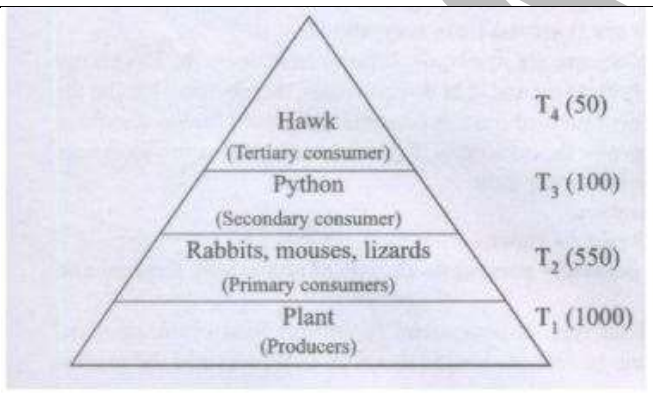
ISLAMIAH MAT HR SEC SCHOOL, KILAKARAI, RAMANATHAPURAM DT.

XII COMMON PUBLIC EXAMINATION, MAY -2022 (23-05-2022)

TENTATIVE ANSWER KEY
Question type A

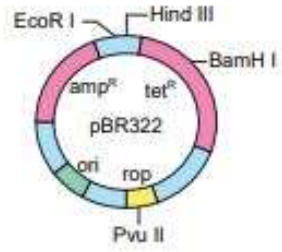
SUB: BIO-BOTANY MARKS: 35

Q.NO	CONTENT	MARKS	MODE OF QUESTION
I.	**PART -I** CHOOSE THE CORRECT ANSWER	8 X 1 = 8	BOOK BACK / BOOK INSIDE/ CREATIVE
1	**a. GAATTC**	1	BOOK BACK
2	**c. Soil**	1	BOOK BACK
3	**b. Lamiacece**	1	BOOK BACK
4	**c. removal of plant and trees**	1	BOOK BACK
5	**c. Agarose Gel Electrophoresis**	1	BOOK BACK
6	**b. Microspore**	1	BOOK BACK
7	**d. 12:3:1**	1	BOOK BACK
8	**a. intravarietal**	1	BOOK BACK

Q.NO	CONTENT	MARKS	MODE OF QUESTION
II.	**PART -II** ANSWER ANY FOUR OF THE FOLLOWING	4 X 2 = 8	BOOK BACK / BOOK INSIDE/ CREATIVE
9	Pollination by Bees is called Mellitophily	2	BOOK BACK
10	Endonucleases are enzymes which break the internal phosphodiester bonds within a DNA molecule. e.g. Hind II, EcoRI, Pvul, BamHI, TaqI.	2	BOOK INSIDE
11	Pollination by ants is called myrmecophily	2	BOOK BACK
12	 The pyramid produced is an upright pyramid of numbers where there is a gradual decrease in number of organisms at each trophic level from TI to T4. This is an example for grassland ecosystem.	2	BOOK BACK
13	Biofertilizers or microbial innoculants are defined as preparations containing living cells or latent cells of efficient strains of microorganisms that help crop plants uptake of nutrients by their interactions in the rhizosphere when applied through seed or soil. They are efficient in fixing nitrogen, solubilising phosphate and decomposing cellulose. They are designed to improve the soil fertility, plant growth, and also the number and biological activity of beneficial microorganisms in the soil. They are eco-friendly organic agro inputs and are more efficient and cost effective than	2	BOOK BACK

	chemical fertilizers		
14	Organic farming is an alternative agricultural system in which plants/crops are cultivated in natural ways- by using biological inputs to maintain soil fertility and ecological balance thereby minimizing pollution and wastage.	2	BOOK BACK

