

DIRECTORATE OF GOVERNMENT EXAMINATIONS, CHENNAI
HIGHER SECONDARY SECOND YEAR EXAMINATIONS – MARCH – 2025
BIO – ZOOLOGY (PART-II) ANSWERS KEY

Maximum Marks : 35

Note:

1. Answers written only in Black or blue should be evaluated
2. Choose the Correct answer and write the option code

SECTION -1

Answer **all** the questions :

8×1=8

TYPE – A			TYPE - B			Mar k
Q. No.	Opti on	Answer	Q. No	Opti on	Answer	
1	(b)	Denaturation, Primer Annealing synthesis	1	(a)	Biotic Potential	1
2	(c)	Sexual	2	(c)	Semi conservative nature of DNA replication	1
3	(a)	N-1 Rule	3	(c)	Both (A) and (R) are false	1
4	(a)	Statement-1 is correct but Statement 2 is incorrect	4	(a)	N-1 Rule	1
5	(a)	Biotic potential	5	(a)	Aspergillus niger	1
6	(c)	Semi Conservative nature of DNA replication	6	(c)	Sexual	1
7	(a)	Aspergillus niger	7	(a)	Statement-1 is correct but Statement-2 is incorrect	1
8	(c)	Both (A) and (R) are false	8	(b)	Denaturation, primer Annealing, Synthesis	1

SECTION – 2

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

4×2=8

Q.No.	Answer		Marks
9.	The earth has experienced quite a few mass extinctions due to environmental catastrophes.		2
10.	<div>Complete parthenogenesis</div> <div>No bi parental sexual reproduction.</div>	<div>Incomplete parthenogenesis</div> <div>In some animals both sexual and parthenogenesis reproduction takes place.</div>	1+1
11.	ZIFT – Zygote Intra Fallopian transfer. ICSI – Intra Cytoplasmic sperm injection		1 1
12.	<ol style="list-style-type: none"> 1. The human genome contains 3 billion nucleotide bases. 2. An average gene consist of 3000 bases, the largest known human gene being dystrophin with 2.4 million bases. 3. The chromosomal organization of human genes shows diversity. 4. Approximately 30,000 genes are present in human genome and almost 99.9 nucleotide bases are exactly the same in all people. 5. Functions for over 50 percent of the discovered genes are unknown. 6. Less than 2 percent of the genome codes for proteins. 7. Repeated sequences make up very large portion of the human genome. Repetitive sequences have no direct coding functions but they shed light on chromosome structure, dynamics and evolution (genetic diversity). 8. Chromosome 1 has 2968 genes whereas chromosome Y has 231 genes. 9. Scientists have identified about 1.4 million locations where single base DNA differences (SNPs – Single nucleotide polymorphism – pronounce as 'snips') occur in humans. Identification of 'SNIPS" is helpful in finding chromosomal locations for disease associated sequences and tracing human history. <div>(Any two points)</div>		2
13.	Structures which are similar in orgin but perform different functions Eg : Forelimbs of vertebrates, thorn of Bougainvillea and the tendrils of Curcubita & Pisum sativum <div>(Any One)</div>		2
14.	The polypeptide chains are synthesized as a precursor called pre-pro insulin. Which contain A and B segments linked by a third chain (C) and preceded by a leader sequence.		2

Section – 3

Note : Answer any three of the following questions.

Q. No. 19 is compulsory.

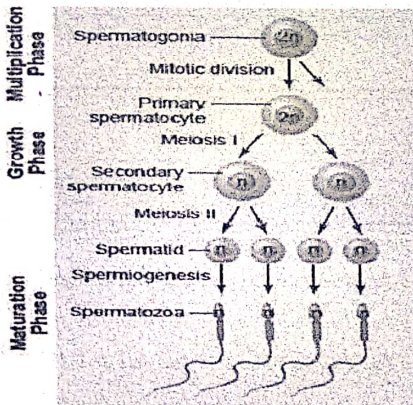
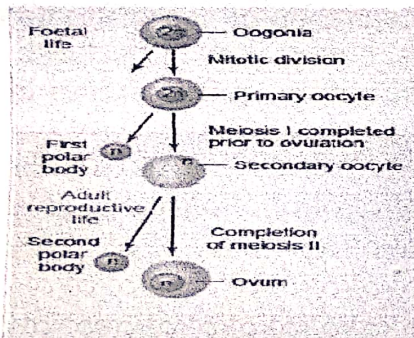
3×3=9

Q. No.	Answer	Marks
15.	1. Sertoli cell secrete the hormone inhibin. 2. It is involved in the negative feed back control of sperm production.	1½ 1½
16.	1. Severe mental retardation. 2. Light pigmentation of skin and hair. 3. Phenylpyruvic acid is excreted in the urine.	1 1 1
17.	1. Darwin failed to explain the mechanism of variation. 2. Darwin explains the survival of the fittest but not the arrival of the fittest. 3. He focussed on small fluctuating variations that are mostly non-heritable. 4. He did not distinguish between somatic and germinal variations. 5. He could not explain the occurrence of vestigial organs, over specialization of some organs like large tusks in extinct mammoths, oversized antlers in the extinct Irish deer, etc., <div style="text-align: right;">(Any 3 points)</div>	1 1 1
18.	1. Earthworms, land planarians secrete a mucus coating to maintain a moist situation for burrowing, coiling, respiration, etc. 2. Arthropods have an external covering over the respiratory surfaces and well developed tracheal systems. 3. In vertebrate skin, there are many cellular layers besides the well protected respiratory surfaces that help in preventing lost of water. 4. Some animals obtain their water requirement from food as partial replacement of water lost through excretion. 5. Birds make nests and breed before the rainy season as there is availability of abundant food. But during drought birds rarely reproduce. 6. Camels are able to regulate water effectively for evaporative cooling through the skin and respiratory system and excrete highly concentrated urine, and can also withstand dehydration up to 25% of their body weight. <div style="text-align: right;">(Any 3 Points)</div>	3
19.	i. ELISA Test	1½
	ii. ELISA possesses the added advantages of not requiring radio isotopes or a radiation counting apparatus.	1½

SECTION – 4

Note : Answer all the questions.

2×5=10

Q. No.	Answer	Marks														
20. a)	<div><div><p>Spermatogenesis</p></div><div><p>Oogenesis</p></div></div> <div><p>(or) Explanation of Spermatogenesis</p><p>(or) Explanation of Oogenesis</p><p>(OR)</p></div>	2½														
20. b)	<table><tr><th>Active Immunity</th><th>Passive Immunity</th></tr><tr><td>It is produced actively by host's immune system.</td><td>It is received passively and there is no active host participation.</td></tr><tr><td>It is produced due to contact with pathogen or by its antigen.</td><td>It is produced due to antibodies obtained from outside.</td></tr><tr><td>It is durable and effective in protection.</td><td>It is transient and less effective.</td></tr><tr><td>Booster effect on subsequent dose is possible.</td><td>Subsequent dose is less effective.</td></tr><tr><td>Immunological memory is present.</td><td>No memory.</td></tr><tr><td>Immunity is effective only after a short period.</td><td>Immunity develops immediately.</td></tr></table> <p>(Any Five Points)</p>	Active Immunity	Passive Immunity	It is produced actively by host's immune system.	It is received passively and there is no active host participation.	It is produced due to contact with pathogen or by its antigen.	It is produced due to antibodies obtained from outside.	It is durable and effective in protection.	It is transient and less effective.	Booster effect on subsequent dose is possible.	Subsequent dose is less effective.	Immunological memory is present.	No memory.	Immunity is effective only after a short period.	Immunity develops immediately.	5
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