



INDIAN SCHOOL AL WADI AL KABIR

First Rehearsal Examination 2022-23

SUB: Biology (044)

Date: 06/12/2022

Time Allowed :3 hours

Class: XII

SET 1

Maximum Marks: 70

General Instructions:

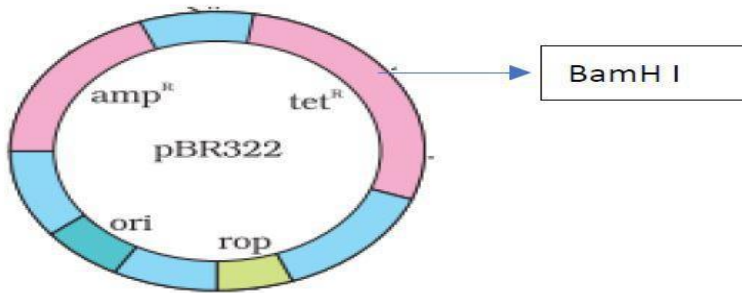
- i) All questions are compulsory.
- ii) The question paper has five sections and 33 questions. All questions are compulsory.
- iii) Section–A has 16 questions of 1 mark each; Section–B has 5 questions of 2 marks each; Section– C has 7 questions of 3 marks each; Section– D has 2 case-based questions of 4 marks each; and Section–E has 3 questions of 5 marks each.
- iv) There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
- v) Wherever necessary, neat and properly labeled diagrams should be drawn.

	SECTION A	
Sl. No.	QUESTION	MARKS
1	Which of the following is similar to autogamy, but requires pollinators? a. Geitonogamy b. Cleistogamy c. Apogamy d. Xenogamy	1

2	<p>The net electric charge on DNA and histones is:</p> <ul style="list-style-type: none"> a. both positive b. both negative c. negative and positive, respectively d. zero 	1
3	<p>Trichoderma polysporum is a source of</p> <ul style="list-style-type: none"> a. Cyclosporine – A b. Streptokinase c. Statins d. Clot buster 	1
4	<p>What is the beneficial role of LAB in our stomach?</p> <ul style="list-style-type: none"> a. Causing souring of milk by decreasing nutritional quality b. Increases the amount of vitamin-D c. Checks disease causing microbes d. It produces alkali which coagulate and partially digest the milk proteins 	1
5	<p>Which of the following statements is correct?</p> <ul style="list-style-type: none"> a. Sporogenous tissue is haploid b. The hard-outer layer of pollen is called intine c. Tapetum nourishes the developing pollen d. Microspores are produced by endothecium 	1
6	<p>PCR and Restriction fragment length polymorphism are the methods for</p> <ul style="list-style-type: none"> a. Genetic fingerprinting b. DNA sequencing c. Genetic transformation d. Study of enzymes 	1

7

The figure below shows the structure of a plasmid.



A foreign DNA was ligated at BamHI. The transformants were then grown in a medium containing antibiotics tetracycline and ampicillin.

Choose the correct observation for the growth of bacterial colonies from the given table

	<i>Medium with Tetracycline</i>	<i>Medium with Ampicillin</i>
(a)	Growth	No growth
(b)	No growth	Growth
(c)	No growth	No Growth
(d)	Growth	Growth

1

8

Elephantiasis is caused by _____.

- Filarial worms
- Flatworms
- Tapeworms
- None of the above

1

9

Which of the following hormones are involved in the process of oogenesis?

