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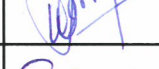
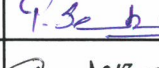

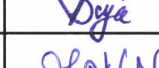



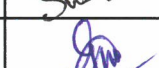
SECOND YEAR HIGHER SECONDARY EXAMINATION-JULY 2022

PART- III BOTANY

QP.CODE: SAY- 726		Total Score : 30	
Qn. No.	Answer key/Value points	Split score	Total Score
PART - I A. Qns. 1 - 4 (Any 3, Each carries 1 score)			
1	Intine	1	1
2	Secondary productivity	1	1
3	b/mycorrhizae : mutualism	1	1
4	DNA ligase/ligase	1	1
B. Qns. 5 - 6 (All Qns., Each carries 1 score)			
5	ELISA	1	1
6	Pericarp	1	1
PART - II A. Qns. 7 - 9 (Any 2, Each carries 2 scores)			
7	(i) Make crops tolerant to abiotic stress/cold/draught/salt/heat (ii) Reduce reliance on chemical pesticides(Pest resistant crops) (iii) help to reduce post harvest loss (iv) increase efficiency of mineral usage by plants /prevent early exhaustion of fertility of soil (v) enhance nutritional value of food (vi) to create tailor made plants to supply to industries (Give full credit any 4 Points with similar meaning)	4 x ½	2
8	a) collection of variability	½	2
	b) cross hybridization among selected parents	½	
	c) Selection and testing of superior recombinants	½	
	d) Testing/ release and commercialisation of new cultivars	½	

9	Development of new organism from female gamete without fertilization eg., Rotifers/Honey bees/ some Lizards/some Birds (Turkey) (Any 1 eg.)	1+1	2
B. Qns. 10 - 13 (Any 2, Each carries 2 scores)			
10	(i) Pollen release and stigma receptivity are not synchronised / Either the pollen is released before the stigma become receptive /Stigma become receptive before the pollen release (ii) anther and stigma are placed at different positions (iii) self incompatibility /genetic mechanism that prevents self pollen from fertilizing the ovules by inhibiting pollen germination (iv)production of unisexual flowers /monoecious/dioecy (Any 2)	1+1	2
11	Eurythermal - Organism can tolerate and thrive in wide range of temperature :: Stenothermal - Organism restricted to narrow range of temperature (Any one response give full score)	2	2
12	Pioneer species-Phytoplankton	1	2
	Climax community-Forest/Trees	1	
13	Mutation is the Process by which genetic variations are created through changes in the base sequence within genes/ Sudden heritable changes in organism.	1	2
	(i)use of chemicals (ii)using radiation/gamma radiation	$\frac{1}{2} + \frac{1}{2}$	
PART-III A. Qns. 14 - 17 (Any 3, Each carries 3 scores)			
14	conversion of forest to agriculture land/ Trees are axed for timber / fire wood/cattle ranching / Slash and burn agriculture/jhum cultivation (Any 3 points)	3x1	3
15	(a)Gene therapy is a collection of methods that allows correction of gene defect by delivering/inserting normal gene in a child/embryo	1	3
	(b) (i)lymphocytes from the patient are grown in a culture outside the body (ii) a functional ADA cDNA is introduced into these lymphocytes and are returned to the patient (iii) Introduction of bone marrow gene which produce ADA at embryonic stage. (Any 2 points)	1 + 1	

16	(i)Thick cuticle on leaf surfaces (ii)stomata arranged in deep pits (sunken) to minimise water loss (iii)have special photosynthetic (CAM)pathway (iv)stomata remain closed during day time (v)leaves absent/reduced to spines (vi) photosynthesis by flattened stem (Any 3 points)	3 x 1	3
17	(a) 1. Pyramid of number,2. pyramid of biomass and 3. pyramid of energy	1½	3
	<div style="text-align: center;"> <p>Pyramid of Number</p> </div>	1½	
B. Qn. 18 (carries 3 scores)			
18	(a) Biomagnification /Biological magnification	1	3
	(b) DDT disturbs Calcium metabolism in birds / Causes thinning of egg shell / Premature breaking of egg shell/ leads to a decline in bird population (Any Two points)	1 + 1	
PART-IV Qns. 19 - 20 (Any 1, carries 5 scores)			
19	(a) Transfer pollen grain from the anther to the stigma of a pistil is termed pollination	2	5
	WIND : light weight pollen, non-sticky pollen, well exposed stamens, single ovule in each ovary, flowers packed into inflorescence, large often feathery stigma, flowers not colourful, no nectar, in corn cob stigma and style which wave in the wind to trap pollen grains(Any 2 points)	1	
	WATER : female flower has long stalk, pollen grains are long and ribbon like, pollen has mucilagenous covering, flowers not colourful, no nectar (Any 2 points)	1	
	INSECT : Large flowers, colourful and fragrant/foul smell, rich in nectar, sticky pollen, flowers form as inflorescence(Any 2 points)	1	

20	(a) Amplification of gene of interest/synthesis of multiple copies of gene or DNA of interest	1½	5
	(b) Denaturation, Annealing, Extension	1½	
	(c)Thermostable DNA polymerase/Taq polymerase :: Thermus aquaticus	2	
SCHEME FINALISED BY			
SL. NO	NAME		SIGNATURE
1	GOPAKUMAR. S 156068	9496811628	
2	DR.RAJASREE R 157353	9446195178	
3	REJI J 157780	9495118104	
4	SABU M M 196293	9447308935	
5	DR K K SAHADEVAN 258449	9495220350	
6	SUNITHAKUMARY P R 432625	9544889823	
7	SATHISHKUMAR V R 448877	9447234858	
8	SETHUMADHAVAN T 411825	9744474630	
9	KAMARUDEEN S 232517	9745050089	
10	SUJA T V 233673	9846580103	
11	MANOJ JOSE 233222	9249733524	
12	SHAM K 233392	9447552750	
13	MUHAMMED RAFEEQUE KODIVALAPPIL 233926	9446770963	
14	SUBHASH AUGUSTINE 232212	7559022390	
15	KUMARI GINI 433687	9447032776	