

Mrs. M. AHAMED NOWROSE BEGAM M.Sc., M.Phil., B.Ed., M.A., M.Phil., (Edn.)

PRINCIPAL, J.M. MATRIC. GIRLS HR. SEC. SCHOOL, CHENNAI – 6000 007

Class :12

Register number						
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FIRST REVISION EXAMINATION - 2022-23

ZOOLOGY

Time allotted: 3 Hours

Max. Marks: 70

PART- I

NOTE:

- (i) Answer all the questions.
- (ii) Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer.

15 x 1 = 15

PART-I

1. Arrange the layers of an ovum from outside to inside
 - (a) Corona radiata, Zona pellucida, Vitelline membrane
 - (b) Zona pellucida, Corona radiata, Vitelline membrane
 - (c) Vitelline membrane, Zona pellucida, Corona radiata
 - (d) Zona pellucida, Vitelline membrane, Corona radiata
2. Universal Donor and Universal Recipient blood groups are ----- and ----- respectively.
 - (a) AB, O (b) O, AB (c) A, B (d) B, A
3. Thymine is unique for DNA, while ----- is unique for RNA.
 - (a) Adenine (b) Guanine (c) Cytosine (d) Uracil
4. In which type of parthenogenesis, are only males produced?
 - (a) Arrhenotoky (b) Thelytoky (c) Amphitoky (d) Both a and b
5. The golden age of reptiles was
 - (a) Mesozoic era (b) Cenozoic era (c) Paleozoic era (d) Proterozoic era
6. Which of the following is correctly matched?
 - (a) Syphilis - Treponema pallidum
 - (b) AIDS - Bacillus anthracis
 - (c) Gonorrhoea - Leishmania donovani
 - (d) Trichomoniasis - Candida albicans
7. If the immune system attacks self- cells, it is called
 - (a) allergy (b) immunodeficiency (c) autoimmunity (d) hyper sensitivity
8. Marijuana is extracted from
 - (a) Dried leaves and flowers of hemp plant (b) Ergot fungus (c) Roots of hemp plant (d) Cocoa plant
9. The most common substrate used in distilleries for the production of ethanol is
 - (a) Soya meal (b) Ground gram (c) Molasses (d) Corn meal

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10. In the E-waste generated by the mobile phones which among the following metals is the most abundant?
 (a) Copper (b) Silver (c) Palladium (d) Gold
11. Extinction of Dodo birds lead to the extinction of one of the following trees.
 (a) Orchid (b) Calvaria (c) Rauwolfia (d) Papaya
12. Match the following and find the correct option
 A. Mutualism - 1. Tapeworm
 B. Commensalism - 2. Head lice
 C. Ectoparasite - 3. Sea anemone on crab
 D. Endoparasite - 4. Sucker fish on shark
 (a) A -3, B-4, C-2, D-1 (b) A-4, B-3, C-1, D- 2
 (c) A-3, B-4, C-1, D-2 (d) A-3, B-1, C-2, D-4
13. ELISA is mainly used for
 (a) Detection of mutations (b) Detection of pathogens
 (c) Selecting animals having desirable traits (d) Selecting plants having desirable traits
14. The hormone inhibin is secreted by
 (a) Interstitial cells (b) Leydig cells (c) Sertoli cells (d) Helper cells
15. Acid rain is a form of precipitation that contains acidic components like
 (a) O₂ and O₃ (b) SO₂ and NO₂ (c) SO₂ and CO (d) CO₂ and CO

PART – II

II. Answer any six of the following questions. Question No. 24 is compulsory.

6 x 2 = 12

16. Differentiate exogenous and endogenous budding.
17. Define Hardy- Weinberg principle.
18. Write the preventive measures of STDs.
19. What are holandric genes?
20. Mention the advantages of cloning.
21. What is bioremediation?
22. List the functions of soil.
23. What is eutrophication?
24. Name the types of malaria with their causative agents.

PART- III

III. Answer any six of the following questions. Question No. 33 is compulsory.

6 x 3 = 18

25. Mention the role of oxytocin in parturition and lactation.
26. List the common withdrawal symptoms of drugs and alcohol abuse.
27. Write short notes on sacred groves.

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28. Give the action of any two enzymes in industries.
29. What are the strategies to be implemented in India to attain total reproductive health?
30. Differentiate between innate immunity and acquired immunity.
31. What are the potential applications of human stem cells?
32. State any three goals of the human genome project.
33. What can be fitted in vehicles and industries to reduce pollution?