- Estrogen
- Testosterone
- Follicle-stimulating hormones (FSH)
- Both (A) and (C)

1

10

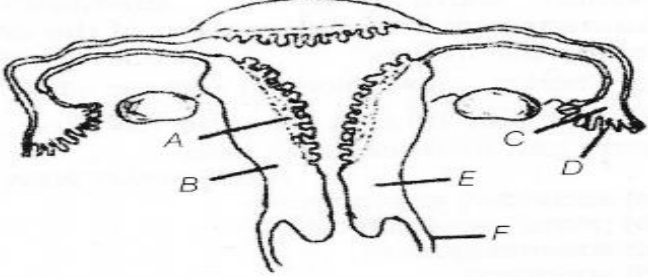
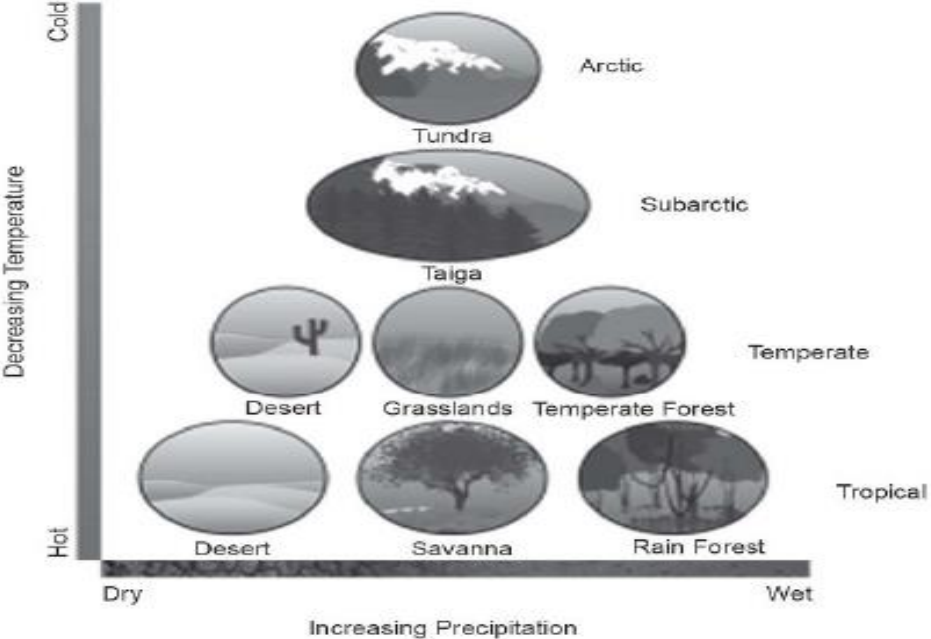
Sacred Groves are useful in

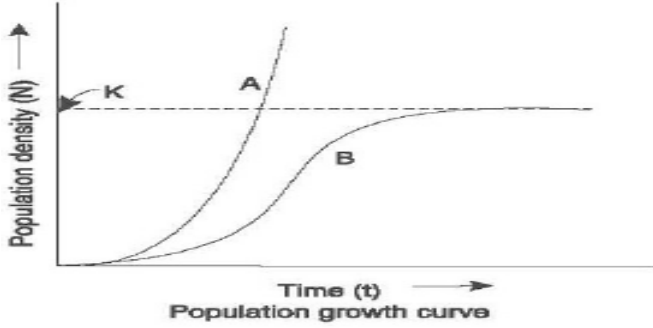

- Preventing soil erosion.
- Conserving endangered and rare species.
- Spreading environmental awareness.
- Ensuring the sustainable flow of water in rivers.

