DIRECTORATE OF GOVERNMENT EXAMINATION, CHENNAI-6

HIGHER SECONDARY SECOND YEAR PUBLIC EXAMINATION. MAY- 2022

BIO- BOTANY Answer Key (NEW SYLLABUS)

NOTE:

- 1. Answer written only in BLACK or BLUE should be evaluated
- 2. Choose the correct answer and write the option code

SECTION –1

Total marks 35

Note: - Answer all the questions

8 X 1 =8

Q.No	ANSWER			
		TYPE- A		TYPE- B
1	а	GAATTC	С	Agarose Blotting Techniques
2	С	Soil	b	Microspore
3	b	Lamiaceae	С	Removal of plants and trees
4	С	Removal of plants and trees	а	Intravarietal
5	С	Agarose Blotting Techniques	а	GAATTC
6	b	Microspore	b	Lamiaceae
7	d	12:3:1	С	Soil
8	а	Intravarietal	d	12:3:1

SECTION – 2

Note: - Answer any four questions

4 X 2 =8

Q.N	ANSWERS	MAR	〈 S
0			
9	Mellitophily:-		2
	Pollination by Bees		-
10	 Exonucleases (Or) Bal 31, Exonuclease III (Any one example) Enderwalases (Or) 	1	
	 Endonucleases (Or) Hind II,EcoRI,Pvul,BamHI,TaqI.(Any one example) 	1	2
11	Myrmecophily: Pollination by ants (Or)		
	Ants act as body guards of the plants against any disturbing agent and the plants in turn provide food and shelter to these ants.		2

Pyramid of number $\begin{array}{c} \hline Hawks \rightarrow T_4 \\ \hline (50) \\ Phytons + Lizard \\ \hline (100 + 50) \\ \hline Rabbit + Mouse (250 + 250) \rightarrow T_2 \\ \hline Plants (1000) \rightarrow T_1 \\ \hline \end{array}$ Wicrobial inoculants – increase the soil fertility:-	1/2	2
(50) Phytons + Lizard (100 + 50) Rabbit + Mouse (250 + 250) \rightarrow T ₂ Plants (1 000) \rightarrow T ₁ Microbial inoculants – increase the soil fertility:-	1½	2
(50) Phytons + Lizard (100 + 50) Rabbit + Mouse (250 + 250) \rightarrow T ₂ Plants (1 000) \rightarrow T ₁ Microbial inoculants – increase the soil fertility:-	1½	2
Phytons + Lizard (100 + 50) Rabbit + Mouse $(250 + 250) \rightarrow T_2$ Plants (1 000) $\rightarrow T_1$ Microbial inoculants – increase the soil fertility:-	1½	2
$(100 + 50)$ Rabbit + Mouse (250 + 250) \rightarrow T ₂ Plants (1 000) \rightarrow T ₁ Microbial inoculants – increase the soil fertility:-	1½	2
$(100 + 50)$ Rabbit + Mouse (250 + 250) \rightarrow T ₂ Plants (1 000) \rightarrow T ₁ Microbial inoculants – increase the soil fertility:-	1½	2
Plants (1 000) \rightarrow T1 Microbial inoculants – increase the soil fertility:-	1½	2
Plants (1 000) \rightarrow T1 Microbial inoculants – increase the soil fertility:-	1½	2
Microbial inoculants – increase the soil fertility:-	1½	2
-		
Efficient in fixing nitrogen,		+
Solubilising phosphate		
Decomposing cellulose,		
Increase the biological activity		
They are designed to improve the soil fertility		
Increase plant growth,		
They are eco-friendly		
Organic agro inputs		
 more efficient and cost effective than chemical fertilizers 	2×1=2	2
(Any two Points)		-
Organic farming:-		
o j	-	2
biological inputs.	I	
SECTION - 3		
Answer any three of the following questions.		
Q.No 19 is compulsory	3x3=9	
Functions of Tapetum		
important role in pollen wall formation.		
• The pollenkitt material is contributed by tapetal cells and is later		
•		
derived from tapetal cells.		
(Any Three Points)	3 x 1=3	3
	 Increase the biological activity They are designed to improve the soil fertility Increase plant growth, They are eco-friendly Organic agro inputs more efficient and cost effective than chemical fertilizers (Any two Points) Drganic farming:- It is an alternative agricultural system. Plants / crops are cultivated in natural ways by using biological inputs. SECTION – 3 Answer any three of the following questions. Answer any three of the following questions. Supplies nutrition to the developing microspores 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 derived from tapetal cells. 	 Increase the biological activity They are designed to improve the soil fertility Increase plant growth, They are eco-friendly Organic agro inputs more efficient and cost effective than chemical fertilizers 2x1=2 (Any two Points) Organic farming:- It is an alternative agricultural system. Plants / crops are cultivated in natural ways by using biological inputs. SECTION – 3 Answer any three of the following questions. 2.No 19 is compulsory Supplies nutrition to the developing microspores 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 derived from tapetal cells.

