

KENDRIYA VIDYALAYA SANGHATHAN
CLASS XII BIOLOGY (044) SAMPLE PAPER FOR PRACTICE
2022-23

Maximum Marks: 70

Time: 3 hours

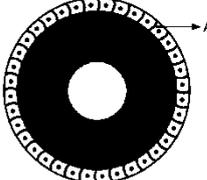
General Instructions:

- ✓ All questions are compulsory.
- ✓ The question paper has five sections and 33 questions. All questions are compulsory.
- ✓ 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.
- ✓ 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.
- ✓ Wherever necessary, neat and properly labeled diagrams should be drawn.

Q. No	Questions	Marks
SECTION A		
1	Contraceptive pills may have various side effects. To overcome this our scientist develops a new contraceptive pill and name it "Saheli" with negligible side effects Which of the following organization develops the Saheli pill: (a) NBRI, Lucknow (b) CDRI, Lucknow (c) CIMAP, Lucknow (d) SGPGI, Lucknow	1
2	Surgical removal process due to which fertilization can be prevented even if sperms are formed in the testes: (a) Castration (b) Tubectomy (c) Laparoscopy (d) (d) Vasectomy	1
3	During the "S" phase of the cell cycle, the new DNA strand synthesis takes place in a specific direction. Which one is the correct direction- (a) 5' To 3' (b) 3' To 5' (c) 5' OH To 2' Phosphate (d) All are incorrect	1
4	The primitive atmosphere was not supportive for speciation. Which of the following gas was not present on the earth at that time- (a) CO ₂ (b) CH ₄ (c) NH ₄ (d) O ₂	1
5	The main challenge in organ grafting in humans is the rejection of tissues due to certain immunity factors. Which of the following immune	1

	<p>responses is responsible for the rejection of organ grafts in humans?</p> <p>(a) Autoimmunity (b) Cell-mediated immune response (c) Humoral immunity (d) All of these</p>	
6	<p>Which type of immunity may be short-lived or lifelong-</p> <p>(a) Immunity which is present since birth (b) Immunity which develops after birth (c) Innate immunity (d) Both a and d</p>	1
7	<p>A pond with high BOD is indicative of-</p> <p>(a) High amount of organic matter is present in the pond water (b) It may lead to eutrophication of the pond (c) There is a very high chance of biomagnification in the pond biotic ecosystem (d) All are correct</p>	1
8	<p>What is incorrect about insertional inactivation-</p> <p>(a) It is used for the selection of transformants (b) In this desired gene is inserted inside a selectable marker of a vector (c) Due to insertional inactivation selectable markers can show their property efficiently (d) This is widely used in biotechnology and genetic engineering</p>	1
9	<p>Identify the 'a and 'b in the following graph</p> <p>(a) a- carrying capacity, b- sigmoid curve (b) a- carrying capacity, b- sigmoid curve (c) a- exponential curve b- sigmoid curve (d) a- exponential curve, b- carrying capacity</p>	1
10	<p>How are polar animals like seals and polar bears able to survive in the subzero temperature of the poles?</p> <p>(a) They have long hairs on their body surface and have a thick layer of fat below their skin (b) They migrate from the poles when the temperature decreases (c) They have specific proteins to regulate temperature (d) They have genetic regulations for avoiding cold climate</p>	1
11	<p>Which statement is incorrect about NPP-</p> <p>(a) It is the available biomass for the consumption of heterotrophs (b) $NPP = GPP - R$ (c) $NPP = GPP + R$ (d) NPP is utilized by heterotrophs (herbivores & decomposers)</p>	1
12	<p>Which one of the following fauna has the highest number of species in nature?</p> <p>(a) Aves (b) Arthropoda (c) Reptiles</p>	1

