

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 • 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		• 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		• Genetic mechanism prevents self pollen (from the same flower or other flowers on the same plant) from fertilizing the ovules.	1	

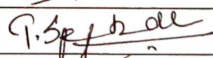
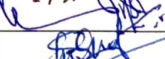
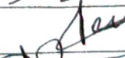
		• Inhibiting the pollen germination or pollen tube growth in the pistil. • Outbreeding device. • Preventing inbreeding/self pollination. (any two responses of the above)	1	2												
11		<table><tr><th>Rice</th><th>Wheat</th></tr><tr><td>Jaya</td><td>Sonalika</td></tr><tr><td>Ratna</td><td>Kalyan Sona</td></tr><tr><td>IR-8</td><td></td></tr><tr><td>Taichung Native-1</td><td></td></tr><tr><td colspan="2">(any two)</td></tr></table>	Rice	Wheat	Jaya	Sonalika	Ratna	Kalyan Sona	IR-8		Taichung Native-1		(any two)		$\frac{1}{2} \times 4$	2
Rice	Wheat															
Jaya	Sonalika															
Ratna	Kalyan Sona															
IR-8																
Taichung Native-1																
(any two)																
12		a) - / negative b) - / negative c) + / positive d) Ammensalism	$\frac{1}{2} \times 4$	2												
13		• Hydrarch Succession / Hydrosere • Forest / Trees	1 1	2												
PART III A 14 -17 (Any 3)																
14		• 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. OR Brief explanation about preparation of insulin by Eli Lilly - give score 3	1 1 1	3												

15		- 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 (Any three responses)	1 x 3	3
16		- Increase the concentration of CO₂ in the atmosphere. - Loss of biodiversity - Destruction of habitat - Distrubs hydrological cycle - Causes soil erosion - Desertification /Formation of deserts (Any 3 such relevant responses)	1x 3	3
17		- 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) (Any two responses of the above)	1 ½ x 2	3
B				
18	a	Compressed Natural Gas	1	3
	b	- 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	

		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	- 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	- 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	• 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. OR Explanation with example like EcoRI comes from Escherichia coli RY 13 or other restriction enzymes- give score 4	1x 4	5

SCHEME FINALIZED BY

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1/6

ANSWER KEY

2nd YEAR HIGHER SECONDARY EXAMINATION March 20 22

PART-I/II/III

SUBJECT: ZOOLOGY

CODE NO: 84546 SY-26

VERSION: 5

30 SCORES

1 HOURS

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
A		PART I Answer any three questions from 1-4, each carries 1 score		
	1	convergent evolution	1	1
	2	zygote intra fallopian transfer	1	1
	3.	cleavage / formation of morula	1	1
	4	DNA ligase / ligase / Molecular glue	1	1
B		Answer all questions from 5-6, each carries 1 score.		
	5	Edward Wilson	1	1
	6	penicillin	1	1
A		PART- II Answer any 2 from 7-9 (2 scores)		
	7. a.	Methionine	1	2
	b.	UAA / UAG / UGA	1	

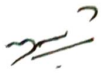
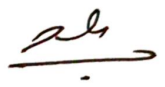
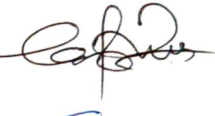
Qn. No	Sub Qns	Answer Key/Value Points		Score	Total Score
8.	a.	secrete androgen or testosterone/ Male hormones/ spermatogenesis		1	2
	b.	secretes progesterone/ maintains pregnancy.		1	
9		A	B	4 x 1/2	2
		(i) Trichoderma polysporum (ii) Monascus purpureus (iii) Saccharomyces cerevisiae (iv) Aspergillus niger	(c) Cyclosporin A (d) statin (b) ethanol (a) Citric acid.		
10		Answer any 2 from 10-13, score - 2		4 x 1/2	2
		A	B		
		1. Natural selection	- Darwinism		
		2. Chemical evolution	- Miller's experiment		
		3. Origin of Universe	- Big bang Theory		
		4. Use and disuse of organs	- Lamarckism		
11.		Respiratory failure/heart failure/cerebral haemorrhage/warning signs like drop in academic performance/unexplained absence from school/depression/aggressive and rebellious behaviour/loss of interests in hobbies/stealing/mental or financial stress to person and family/infections like AIDS, Hepatitis B, Cirrhosis etc. (Any four relevant answers)		4 x 1/2	2

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
12	a. b.	Acrosome Helps in fertilization/lysis of ovarian membrane for penetration of sperm.	1 1	2
13	a. b.	Male heterogamety: Male organism produces two types of sperms / Male determines sex / relevant illustration or representation. $\frac{1}{2}$ Female heterogamety: Female produce two types of eggs or ova / female determines sex / relevant illustration or representation. $\frac{1}{2}$ Male heterogamety - Man / insects like honey bee, grass hopper, drosophila $\frac{1}{2}$ Female heterogamety - Birds. $\frac{1}{2}$	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	2
14	a. b.	PART - III Answer any 3 from 14-17, 3 score Hardy-Weinberg principle Gene migration / Gene flow / Mutation / re combination / Genetic drift / natural selection.	1 $4 \times \frac{1}{2}$	3
15		Father exhibits male heterogamety / father produce two types sperms. $(22A+X)$ $(22A+Y)$ 1 or (X) (Y) Female produce one type of ovum $(22A+X)$ or (X) . When ovum fuses with $(22A+X)$ sperm 1 The child will be female. When ovum fuses with $(22A+Y)$ sperm, 1 The child will be male.	1 1	3

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
		Father $44A + XY$ $22A + X$ $22A + Y$ $44A + XX$ $44A + XY$ Female Male. or Father Mother XY XX X Y X XX XY Female Male. Any other response regarding female heterogamety citing suitable example, shall be considered.		
16.	a. sexually transmitted Diseases / Diseases transmitted through sexual contact b. Gonorrhoea, syphilis, Genital herpes / chlamydiasis / Genital warts / Trichomoniasis hepatitis B, AIDS Any four.	1 $4 \times \frac{1}{2}$	5	

Qn. No	Sub Qns	Answer Key/Value Points	Score	Total Score
17	a.	Habitat loss and fragmentation, over exploitation, Alien species invasion, co extinction	$4 \times \frac{1}{2}$ 2	3
	b.	Examples: Insitu - National park, Biosphere reserves, wildlife sanctuaries, sacred groves, hotspot etc. (any one) Exitu - Zoological park, Botanical garden, wild life safari park, Seed banks, Cryo-preservation etc (any one)	$\frac{1}{2}$ $\frac{1}{2}$	
B 18.		Answer the following question.		
	a.	Deoxy ribo nucleic acid, Watson and Crick	$\frac{1}{2} + \frac{1}{2} = 1$	3
	b.	Adenine, Thymine, cytosine, Guanine	$4 \times \frac{1}{2}$ 2	
19.		<u>PART IV</u> Answer any one. from 19-20, 5 score.		
	a.	Acquired immuno deficiency syndrome, Human immuno deficiency virus/HIV	1 1	5
	b.	ELISA Enzyme Linked Immuno sorbent assay	1	
	c.	Making blood safe from HIV (from blood bank)/use of disposable needles and syringes / use of condoms during sexual contact / Advocate safe sex / promote regular check ups to susceptible population Any four relevant answer	$4 \times \frac{1}{2}$ 2	
20	a.	A - promoter B - Template strand	1 1	5
	b.	copying / formation of RNA from template DNA strand (Antisense strand) DNA $\longrightarrow$ RNA	1	
	c.	3' - T A C G T A C G T A - 5'	2	

SL.No. - Name and PEN Mob:- Signature

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