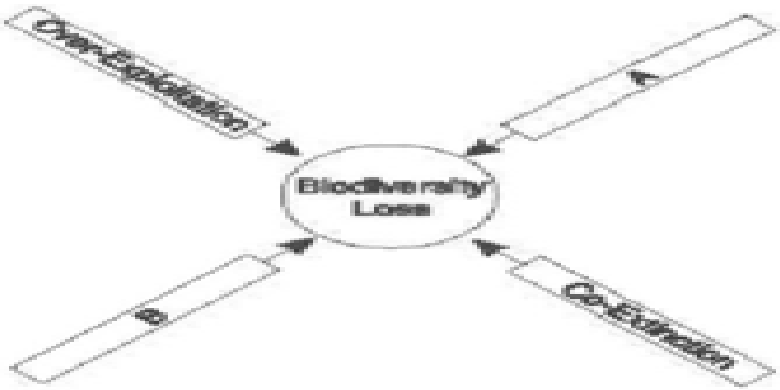
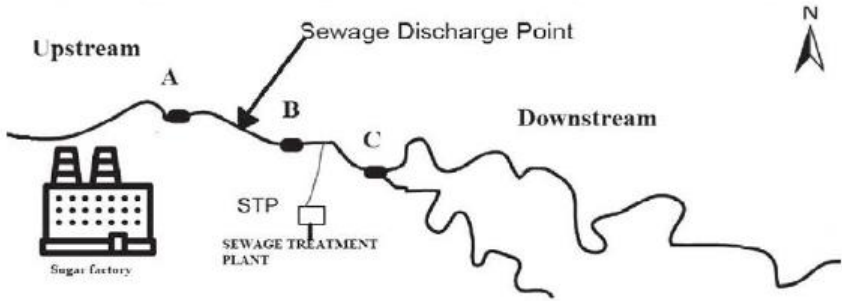
1

11	Sea Anemone gets attached to the surface of the hermit crab. The kind of population interaction exhibited in this case is a. Amensalism. b. Commensalism. c. Mutualism. d. Parasitism	1
12	Bacterial and fungal enzymes degrade detritus into simpler inorganic substances and this process is called as a. Leaching b. Catabolism c. Humification d. Mineralisation.	1
	Question No. 13 to 16 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below: A. Both A and R are true and R is the correct explanation of A. B. Both A and R are true and R is not the correct explanation of A. C. A is true but R is false. D. A is False but R is true.	
13	Assertion: Surgical method of contraception is better than natural method. Reason: The natural methods of contraception involve no side-effects and is reversible	1
14	Assertion: The genotype of an individual with B group blood could be $I^B i$, but O group genotype can only be ii . Reason: The allele i is recessive to allele I^B .	1
15	Assertion: For transformation by Gene gun, microparticles made of Gold or Tungsten is coated with DNA Reason: Gene gun is used for transforming host plant cells.	1
16	Assertion: The Pyramid of energy is always upright. Reason: The flow of energy in a food chain is bi-directional.	1
SECTION B		
17	What is ori and what is its significance in Biotechnology.	2

18	<p>During the process of DNA replication, synthesis in one strand is continuous while in another strand is discontinuous.</p> <p>a. Why does this happen and what is the result of it.</p> <p>b. How the second strand become continuous?</p>	2
19	<p>Vallisneria and Sea grasses are water pollinated flowers, Explain their pollination process.</p>	2
20	<p>Lymphocytes are an integral part of our immune system and help in the humoral and cell-mediated immune response process.</p> <p>a) Specify the type of lymphocytes that mediate humoral immune response and the ones that mediate cell-mediated immunity.</p> <p>b) What is the chemical nature of antibodies? How is an organ rejected by the body due to 'unmatched' transplant?</p>	2
21	<p>How does the estrogen-progesterone combination act as a contraceptive measure?</p> <p style="text-align: center;">OR</p> <p>Name the contraceptive pill that was made in India, why is it a preferred method of contraception in females.</p>	2
SECTION C		
22	<p>The figure given below is the diagrammatic sectional view of a seminiferous tubule, answer the questions in relation to it.</p> <p>a) Label the parts marked A & C</p> <p>b) What is spermiogenesis and spermiation.</p> <p>c) Name the two types of cells that is found in the seminiferous tubules.</p> <p style="text-align: center;">OR</p> <p>The figure given below is the diagrammatic sectional view of the female reproductive system, answer the questions in relation to it.</p>	3

	 <p>(a) From the above figure, identify the correct parts C & D (b) Mention the role of A in mensuration and implantation. c) Identify the region where fertilization takes place and also state the function of part F.</p>	
23	a) Explain the Meselson and Stahl's experiment. b) Illustrate the result and conclusions with diagrams	3
24	A pest control program needed to be developed for the Sundarbans mangrove ecosystem and biocontrol methods were being explored. a) Why would biocontrol methods be the best method for a pest control program in a biome like Sundarbans? b) What is the difference in the action of a biocontrol agents as against the action of chemical pesticides? c) Mention any two points of vital information about the pests that the designers of the pest control program need to be aware of?	3
25	From the picture given below explain latitudinal gradient with respect to biodiversity. 	3
26	How does incomplete dominance, codominance and polygenic inheritance deviate from Mendel's observation? Give an example of each.	3

