

**SAMPLE QUESTION PAPER (PRACTICE QUESTIONS)**

**CLASS XII (044 BIOLOGY)**

**2023-2024**

**Maximum Marks: 70**

**Time: 3 hours**

**General Instructions:**

- 1) All questions are compulsory.
- 2) The question paper has five sections and 33 questions. All questions are compulsory.
- 3) 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.
- 4) 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
- 5) Wherever necessary, neat, and properly labelled diagrams should be drawn.

**SECTION A**

Q. No.	QUESTION	Marks
1	Enclosed within the integument of a typical antropous ovule is a diploid mass of cellular tissue known as: a) Nucellus b) Embryo sac c) Megaspore mother cell d) Synergids	1
2	Leydig cells synthesise and secrete testicular hormones called a) Testosterone b) Androgens c) Estrogen d) Progesterone	1
3	Method to assist infertile couple to have children a) Amiocentesis b) Tubectomy c) Gamete intrafallopian d) Use of contraceptives transfer	1
4	Palm is broad with characteristic palm crease is the cause of genetic disorder. a) Klinefelter's syndrome b) Turner's syndrome c) Polyploidy d) Down's syndrome	1

5	<p>The negatively charged DNA is wrapped around the positively charged histone octamer to form a structure called.</p> <p>a) Nucleosome b) Chromatid c) Chromatin d) Histone octamer</p>	1
6	<p>The process of copying genetic information from one strand of the DNA into RNA is termed</p> <p>a) Transcription b) Terminator c) Replication d) Aneuploidy</p>	1
7	<p>By whom the experiment was demonstrated that life comes only from pre-existing life.</p> <p>a) Ernst Haeckel b) Haldane c) Louis Pasteur d) Oparin</p>	1
8	<p>Which type of immune response is responsible for the rejection of tissues/organs in the patient's body post transplantation?</p> <p>a) Auto-immune response b) Humoral immune response c) Physiological immune d) Cell-mediated immune response</p>	1
9	<p>Name the bacteria that are commonly found in the anaerobic sludge during sewage treatment.</p> <p>a) Lactobacillus b) Methanobacterium c) Blue-green algae d) Sulphur bacteria</p>	1
10	<p>A biotechnologist wanted to create a colony of E.Coli to create a colony of E.coli possessing the plasmid pBR322, sensitive to tetracycline, which one of the following restriction sites would he use to ligate a foreign DNA?</p> <p>a) Sal I b) Pvu I c) EcoRI d) Hind III</p>	1
11	<p>The disorder is caused due to the deletion of the gene</p> <p>a) Adenosine deaminase b) C-peptide deficiency c) Enzyme replacement d) GMO</p>	1

12	The number of individuals of the population who left the habitat and gene elsewhere during the time period under consideration is called; a) Natality b) Mortality c) Emigration d) Immigration	1
<p>For question nos.13 to 16, two statements are given one labelled as Assertion (A) and the other labelled as Reason (R), select the correct answer to these questions from codes a,b,c and d as given below, a) Both Assertion (A) and Reason (R) are true and Reason (R) is correct explanation of the Assertion (A) b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). c) Assertion (A) is true, but Reason (R) is false. d) Assertion (A) is false, but Reason (R) is true.</p>		
13	Assertion (A): Monocarpic plants produce flowers and fruits only once in their lifetime. Reason (R): Polycarpic plants produce flowers and fruits more than once in their lifetime.	1
14	Assertion (A): The primary follicle got surrounded by many layers of granulosa cells. Reason (R): The secondary follicle soon transform into a tertiary follicle which is characterised by an air filled cavity called antrum.	1
15	Assertion (A): Prevention or early detection and cure of STDs are given prime consideration under reproductive and child health (RCH) programme Reason (R): STDs are a major threat to a healthy society.	1
16	Assertion (A): According to Hardy-Weinberg principle, allele frequencies in a population are stable and is constant from generations. Reason (R): Disturbance in genetic equilibrium or Hardy-Weinberg equilibrium would be interpreted as resulting in evolution.	1
SECTION B		
17	The human male never passes on the gene for haemophilia to his son. Give reason.	2
18	Differentiate between mRNA and tRNA.	2
19	Name the nutrient that gets enhanced while curdling of milk by lactobacillus. OR Mention a product of human welfare obtained with the help of each one of the following microbes. i) LAB ii) Saccharomyces Cerevisiae iii) Propionibacterium Shermanii iv) Aspergillus niger	2