PART- IV

IV. Note: Answer all questions.

5 x 5 = 25

- 34.(a) Explain the various phases of the menstrual cycle.
(OR)
(b) How is sex determined in human beings?
35. (a) What are the applications of DNA finger printing?
(OR)
(b) What are the types of responses observed in animals to overcome environmental conditions?
36. (a) Tabulate the causative agent, mode of transmission and symptoms of any five viral diseases in man.
(OR)
(b) Explain three levels of biodiversity.
37. (a) What are recombinant vaccines? Explain the types.
(OR)
(b) Explain the action of natural selection taking industrial melanism as an example.
38. (a) Explain the structure of immunoglobulin with suitable diagram.
(OR)
(b) Write an account on waste water management.



VIDEO LESSONS IN BIOLOGY AND ZOOLOGY FOR CLASSES X, XI & XII
CLICK THE LINK BELOW

<https://www.youtube.com/channel/UCZLhWX1c7wto4xpX4reB3fw>

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<https://www.blogger.com/blog/posts/953431245247623415?tab=rj&bpli=1&pli=1>

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ANSWER KEY**PART- I****NOTE:**

- (i) Answer all the questions.
 (ii) Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer.

15 x 1 = 15

1. a. Corona radiata, Zona pellucida, Vitelline membrane
2. b. O, AB
3. d. Uracil
4. a. Arrhenotoky
5. a. Mesozoic era
6. a. Syphilis – Treponema pallidum
7. c. autoimmunity
8. a. Dried leaves and flowers of hemp plant
9. c. Molasses
10. a. Copper
11. b. Calvaria
12. a. A- 3, B- 4, C-2, D-1
13. b. Detection of pathogens
14. c. Sertoli cells
15. b. SO ₂ and NO ₂

PART – II

Note: Answer any six of the following questions. Question No. 24 is compulsory.

6 x 2 = 12

16.	Exogenous budding -Buds formed on the outer surface of the parent body. Ex. <i>Hydra</i> . Endogenous budding- Hundreds of buds are formed inside the cytoplasm and many remain within the body of the parent. Ex. <i>Noctiluca</i>	2 x 1=2
17.	Hardy of UK and Weinberg of Germany stated that the allele frequencies in a population are stable and are constant from generation to generation in the absence of gene flow, genetic drift, mutation, recombination and natural selection.	2

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18.	Avoid sex with unknown partner/ multiple partners. Use condoms. In case of doubt, consult a doctor for diagnosis and get complete treatment. (any two points)	2×1=2
19.	The genes present in the differential region of Y chromosome are called Y- linked or holandric genes. The Y linked genes inherit along with Y chromosome and they are expressed phenotypically only in the male sex.	2
20.	Offers benefits for clinical trials and medical research. It can help in the production of proteins and drugs in the field of medicine. Aids stem cell research. Animal cloning could help to save endangered species. (any two points)	2×1=2
21.	The use of naturally occurring or genetically engineered microorganisms to reduce or degrade pollutants is called bioremediation.	2
22.	Medium for plant growth Means for water storage and purification Modifier of earth's atmosphere Habitat for many organisms, which modify the soil (any two points)	2 × 1=2
23.	Eutrophication is the process in which, a water body is enriched with excessive nutrients, leading to profuse growth of plant life like algae. Eutrophication affects the quality of water and depletion of dissolved oxygen.	2
24.	Tertian, benign tertian or vivax malaria – P. vivax Quartan malaria – P. malaria Mild tertian malaria – P. ovale Malignant tertian or quotidian malaria – P. falciparum	4×½= 2
PART - III		
Note: Answer any three of the following questions. Question No. 33 is compulsory.		
		6 x 3 = 18
25.	Oxytocin causes the "Let-Down" reflex, the actual ejection of milk from the alveoli of the mammary glands. During lactation, oxytocin also stimulates the recently emptied uterus to contract, helping it to return to pre - pregnancy size.	2×1½=3

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26.	<p>Mild tremors and convulsions Severe agitation and fits Depressed mood Anxiety Nervousness, Restlessness Irritability Insomnia Dryness of throat (any three points)</p>	3
27.	<p>A sacred grove or sacred woods are any grove of trees that are of special religious importance to a particular culture. Sacred groves feature in various cultures throughout the world.</p>	3
28.	<p>PETase and MHETase enzymes to breakdown PET plastic into terephthalic acid and ethylene glycol. Fungal amylase (enzyme) from Aspergillus is used to break down the starch into fermentable sugars. Lipases is used in detergent formulations and to remove oily stains from laundry. Bottled juices are clarified by the use of pectinase, protease and cellulase. (any two)</p>	2×1½=3
29.	<p>Creating awareness and providing medical assistance to build a healthy society. Introducing sex education in schools to provide information about adolescence and adolescence related changes. Educating couples and those in the marriageable age groups about the available birth control methods and family planning norms. Creating awareness about care for pregnant women, post-natal care of mother and child and the importance of breast feeding. Encouraging and supporting governmental and non - governmental agencies to identify new methods and/or to improve upon the existing methods of birth control. (any three points)</p>	3×1 =3

