

DIRECTORATE OF GOVERNMENT EXAMINATIONS, CHENNAI-6
HIGHER SECONDARY SECOND YEAR EXAMINATIONS – MARCH-2024

BIO ZOOLOGY ANSWERS KEY

Note:-

1. Answer written only in BLACK or Blue should be evaluated.
2. Write and underline and pencil to draw diagrams.
3. Choose the correct answer and write the option code if one of them (option of answer) is wrong, then award zero mark only.

PART-I

Maximum Marks : 35

Answer All the Questions.

8×1=8

Section-1

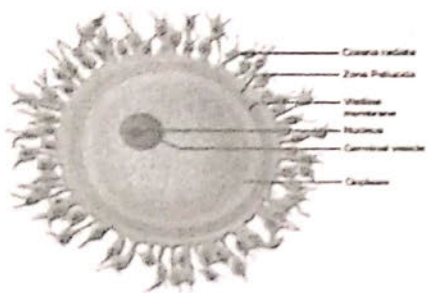
TYPE A			TYPE B			Marks
Q.No	Option	Answer	Q.No	Option	Answer	
1.	a	Sertoli cells	1.	c	Liver	1
2.	a	Commensalism	2.	b	Uttarakhand	1
3.	c	Gall fly	3.	d	Henry Bastian	1
4.	d	21	4.	c	Gall fly	1
5.	c	Liver	5.	a	Sertoli cells	1
6.	d	Henry Bastian	6.	a	Commensalism	1
7.	b	Uttarakhand	7.	a	SCID	1
8.	a	SCID	8.	d	21	1

PART-II

Note: Answer any **Four** of the following questions.

4×2=8

Q.No	Answer	Marks	
9.	Goals of HGP <ul style="list-style-type: none"> • Identify all the genes (approximately 30000) in human DNA. • Determine the sequence of the three billion chemical base pairs that makeup the human DNA. • To store this information in databases. • Improve tools for data analysis. • Transfer related technologies to other sectors such as industries. • Address the ethical, legal and social issues that may arise from the project. <p align="right">(Any two points)</p>		2
10.	Refers to the stem cells that can differentiate into various types of cells that are related. For example blood stem cells can differentiate into lymphocytes, monocytes , neutrophils etc.,	1 1	2

11.		Diagram	1	
		(Any two parts)	1	2
12.	<ul style="list-style-type: none"> Ethanol (C₂H₅OH) or Ethyl alcohol. It is used for industrial, laboratory and fuel purposes. 		1 1	2
13.	Sameer: <ul style="list-style-type: none"> It is an App. It provides hourly updates on the National Air Quality Index (AQI). 		1 1	2
14.	The risk factors of cervical cancer: <ul style="list-style-type: none"> Having multiple sexual partners. Prolonged use of contraceptive pills 		1 1	2

SECTION-3

Note: Answer any three of the following questions. Q.No.19 is compulsory. 3×3=9

Q.No	Answer	Marks
15.	Coprolites: <ul style="list-style-type: none"> Hardened faecal matter termed as coprolites occur as tiny pellets. Analysis of the coprolites enables us to understand the nature of diet the pre-historic animals thrived on. 	2 1
16.	Placenta is an endocrine Tissue: Because it produces hormones <ul style="list-style-type: none"> hCG - human Chorionic Gonadotropin human Chorionic Somatomammotropin (hCS) (or) human Placental Lactogen (hPL). Oestrogen Progesterone Relaxin 	1 2
	(Any two)	
17.	Solution for E - Waste: <ul style="list-style-type: none"> Recycle or reuse or resale or salvage. Great care must be taken to avoid unsafe exposure in recycling operations in leaking of materials such as heavy metals from landfills and incinerator ashes. 	1 2
	(Other relevant answers may also be given marks)	

18.	Differentiate r selected and k selected species		3
	r selected species	k selected species	
	• Smaller sized organisms	• Larger sized organisms	
	• Produce many offspring	• Produce few offspring	
	• Mature early	• Late maturity with extended parental care	
	• Short life expectancy	• Long life expectancy	
	• Each individual reproduces only once or few times in their life time	• Can reproduce more than once in lifetime	
	• Only few reach adulthood	• Most of them reach maximum life span	
• Unstable environment, density independent	• Stable environment, density dependent		
(Any three points)			
19.	Reverse transcription PCR or RT-PCR.	1	3
	In this process, the RNA molecules (mRNA) must be converted to complementary DNA (cDNA) by the enzyme reverse transcriptase. The cDNA then serves as the template for PCR.	2	

PART – IV

Note: Answer all the questions.

2×5=10

Q.No	Answer	Marks
20.(a)	<p>To promote the biodiversity conservation:</p> <ul style="list-style-type: none"> • Identify and protect all threatened species. • Identify and conserve in protected areas the wild relatives of all the economically important organisms. • Identify and protect critical habitats for feeding, breeding, nursing, resting of each species. • Resting, feeding and breeding places of the organisms should be identified and protected • Air, water and soil should be conserved on priority basis. • Wildlife Protection Act should be implemented. <p style="text-align: right;">(Any five points)</p> <p style="text-align: center;">(Other relevant answers may also be given marks)</p>	5×1 = 5
(or)		
20.(b)	<p>Hardy Weinberg's assumptions:</p> <ul style="list-style-type: none"> • No mutation: No new alleles are generated by mutation nor the genes get duplicated or deleted. • Random mating: Every organism gets a chance to mate. • No gene flow: Neither individuals nor their gametes enter (immigration) or exit (emigration) the population. • Very large population size: The population should be infinite in size. • No natural selection: All alleles are fit to survive and reproduce. 	1 1 1 1 1 = 5

21.(a)	Group	Drugs	Effects	1 1 1 1 1	5
	• Stimulants	Amphetamines, cocaine, nicotine and tobacco (Anyone)	Accelerates the activity of the brain		
	• Depressants	Alcohol, Barbiturates, Tranquilizers (Anyone)	Slows down the activity of the brain		
	• Narcotic/ Analgesics	Opium, Morphine (Anyone)	Act as depressants on the Central Nervous System		
	• Hallucinogens	Lysergic acid diethylamide (LSD), Phencyclidine (Anyone)	Distorts the way one sees, hears and feels		
• Stimulants, Depressants, Hallucinogens	Bhang (Marijuana), Ganja, Charas (Anyone)	Stimulating action on the CNS and affects the cardiovascular system			

(or)

21.(b)	<p>Types of Syngamy:</p> <ul style="list-style-type: none"> • Autogamy The male and female gametes are produced by the same cell or same organism and both the gametes fuse together to form a zygote. • Exogamy The male and female gametes are produced by different parents and they fuse to form a zygote. • Hologamy Lower organisms, sometimes the entire mature organisms do not form gametes but they themselves behave as gametes and the fusion of such mature individuals is known as hologamy • Paedogamy It is the sexual union of young individuals produced immediately after the division of the adult parent cell by mitosis. • Merogamy The fusion of small sized and morphologically different gametes (merogametes) takes place. • Isogamy The fusion of morphological and physiological identical gametes (isogametes) is called isogamy. • Anisogamy The fusion of dissimilar gametes is called anisogamy. <p style="text-align: right;">(Any Five points)</p> <p>(Each sub heading ½ mark and explanation ½ mark)</p>	5
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