27	<p>Study the graph given alongside and answer the questions that follow.</p>  <p>The graph shows Population density (N) on the y-axis and Time (t) on the x-axis. Curve A is an exponential growth curve that rises steeply and crosses a horizontal dotted line labeled 'K'. Curve B is a logistic growth curve that rises and then levels off, asymptotically approaching the dotted line 'K'. The dotted line 'K' represents the carrying capacity.</p> <p>a) Write the status of food and space in the curves A and B</p> <p>b) In the absence of a predator, which one of the two curves would depict the prey population, name the curves in the graph.</p> <p>c) What does the dotted line indicate, state its significance.</p>	3
28	<p>What is the meaning of transgenic animals and how can man get biological products from them, explain with two examples.</p>	3
SECTION D		
	<p>Q.no 29 and 30 are case based questions. Each question has subparts with internal choice in one subpart</p>	4
29	<p>The accelerated rates of species extinction that the world is facing now are largely due to human activities, often also referred to as The Evil Quartet. A student prepared a poster to summarize the threat to Biodiversity.</p>  <p>The poster features the title 'Threats to BIODIVERSITY' at the top. Below it, several arrows point towards the center, each labeled with a threat: 'Habitat destruction', 'Alien Invasive species', 'Genetic pollution', 'Over exploitation', 'Hybridization', 'Climate change', and 'Diseases'. At the bottom, a banner reads 'Human Over Population'.</p>	

	<p>a) Identify A and B that are also responsible for loss of Biodiversity.</p>  <p>b) Which among the four causes is the most important cause driving animals and plants to extinction.</p> <p>c) How can the loss of one species lead to the extinction of another.</p> <p style="text-align: center;">OR</p> <p>c) Give example of how indigenous species face threat with the introduction of alien species.</p>	<p>1</p> <p>1</p> <p>2</p>
<p>30</p>	<p>Water samples were collected from points A, B and C in a segment of a river near a sugar factory and tested for BOD level. The BOD levels of samples A, B and C were 400mg/L, 480mg/L and 8mg/L respectively.</p>  <p>a) What is BOD and how is it related to pollution.</p> <p>b) What is the value of the sample's indicative of.</p> <p>c) Explain why the BOD level gets reduced considerably at the collection point C</p> <p style="text-align: center;">OR</p> <p>c) Explain what would be the consequences on human health if the sewage was not treated before it got released downstream.</p>	<p>1</p> <p>1</p> <p>2</p>
SECTION E		
<p>31</p>	<p>What is ART, Explain the different methods used in this procedure.</p> <p style="text-align: center;">OR</p>	<p>5</p>

	<p>a) Identify the pathway through which the sperm travels before it is released through the urethra.</p> <p>b) Name the male accessory glands and also state their functions.</p>	
32	<p>a) Identify the polarity of x to x' in the diagram below and mention how many more amino acids are expected to be added to this polypeptide chain.</p> <div> OR <p>a) Observe the segment of hnRNA given below and illustrate the steps involved to make fully processed mRNA?</p> <div> </div> <p>b) What does the above process indicate about the genome.</p> <p>c) State the contribution done by Har Gobind Khorana and Marshall Nirenberg in the study of Genetic Code.</p> </div>	5
33	<p>a) What does PCR stand for and what is the principle of this process.</p> <p>b) Describe the process.</p> <p style="text-align: center;">OR</p> <p>The infection of the roots in tobacco plant was stopped using a novel mechanism.</p> <p>a) What is this novel mechanism and why is it called so.</p> <p>b) Describe this process.</p>	5