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30.	Innate immunity	Acquired immunity	3×1 =3
	It is the natural phenomenon of resistance to infection present in an individual right from the birth.	This is the resistance developed or acquired in an individual afterbirth.	
	It is a non-specific resistance against a wide range of infectious agents.	It is a specific resistance against a particular pathogen.	
	It is otherwise known as non-specific or natural immunity.	It may be active acquired or passive acquired immunity.	
31.	Stem cells are capable of self-renewal and exhibit 'cellular potency'. The most important and potential application of human stem cells is the generation of cells and tissues that could be used for cell-based therapies. Human stem cells could be used to test new drugs.		1 2
32.	Identify all the genes (approximately 30000) in human DNA. To store this information in databases. Improve tools for data analysis.		3
33.	Catalytic converters in vehicles help to reduce polluting gases drastically. Diesel exhaust filters in automobiles cuts release of particulate matter Electrostatic precipitators reduce release of industrial pollutants.		3×1 =3
Part – IV			
Note: Answer all questions.			5 × 5 = 25
34. (a)	Menstrual cycle comprises of the following phases: 1. Menstrual phase: The cycle starts with the menstrual phase when menstrual flow and lasts for 3-5 days. Menstrual flow is due to the breakdown of endometrial lining of the uterus, and its blood vessels. 2. Follicular or proliferative phase:		5

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	<p>This phase extends from the 5th day of the cycle till the time of ovulation.</p> <p>During this phase, the primary follicle grows to become a fully mature Graafian follicle and the endometrium regenerates through proliferation.</p> <p>FSH and LH increase gradually during the follicular phase.</p> <p>3. <u>Ovulatory phase:</u></p> <p>Both LH and FSH attain peak level in the middle of the cycle (about the 14th day).</p> <p>Maximum secretion of LH during the mid - cycle is called LH surge. This leads to the rupture of the Graafian follicle and the release of the ovum, which is called ovulation.</p> <p>4. <u>Luteal or secretory phase:</u></p> <p>Graafian follicle is transformed into corpus luteum, and secretes large amount of progesterone.</p> <p>In case of fertilization, the uterine wall secretes nutritious fluid in the uterus for the foetus, hence this phase is also called secretory phase.</p> <p>In the absence of fertilization, the corpus luteum degenerates and leaves a scar tissue called corpus albicans.</p> <p>It also initiates the disintegration of the endometrium leading to menstruation, marking the next cycle.</p>	
(OR)		
<p>34. (b)</p>	<p>Genes determining sex in human beings are located on two sex chromosomes, called allosomes.</p> <p>23 pairs of human chromosomes include 22 pairs of autosomes (44A) and one pair of sex chromosomes or allosomes (XX or XY). Females are homogametic producing similar gametes (eggs), each containing one X chromosome while the males are heterogametic producing dissimilar gametes (sperms) with X and Y chromosomes.</p> <p>Schematic illustration (3+2 illustration)</p>	<p>3+2 = 5</p>
<p>35. (a)</p>	<p>1. <u>Forensic analysis:</u> It can be used in the identification of a person involved in criminal activities, for settling paternity or maternity disputes, and in determining relationships for immigration purposes.</p> <p>2. <u>Pedigree analysis:</u> inheritance pattern of genes through generations and for detecting inherited diseases.</p>	<p>5</p>

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	<p>3. <u>Conservation of wild life:</u> protection of endangered species. By maintaining DNA records for identification of tissues of the dead endangered organisms.</p> <p>4. <u>Anthropological studies:</u> It is useful in determining the origin and migration of human populations and genetic diversities.</p>				
(OR)					
35. (b)	<p><u>Regulate:</u> Some organisms are able to maintain homeostasis by physiological means which ensures constant body temperature, ionic/osmotic balance. Ex. Birds, mammals</p> <p><u>Conform:</u> In some animals their body temperature changes with the ambient temperature. Ex. fishes</p> <p><u>Migrate:</u> Organisms tend to move away temporarily from a stressful habitat to a new, hospitable area and return when the stressful period is over. Birds migrate from Siberia to Vedanthangal in Tamil Nādu to escape from the severe winter periods.</p> <p><u>Suspend:</u> This is seen commonly in bears going into hibernation during winter. Some snails and fish go into aestivation to avoid summer related problems like heat and desiccation. Some lower animals suspend a certain phase of their life cycle, which is referred to as diapause.</p>				5
36. (a)	Disease	Causative agent	Mode of transmission	Symptoms	5 × 1=5
	Common cold	<i>Rhino viruses</i>	Droplet infection	Nasal congestion and discharge, sore throat, cough and headache	
	Poliomyelitis	<i>Polio virus (RNA virus)</i>	Droplet infection through	Fever, muscular stiffness and	

