance of rice</b> <b>Any 3 points</b> Rice is the easily digestible calorie rich cereal food which is used as a staple food in Southern and North East India. Various rice products such as Flaked rice (Aval), Puffed rice / parched rice (Pori) are used as breakfast cereal or as snack food in different parts of India. Rice bran oil obtained from the rice bran is used in culinary and industrial purposes. Husks are used as fuel, and in the manufacture of packing material and fertilizer.	3	

Q.NO	CONTENT	MARKS	MODE OF QUESTION
IV.	<b>PART –IV</b> <b>ANSWER ALL THE QUESTION</b>	2 X 5 = 10	BOOK BACK / BOOK INSIDE/ CREATIVE
20 (a)	<b>Dihybrid Cross</b> The crossing of two plants differing in two pairs of contrasting traits is called dihybrid cross. In dihybrid cross, two characters (colour and shape) are considered at a time. Mendel considered the seed shape (round and wrinkled) and cotyledon colour (yellow & green) as the two characters. In seed shape round (R) is dominant over wrinkled (r); cotyledon colour yellow (Y) is dominant over green (y). Hence the pure breeding round yellow parent is represented by the genotype RRY Y and the pure breeding green wrinkled parent is represented by	5	BOOK INSIDE

	<p>the genotype rryy. During gamete formation the paired genes of a character assort out independently the other pair. During the F<sub>1</sub> × F<sub>1</sub> fertilization each zygote with an equal probability receives one of the four combinations from each parent. The resultant gametes thus will be genetically different and they are of the following four types: 1) Yellowround (YR) 9/16 2) Yellowwrinkled (Yr) - 3/16 3) Greenround (yR) - 3/16 4) Greenwrinkled (yr) - 1/16 These four types of gametes of F<sub>1</sub> dihybrids unite randomly in the process of fertilization and produce sixteen types of individuals in F<sub>2</sub> in the ratio of 9:3:3:1 as shown in the figure. Mendel's 9:3:3:1 dihybrid ratio is an ideal ratio based on the probability including segregation, independent assortment and random fertilization. In sexually reproducing organism / plants from the garden peas to human beings, Mendel's findings laid the foundation for understanding inheritance and revolutionized the field of biology. The dihybrid cross and its result led Mendel to propose a second set of generalisations that we called Mendel's Law of independent assortment</p>		
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20 (b)	<p><b>Advantage &amp; Disadvantage of Bt-Cotton</b></p> <p><b>Advantages:</b>            Bt Cotton The advantages of Bt cotton are:</p> <ul style="list-style-type: none"> <li>• Yield of cotton is increased due to effective control of bollworms.</li> <li>• Reduction in insecticide use in the cultivation of Bt cotton</li> <li>• Potential reduction in the cost of cultivation.</li> </ul> <p><b>Disadvantages</b>            Bt cotton has some limitations:</p> <ul style="list-style-type: none"> <li>• Cost of Bt cotton seed is high.</li> <li>• Effectiveness up to 120 days after that efficiency is reduced</li> <li>• Ineffective against sucking pests like jassids, aphids and whitefly.</li> <li>• Affects pollinating insects and thus yield.</li> </ul>	5	BOOK BACK
21 (a)	<p><b>Morphological adaptation of halophytes</b></p> <p><b>Any 5 points</b></p> <ul style="list-style-type: none"> <li>• The temperate halophytes are herbaceous but the tropical halophytes are mostly bushy</li> <li>• In addition to the normal roots, many stilt roots are developed</li> <li>• A special type of negatively geotropic roots called pneumatophores with pneumathodes to get sufficient aeration are also present. They are called breathing roots. Example: Avicennia</li> <li>• Presence of thick cuticle on the aerial parts of the plant body</li> <li>• Leaves are thick, entire, succulent and glossy. Some species are aphyllous (without leaves).</li> <li>• Vivipary mode of seed germination is found in halophytes</li> </ul>	5	BOOK BACK
21 (b)	<p><b>Food web</b></p> <p>The inter-locking pattern of a number of food chain form a web like arrangement called food web. It is the basic unit of an ecosystem, to maintain its stability in nature.</p> <p><b>Significance of food web</b>            (I) Food web is constructed to describe species interaction called direct interaction. (II) It can be</p>	5	BOOK INSIDE

	used to illustrate indirect interactions among different species. (III)It can be used to study bottom-up or top-down control of community structure. (IV)It can be used to reveal different patterns of energy transfer in terrestrial and aquatic ecosystems.		
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