20	State the role of transposons in silencing of mRNA in eukaryotic cells and the role of C-peptide in human insulin.	2
21	Define the following terms:- i) Mutualism ii) Interspecific competition.	2
SECTION C		
22	What is foetal ejection reflex ? How does it cause parturition ?	3
23	Write down any four objectives of the Reproductive and Child Health care programme.	3
24	Explain the cause of Klinefelter's syndrome. Give any four symptoms shown by sufferer of this syndrome.	3
25	Draw a schematic diagram of a lac operon in its "switched off" position. Label i) The structural genes ii) Repressor bound to its correct position. iii) Promoter gene iv) Regulator gene  OR It is established that RNA is the first genetic material. Explain giving three reasons.	3
26	a) Farmers prefer biofertilizers to chemical fertilizers these days, Explain why ? b) How do Anabaena and Mycorrhiza acts as biofertilizers?	3
27	a) How is mature insulin different from proinsulin secreted by pancreas in humans? b) Explain how was human functional insulin produced rDNA technology. c) Why is the functional insulin thus produced considered better than the ones used earlier by diabetic patients?  OR What is ADA deficiency? Describe any two methods to cure it.	3

**SECTION D**

Question Number 29 and 30 are case based questions.

29	<p>Fish with stout and strong fins existed about 350 mya; they could move on land and go back into water. Reptiles dominated the earth for about 200 million years. Some land reptiles went back and evolved into fish-like reptiles. The land reptiles of that period were dinosaurs, they disappeared suddenly from the earth.</p> <p>a) Name the fish that could move on land and go back into water. What did they evolve into?</p> <p>b) Give an example of the fish-like reptiles. Mention the time period when they evolved.</p> <p>c) Name the largest of the dinosaurs. When did the dinosaurs suddenly disappeared?</p>	4
30	<p>The detritus food chain (DFC) begins with dead organic matter. It is made up of decomposers which are heterotrophic organisms, mainly fungi and bacteria. They meet their energy and nutrient requirements by degrading dead organic matter or detritus. These are also known as saprotrophs. Decomposers secrete digestive enzymes that breakdown dead and waste materials into simple, inorganic materials, which are subsequently absorbed by them In an aquatic ecosystem, GFC is the major conduit for energy flow. As against this, in a terrestrial ecosystem, a much larger fraction of energy flows through the detritus food chain than through the GFC. Detritus food chain may be connected with the grazing food chain at some levels. Some of the organisms of DFC are prey to the GFC animals, and in a natural ecosystem, some animals like cockroaches, crows etc are omnivores. This natural interconnection of food chains makes it a food web.</p> <p>a) Who are decomposers in our ecosystem?</p> <p>b) What is the full form of GFC?</p> <p>c) Do any connection exists between DFC and GFC? Explain</p> <p style="text-align: center;">OR</p> <p>Name and explain the processes earthworm and bacteria carry on detritus.</p>	4

**SECTION E**

31	<p>Discuss the structure of anther, microsporangium and development of pollen in angiospermic plant.</p> <p style="text-align: center;">OR</p> <p>a) How do pollen-pistil interact?</p> <p>b) What is apomixis?</p> <p>c) Explain polyembryony with example.</p>	5
32	<p>a) What are lymphoid organs? Also explain its types.</p> <p>b) How cell mediated immunity and antibody mediated immunity works in the body?</p> <p style="text-align: center;">OR</p> <p>a) How molecular biology helps in cancer detection?</p> <p>b) What is the approach to treat cancer?</p>	5
33	<p>a) What does ECORI signify? How its name is derived?</p> <p>b) Distinguish between exonucleases and endonucleases.</p> <p style="text-align: center;">OR</p> <p>a) Name two enzymes involved in PCR</p> <p>b) What are selectable marker?</p> <p>c) Name two types of bioreactors.</p> <p>d) Which conditions are provided by the bio-reactors?</p>	5