

SECOND YEAR HIGHER SECONDARY EXAMINATION MARCH 2022

ANSWER KEY

QP CODE : SY26

PART III BOTANY

Maximum Score: 30

Q no:	Sub. Qn.	ANSWER KEY / VALUE POINTS	SPLITTED SCORE	TOTAL SCORE
PART I A. 1 - 4 (Any 3)				
1		C / Tapetum	1	1
2		Hind II	1	1
3		Blubber	1	1
4		C / Producers	1	1
B Answer all questions				
5		Life span	1	1
6		Enzyme Linked Immuno Sorbent -Assay	1	1
PART II A. 7 -9 (Any 2)				
7		Breeding crops with improved <ul style="list-style-type: none"> • Protein content and quality • Oil content and quality • Vitamin content • Micronutrient • Mineral nutrient • Improve nutritional quality (any 4 of the above responses)	½ x4	2
8		<ul style="list-style-type: none"> • GEAC will make decision regarding the validity of GM research. • Safety of introducing GM organisms for public services. 	1 1	2
9		a) Chlamydomonas/algae/fungi b) Conidia / conidiospores c) Buds / budding d) Sponge	½ x4	2
B - 10 - 13 (Any 2)				
10		<ul style="list-style-type: none"> • Genetic mechanism prevents self pollen (from the same flower or other flowers on the same plant) from fertilizing the ovules. 	1	


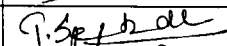
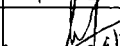
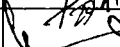

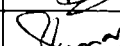
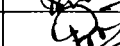

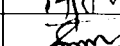

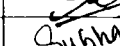
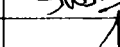

		<ul style="list-style-type: none"> Inhibiting the pollen germination or pollen tube growth in the pistil. Outbreeding device. Preventing inbreeding/self pollination. <p>(any two responses of the above)</p>	1	2								
11		<table border="1"> <thead> <tr> <th>Rice</th> <th>Wheat</th> </tr> </thead> <tbody> <tr> <td>Jaya</td> <td>Sonalika</td> </tr> <tr> <td>Ratna</td> <td rowspan="3">Kalyan Sona</td> </tr> <tr> <td>IR-8</td> </tr> <tr> <td>Taichung Native-1</td> </tr> </tbody> </table> <p>(any two)</p>	Rice	Wheat	Jaya	Sonalika	Ratna	Kalyan Sona	IR-8	Taichung Native-1	½ x4	2
Rice	Wheat											
Jaya	Sonalika											
Ratna	Kalyan Sona											
IR-8												
Taichung Native-1												
12		<ul style="list-style-type: none"> a) - / negative b) - / negative c) + / positive d) Ammensalism 	½ x4	2								
13		<ul style="list-style-type: none"> Hydrarch Succession / Hydrosere Forest / Trees 	1 1	2								
PART III A 14-17 (Any 3)												
14		<ul style="list-style-type: none"> American Eli Lilly company prepared two DNA sequences corresponding to A and B chains of human insulin. Introduced them into the plasmids of E.coli to produce insulin chains. Chains A and B were produced separately, extracted ,combined by creating disulfide bonds to form human insulin. <p>OR</p> <p>Brief explanation about preparation of insulin by Eli Lilly - give score 3</p>	1 1 1	3								

15		<ul style="list-style-type: none"> • Thick cuticle on leaf • Stomata arranged in deep pits / sunken stomata • No leaves • Leaf reduced to spines • Green flattened stem • Photosynthesis by stem • Special photosynthetic pathway/ CAM • Stomata closed during the day time <p>(Any three responses)</p>	1 x 3	3
16		<ul style="list-style-type: none"> • Increase the concentration of CO₂ in the atmosphere. • Loss of biodiversity • Destruction of habitat • Distrubs hydrological cycle • Causes soil erosion • Desertification /Formation of deserts <p>(Any 3 such relevant responses)</p>	1x 3	3
17		<ul style="list-style-type: none"> • Energy flows from a particular trophic level to next trophic level. • Some energy is always lost as heat at each step. • Energy is always transfer from sun to producer to consumers in successive trophic levels / Unidirectional flow of energy from sun to producer to consumers. • Only 10 per cent of energy is transferred to each trophic level from the lower trophic level (10 per cent law) <p>(Any two responses of the above)</p>	1 ½ x 2	3
B				
18	a	Compressed Natural Gas	1	3
	b	<ul style="list-style-type: none"> • CNG is better than diesel /petrol • CNG burns most efficiently • Very little of it is left unburnt • Cheaper than petrol or diesel • Cannot be siphoned off by thieves • Cannot be adulterated like petrol or diesel 	1+1	

		<ul style="list-style-type: none"> Reduce the rate of air pollution (Any two above responses) 		
PART IV (Any one from 19-20)				
19	a	Transfer of pollen grains to the stigma of a pistil or gynoecium /Transfer of pollen grains to the stigma. OR Correct diagrammatic representation showing pollination.	2	5
	b	Pollination within the same flower /Transfer of pollen grains from anther to the stigma of the same flower. OR Correct diagrammatic representation showing autogamy.	1	
	2	<ul style="list-style-type: none"> Transfer of pollen grains from the anther to the stigma of another flower of same plant/ pollination between different flowers on the same plant. It is functionally cross pollination involving a pollinating agent. It is genetically similar to autogamy, pollen grains come from same plant. (Any one) OR Correct diagrammatic representation showing geitonogamy.	1	
	3	<ul style="list-style-type: none"> Transfer of pollen grains from anther to the stigma of different plants /pollination between flowers on different plants. Pollination brings genetically different types of pollen grains to the stigma. (Any one) OR Correct diagrammatic representation showing xenogamy.	1	
20	a	Endonuclease Exonuclease OR Name of two restriction enzymes like EcoRI, Hind II	$\frac{1}{2}$ $\frac{1}{2}$	

	b	<ul style="list-style-type: none"> • First letter of the name comes from the genus of the prokaryotic cell from which enzymes are isolated. • Second two letters from name of species • R / Next letter from the name of strain. • Roman number -the order in which the enzymes were isolated from the strain of bacteria. <p>OR</p> <p>Explanation with example like EcoRI comes from Escherichia coli RY 13 or other restriction enzymes- give score 4</p>	1x 4	5
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SCHEME FINALIZED BY

SL No	Name	Mobile number	Signature
1	BINDU K C	9446721871	
2	SETHUMADHAVAN T	9744474630	
3	GOPAKUMAR S	9496811628	
4	K P BABURAJAN	8848332584	
5	DR.K K SAHADEVAN	9495220350	
6	KAMARUDEEN S	9745050089	
7	DR RAJASREE R	9446195178	
8	MANOJ JOSE	9249733524	
9	SABU M M	9447308935	
10	REJI J	9495118104	
11	SUBHASH AUGUSTINE	7559022390	
12	BINOY V M	9605866895	
13	RAJEEV R	8547578494	
14	PUSHPAVATHY M V	9744758792	