	Missense mutation	Non-Sense mutation		
The	e codon for one amino	The codon for one amino acid		
aci	d is changed into a	is changed into a termination		
coc	don for another amino	or stop codon		
aci	d.			
		(OR)		
	ssense mutation	Non-Sense mutation		
	ange in amino acid	Creates translational		
eno	coded	termination codon(UAA, UAG,UGA)		
<u>pBF</u>	<u> 322:-</u>			
•	In pBR, p denotes plas	-	1	
•	B and R respectively t Rodriguez	he names of scientist Boliver and	1	
•	The number 322 is the	e number of plasmid developed	1	
	from their laboratory			
Car	bon Capture and Stora	ge (CCS)		
Carb	bon Capture and Stora	ess of capturing and storing CO ₂ which		
Carb redu	bon Capture and Stora on sequestration is the proc ces the amount of CO ₂ in the			
Carb redu globa	bon Capture and Stora	ess of capturing and storing CO ₂ which e atmosphere with a goal of reducing		
Carb redu globa	bon Capture and Stora on sequestration is the proc ces the amount of CO ₂ in the al climate change.	ess of capturing and storing CO ₂ which e atmosphere with a goal of reducing		
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Carb redu globa Dis t	bon Capture and Stora on sequestration is the proc ces the amount of CO ₂ in the al climate change. tinguish Habitat and Ni Habitat A specific physical	ess of capturing and storing CO ₂ which e atmosphere with a goal of reducing che:- Niche A functional space occupied		
Carb redu globa Dis t s. no	bon Capture and Stora on sequestration is the proc ces the amount of CO ₂ in the al climate change. tinguish Habitat and Ni Habitat A specific physical space occupied by an	ess of capturing and storing CO ₂ which e atmosphere with a goal of reducing che:- Niche A functional space occupied by an organism in the same		
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	Signi	ficance Parthenocarpic fruits			
	Seedless fruits have great significance in horticulture.				
	•	 Seedless fruits have great commercial importance. 			
	•	 Seedless fruits are useful for the preparation of jams, jellies, 			
		sauces,fruit drinks.			
	•	• • • •	available in parthenocarpic fruits due	3	5
		to the absence of seeds.	(any 3 points)		
(b)	<u>Diffe</u>	rentiate Incomplete Dominance	and Co- Dominance		
()	S. No	dominance	ominance		
	1.		attern occurs due to simultaneous	2	
			expression of both alleles in the	~	
			zygote.		
	0	incomplete dominance	hatarazugata gapatupa giyaa riga ta		
	2.		heterozygote genotype gives rise to notype distinctly different from either	2	
			homozygous genotype.		
		homozygous phenotype			
	3.	Ev: Bo	ed and White flowers of Camellia (or)	1	
			cell haemoglobin (or) ABO	-	
		blood	group in humanbeings		5
	A	is stigned of Diget Tigging Or			
21	App	lications of Plant Tissue Cu			
(a)	•	Improved hybrids production thr	•		
(a)	-	 Encapsulated seed or synthetic seeds help in conservation of plant 			
. ,	•	• •	seeds help in conservation of plant		
	•	biodiversity.			
. /	•	biodiversity. Production of disease resistant	seeds help in conservation of plant plants through meristem and shoot		
. /	•	biodiversity. Production of disease resistant tip culture.	plants through meristem and shoot		
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	•	biodiversity. Production of disease resistant tip culture. Production of stress resistant pla tolerant plants. Micropropagation technique to c	plants through meristem and shoot ants like herbicide tolerant, heat obtain plantlets of both crop and tree		
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	• • • • King	biodiversity. Production of disease resistant platic culture. Production of stress resistant platic colorant plants. Micropropagation technique to cospecies within a short span of the Production of secondary metabolic pharmaceutical, cosmetic and for	plants through meristem and shoot ants like herbicide tolerant, heat obtain plantlets of both crop and tree me. plites from cell culture utilized in bod industries.		5
(b)		biodiversity. Production of disease resistant platic culture. Production of stress resistant platic tolerant plants. Micropropagation technique to comproduction of secondary metabolic pharmaceutical, cosmetic and for and Queen of Spices	plants through meristem and shoot ants like herbicide tolerant, heat obtain plantlets of both crop and tree me. olites from cell culture utilized in bod industries. (Any fivepoints)		5
		biodiversity. Production of disease resistant platic tip culture. Production of stress resistant platic tolerant plants. Micropropagation technique to conspecies within a short span of the Production of secondary metabolic pharmaceutical, cosmetic and for and Queen of Spices of spices – Piper nigrum(or) blatic	plants through meristem and shoot ants like herbicide tolerant, heat obtain plantlets of both crop and tree me. olites from cell culture utilized in bod industries. (Any fivepoints)	1	5
	King	biodiversity. Production of disease resistant platic culture. Production of stress resistant platic tolerant plants. Micropropagation technique to complete swithin a short span of the production of secondary metabolic pharmaceutical, cosmetic and for the plates of spices – <i>Piper nigrum</i> (or) blaces – <i>Piper nigrum</i> (or) –	plants through meristem and shoot ants like herbicide tolerant, heat obtain plantlets of both crop and tree me. olites from cell culture utilized in bod industries. (Any fivepoints)	1	5
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