	(d) Mammals	
	<p>Questions No. 13 to 16 consist of two statements – Assertion (A) and Reason (R). Answer these questions by selecting the appropriate option given below:</p> <p>(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.</p>	1
13	<p>Assertion: Ecological succession occurs when older communities of plants and animals are replaced by newer communities. Reason: The natural process of replacement of one vegetation community in a given habitat by the other vegetation community.</p>	1
14	<p>Assertion: Zygote is the only cell that gives a vital link between two generations of an organism. Reason: The two gametes fuse to form a single zygote</p>	1
15	<p>Assertion: In the four o'clock plant or Snap dragon plant, a cross between A homozygous white flowered plant and a homozygous red-flowered one, produce pink-flowered plants. Reason: In these plants, the flower color is determined by three alleles.</p>	1
16	<p>Assertion: Interferons help eliminate viral infections. Reason: Interferons released by infected cells, reach the nearby uninfected cells and make them resistant to viral infection.</p>	1
SECTION B		
17	<p>(a) Give any two reasons in support of your answer that higher organisms have resorted to sexual reproduction in spite of its complexity. (b) Name the reproductive structure by which Penicillium reproduces asexually?</p>	2
18	When a cross is made between tall plants with yellow seeds (TtYy) and tall plants with green seeds (TtYy), what proportions of phenotype in the offspring could be expected to be -Tall and green?	2
19	<p>Write the causal organism responsible for the following symptoms:</p> <p>(a) Dry and scaly lesions on the skin (b) Swelling in lymphatic vessels (c) Intestinal perforation (d) Bluish nail and fluid filled alveoli</p>	2
20	<p>(a) On which principle the electrophoresis is based? (b) Name the dye used during the process.</p>	2
21	<p>Explain the given pyramid and find out the reason being its upright nature.</p> <div style="text-align: center;"> <p>Trophic level</p> <p>TC</p> <p>SC</p> <p>PC</p> <p>PP</p> </div> <p>OR</p> <p>(a) Draw a pyramid of biomass in the sea. (b) Which pyramid is always upright and why?</p>	2

SECTION– C		
22	(a) Mention the location and function of Leydig cells in humans. (b) How polyspermy is prevented in human females? (c) Identify 'A' related to the cleavage of zygote and implantation	3
		
23	(a) Pollen grains can be preserved as fossils while ovum not. Give reason. (b) Why does self-pollination not lead to seed formation in self-incompatible species? (c) Write any one method of formation of apomictic seed.	3
24	Give a reason of the followings- (a) Okazaki fragments are in fragments (b) In prokaryotes there is no need of post-transcriptional modification (c) tRNAs have anticodons.	3
25	(a) Comment on the similarity between the flippers of dolphin and penguins, with reference to evolution. (b) Describe one example of adaptive radiations. (c) What is the cause of speciation according to Hugo De Vries?	3
26	Explain the H2 L2 nature of immunoglobins by providing a suitable diagram. <p style="text-align: center;">OR</p> Explain the life cycle of retrovirus only by giving labeled diagrams.	3
27	(a) Which specific enzyme is used during PCR and why? (b) Why annealing process required in PCR? (c) Write any two advantages of PCR.	3
28	(a) Why is there a need to conserve biodiversity? (b) Sacred groves are rich in biodiversity. Why? (c) Explain any two services of the ecosystem.	3
SECTION– D		
29	The municipal wastewater that is carried to sewers and drains is called sewage. It contains a large amount of organic matter, microbes, human excreta etc. If sewage is disposed of in rivers untreated then it will cause pollution in water bodies and can spread diseases on a large scale. Sewage treatment plants (STPs) in India are able to treat a little more than a third of the sewage generated per day, according to the latest report of the Central Pollution Control Board (CPCB). STPs based on primary (physical) and biological (secondary treatment). (a) How microbes can be beneficial for STPs? (b) What is "floc". Write its importance. (c) Write advantage of anaerobic sludge digester. (d) Some time air is needed during the process. Explain	4
30	Chromosomal disorder, is any syndrome characterized by malformations	4

	<p>or malfunctions in any of the body's systems and caused by abnormal chromosome numbers or constitution. These are caused by changes in the number of chromosomes. The four types of chromosomal abnormalities are deletion, duplication, transversion and translocation. Turner's syndrome is an example of monosomy. It is formed by the union of an allosome-free egg and a normal 'X' containing sperm or a normal egg and an allosome free sperm.</p> <p>(a) What is the karyotype of turner syndrome. (b) What are the symptoms of turner syndrome. (c) Write two other diseases caused by genetic disorders. (d) Define monosomy.</p>	
SECTION– E		
31	<p>(a) Give a brief description about isolation of DNA from a bacterial cell. (b) Describe any two method of gene transfer.</p> <p style="text-align: center;">OR</p> <p>(a) How mechanism of RANi is used to develop transgenic pest resistant crop.? Explain. (b) Provide basic difference between simple stirred tank bioreactor and sparged tank bioreactor.</p>	5
32	<p>Diagrammatically represent the various events takes place during a menstrual cycle. Also label each event.</p> <p style="text-align: center;">OR</p> <p>(a) What adaptations are observed in water pollinated flower? (b) Suggest any three out breeding devices naturally occur in flowering plants.</p>	5
33	<p>Explain the Hershey – chase experiment.</p> <p style="text-align: center;">OR</p> <p>(a) After observing a root cell, it is found that thymine in DNA is 40 %. Calculate the percentage of guanine and adenine in the same DNA. (b) Why it is called that AUG performs dual role during translation process? Explain. (c) What is the basis of the conclusion derived by Griffith about the nature of genetic material?</p>	5