Q.NO	CONTENT	MARKS	MODE OF QUESTION
III.	**PART -III** ANSWER ANY THREE OF THE FOLLOWING	3 X 3 = 9	BOOK BACK / BOOK INSIDE/ CREATIVE
15	• It supplies nutrition to the developing microspores • It contributes sporopollenin through ubisch bodies thus plays an important role in pollen wall formation. • The pollenkitt material is contributed by tapetal cells and is later transferred to the pollen surface. • Exine proteins responsible for 'rejection reaction' the stigma are present in the cavities of the exine. These proteins are derived from tapetal cells	3	BOOK BACK
16	<table><tr><th>Mis-sense Mutation</th><th>Non-sense Mutation</th></tr><tr><td>The mutation where the codon for one amino acid is changed into a codon for another amino acid is called Missense or non-synonymous mutations.</td><td>The mutations where codon for one aminacid is changed into a termination or stop codon is called Nonsense mutation</td></tr></table>	3	BOOK BACK

17	 amp^R - Ampicillin Resistance Gene tet^R - Tetracycline Resistance Gene pBR 322 plasmid is a reconstructed plasmid and most widely used as cloning vector; it contains 4361 base pairs. In pBR, p denotes plasmid, B and R respectively the names of scientist Boliver and Rodriguez who developed this plasmid. The number 322 is the number of plasmid developed from their laboratory.	3	BOOK BACK
18	Carbon capture and storage is a technology of capturing carbondioxide and injects it deep into the underground rocks into a depth of 1 km or more and it is an approach to mitigate global warming by capturing CO2 from large point sources such as industries and power plants and subsequently storing it instead of releasing it into the atmosphere.	3	BOOK BACK
19		3	BOOK BACK

	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.

Q.NO	CONTENT	MARKS	MODE OF QUESTION

<table>
<tr><td>IV.</td><td>PART –IV

ANSWER ALL THE QUESTION</td><td>2 X 5 = 10</td><td>BOOK BACK / BOOK INSIDE/ CREATIVE</td></tr>
<tr><td>20 (a)</td><td>• The seedless fruits have great significance in horticulture.
• The seedless fruits have great commercial importance.
• Seedless fruits are useful for the preparation of jams, jellies, sauces, fruit drinks etc.
• High proportion of edible part is available in parthenocarpic fruits due to the absence of seeds.</td><td>5</td><td>BOOK BACK</td></tr>
<tr><td>20 (b)</td><td><table><tr><td>Incomplete Dominance</td><td>Co-dominance</td></tr><tr><td>In incomplete dominance, neither of the allele is not completely dominant to another allele rather combine and produce new trait</td><td>In co-dominance, both the alleles in heterozygote are dominant and the traits are equally expressed (joint expression)</td></tr><tr><td>New phenotype is formed due to character blending (not alleles)</td><td>No formation of new phenotype rather both dominant traits are expressed. conjointly</td></tr><tr><td>Example: Pink flowers of Mirabilis Jalapa</td><td>Example: Red and white flowers of camellia</td></tr></table></td><td>5</td><td>BOOK BACK</td></tr>
<tr><td>21 (a)</td><td>Plant tissue culture techniques have several applications such as:
i. Improved hybrids production through somatic hybridization.
ii. Somatic embryoids can be encapsulated into synthetic seeds (synseeds). These encapsulated seed or synthetic seeds help in conservation of plant biodiversity.
iii. Production of disease resistant plants through meristem and shoot tip culture.
iv. Production of stress resistant plants like herbicide tolerant, heat tolerant plants.
v. Micropropagation technique to obtain large</td><td>5</td><td>BOOK INSIDE</td></tr>
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	numbers of plantlets of both crop and tree species useful in forestry within a short span of time and all through the year. vi. Production of secondary metabolites from cell culture utilized in pharmaceutical, cosmetic and foo industries.		
21 (b)	‘’King of Spices” - Piper nigrum **Uses** It is used for flavouring in the preparation of sauces soups, curry powder and pickles. It is used in medic as an aromatic stimulant for enhancing salivary and gastric secretions and also as a stomachic. Pepper al enhances the bio-absorption of medicines. “Queen of Spices” - Elettaria cardamomum **Uses** The seeds have a pleasing aroma and a characteristi warm, slightly pungent taste. It is used for flavourin confectionaries, bakery products and beverages. The seeds are used in the preparation of curry powder, pickles and cakes. Medicinally, it is employed as a stimulant and carminative. It is also chewed as a mouth freshener.	5	BOOK BACK

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