

**SECOND YEAR HIGHER SECONDARY SECOND TERMINAL EVALUATION, DECEMBER-2019  
ZOOLOGY ANSWER KEY**

QN no.	Scoring key				Score
<b>Answer any 3 questions from 1 to 5</b>					
1	b) Urethral meatus				1
2	c) Androgen				1
3	c) Down's Syndrome				1
4	d) RNase				1
5	c) Glomus				1
<b>Answer any 9 questions from 6-16</b>					
6	In eukaryotes, the regulation could be exerted at i) Transcriptional level (formation of primary transcript), ii) Processing level (regulation of splicing), iii) Transport of mRNA from nucleus to the cytoplasm, iv) Translational level				0.5 0.5 0.5 0.5
7	In RNA, Present of 2' OH group make it catalytic and reactive hence RNA is unstable. RNA mutate faster and also RNA is not better genetic material for the storage of information .				2
8	i) The codon is triplet. 61 codons code for amino acids and 3 codons do not code for any amino acids, hence they function as stop codons. ii) One codon codes for only one amino acid, hence, it is unambiguous and specific. iii) Some amino acids are coded by more than one codon, hence the code is degenerate. iv) The codon is read in mRNA in a contiguous fashion. There are no punctuations. v) The code is nearly universal: for example, from bacteria to human UUU would code for Phenylalanine (phe). Some exceptions to this rule have been found in mitochondrial codons, and in some protozoans. vi) AUG has dual functions. -It codes for Methionine (met) - it also act as initiator/start codon (any four response)				2
9	a) Hardy-Weinberg principle b) i) Gene migration or gene flow, ii) Genetic drift, iii) Mutation, iv) Genetic recombination and v) Natural selection. (any two response)				1  1
10	<u>Divergent evolution</u> It is the process whereby groups from the same common ancestor evolve and accumulate differences, resulting in the formation of a new species Eg: Galapagos finches, Australian marsupials, placental mammals in australia (Any one example) <u>Convergent evolution</u> When more than one adaptive radiation appeared to have occurred in an isolated geographical area (representing different habitat) is called convergent evolution. Eg. placental wolf and tasmanian wolf				1  1
11	The process of evolution of different species in a given geographical area starting from a point and literally radiating to other areas of geography (habitat) is called adaptive radiation Placental mammals evolved from an ancestral stock				2
12	S No.	Disease	Causative organism	Symptom	2
	1	Typhoid	<i>Salmonella typhi</i> (a)	High Fever and stomach pain	
	2	Common cold	<i>Rhino virus</i> (b)	Head ache, sore throat (c)	
	3	Amoebiasis	<i>Entamoeba histolytica</i>	constipation, abdominal pain and cramps,	

				stools with excess mucous and blood clots.																						
	4	Ascariasis	<i>Ascaris(Round worm) (d)</i>	Internal bleeding, muscular pain																						
13	<p><b>(a) Physical barriers :</b> Skin on our body is the main barrier which prevents entry of the micro-organisms. Mucus coating of the epithelium lining the respiratory, gastrointestinal and urogenital tracts also help in trapping microbes entering our body.</p> <p><b>(b) Physiological barriers :</b> Acid in the stomach, saliva in the mouth, tears from eyes-all prevent microbial growth. Saliva and tear contain antibacterial agent called Lysozyme</p> <p><b>(c) Cellular barriers :</b> Certain types of leukocytes (WBC) of our body like polymorpho-nuclear leukocytes(PMNL-neutrophils) and monocytes and natural killer (type of lymphocytes) in the blood as well as macrophages in tissues can phagocytose and destroy microbes. The PMNL especially neutrophils of the blood have the ability to come out of the blood capillaries by amoeboid movement called Diapedesis. It engulf many pathogens</p> <p><b>(d) Cytokine barriers :</b> Virus-infected cells secrete proteins called interferons which protect non-infected cells from further viral infection. (any one example)</p>				2																					
14	<p><b>AUTO IMMUNITY</b> Memory-based acquired immunity evolved in higher vertebrates based on the ability to differentiate foreign organisms (e.g., pathogens) from self cells. higher vertebrates can distinguish foreign molecules as well as foreign organisms. due to genetic and other unknown reasons, the body attacks self-cells. This results in damage to the body and is called auto-immune disease. Eg: Rheumatoid arthritis Mystheniagravis</p>				2																					
15	Anti Histamine and adrenaline				2																					
16	<p>a) <i>Aspergillus niger</i> b) Bacteria c) Butyric acid d) Lactic acid</p>				2																					
<b>Answer any 3 questions from 17-20</b>																										
17	<table border="1"> <thead> <tr> <th>S No.</th> <th>A</th> <th>B</th> </tr> </thead> <tbody> <tr> <td>a)</td> <td>Tubectomy</td> <td>Surgical method</td> </tr> <tr> <td>b)</td> <td>Pills</td> <td>Oral contraception</td> </tr> <tr> <td>c)</td> <td>Vaults</td> <td>Barrier method</td> </tr> <tr> <td>d)</td> <td>Lippers loop</td> <td>Non medicated IUD</td> </tr> <tr> <td>e)</td> <td>Lactational amenorrhea</td> <td>Natural method</td> </tr> <tr> <td>f)</td> <td>CuT</td> <td>Copper releasing IUD</td> </tr> </tbody> </table>	S No.	A	B	a)	Tubectomy	Surgical method	b)	Pills	Oral contraception	c)	Vaults	Barrier method	d)	Lippers loop	Non medicated IUD	e)	Lactational amenorrhea	Natural method	f)	CuT	Copper releasing IUD				3
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18	<p>a) Alec Jeffreys 1-1. Isolation of DNA 2. Digestion of DNA into fragments by restriction endonuclease 3. Separation of DNA fragments by electrophoresis 4. Transferring of separated DNA fragments into nitrocellulose paper (blotting) 5. Hybridization using labeled VNTR probe 6. Detection of hybridized DNA fragments be auto radiography</p>				3																					
19	<p>a) Yeast artificial chromosome b) Bacterial artificial chromosome c) Expressed sequence tags</p>				0.5 0.5 0.5																					

	d) <b>Variable number tandem repeats</b>	<b>0.5</b>
	e) <b>Single nucleotide polymorphism</b>	<b>0.5</b>
	f) <b>Polymerase chain reaction</b>	<b>0.5</b>
<b>20</b>	<b>Dryopithecus- Ramapithecus- Australopithecines- Homo habilis- Homo erectus- Homo sapiens</b>	<b>2</b>