Aakash + BYJU'S

Mock Test Paper

for

CBSE Board Exam.-2024

BIOLOGY

INSTRUCTIONS FOR CANDIDATES

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.

Corporate Office : Aakash Tower, 8, Pusa Road, New Delhi-110005, Ph.011-47623456

MM : 70

Mock Test Paper

Time : 180 min.

CBSE Board Exam.-2024
Class-XII
BIOLOGY

Complete Syllabus of Class XII

SECTION-A

Multiple Choice Questions

Q1. *Meloidogyne incognita* most commonly infects the roots of which dicot plant? **[1]**

(1) Wheat (2) Tobacco

(3) Rice (4) Sugarcane

Q2. The cut ends of DNA fragments become sticky due to the presence of **[1]**

(1) Unpaired bases (2) Calcium ions

(3) Endonuclease (4) Free methylation

Q3. The unequivocal proof that DNA is a genetic material came from the experiments of **[1]**

(1) Frederick Griffith (2) Meselson and Stahl

(3) Francois Jacob and Jacques Monod (4) Alfred Hershey and Martha Chase

Q4. Most common site of fertilization and implantation in humans are _____ and _____ respectively. Choose the option which fill the blanks correctly. **[1]**

(1) Infundibulum, cervix of uterus (2) Fimbriae, fundus of uterus

(3) Isthmus, cervix of uterus (4) Ampulla of fallopian tube, fundus of uterus

Q5. Identify the one who probably lived in East African grasslands about 2 mya and hunted with stone weapons but essentially ate fruit. **[1]**

(1) *Australopithecus* (2) *Ramapithecus*

(3) *Dryopithecus* (4) Neanderthal man

Q6. Cocaine is extracted from **[1]**

(1) *Papaver somniferum* (2) *Erythroxylum coca*

(3) *Atropa belladonna* (4) *Cannabis sativa*

Q7. Which among the following statements is true for Law of Dominance? **[1]**

(1) It explains that all the parental characters are expressed in F_1 generation.

(2) Proposed by T. H. Morgan.

(3) Stated that characters are controlled by discrete units called factors.

(4) Universally applicable.

Q8. The technique which involves pre-natal analysis of fetal cells and dissolved substances to test for presence of certain genetic disorders is called **[1]**

(1) Ultrasonography (USG) (2) Amniocentesis
(3) Magnetic Resonance Imaging (4) X-rays

Q9. Which of the following fungal products is used as immunosuppressive agent? **[1]**

(1) Citric acid (2) Statins
(3) Cyclosporin A (4) Streptokinase

Q10. A relationship between fig tree and wasp is an example of **[1]**

(1) Parasitism (2) Proto-cooperation
(3) Mutualism (4) Commensalism

Q11. Which one is major conduit of energy flow in aquatic ecosystem? **[1]**

(1) Grazing food chain (2) Detritus food chain
(3) Parasitic food chain (4) Auxiliary food chain

Q12. "Species-Area relationship" was given by **[1]**

(1) Alexander von Humboldt (2) Alexander Fleming
(3) Paul Ehrlich (4) Verhulst-Pearl

Assertion-Reason Type Questions

Question No. 13 to 16 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below.

(1) Both assertion & reason are true and the reason is the correct explanation of the assertion.
(2) Both assertion & reason are true but the reason is not the correct explanation of the assertion.
(3) Assertion is true but reason is false.
(4) Both assertion and reason are false.

Q13. **Assertion (A):** In angiosperms, the primary endosperm nucleus is triploid.
Reason (R): In angiosperms, primary endosperm nucleus is formed by triple fusion. **[1]**

Q14. **Assertion (A):** In humans, sex of the baby is determined by the father and not by the mother. **[1]**
Reason (R): After fusion of the male and female gametes, the zygote would carry either XX or XY depending on whether the sperm carrying X or Y that fertilized the ovum.

Q15. **Assertion (A):** Smoking causes oxygen deficiency in the body.
Reason (R): Smoking increases carbon monoxide content in blood and reduces concentration of haem bound oxygen. **[1]**

Q16. **Assertion (A):** Tertiary treatment of sewage water involves the action of aerobic microbes.
Reason (R): Action of aerobic microbes increases the BOD of waste water. **[1]**

SECTION-B

Q17. Differentiate between vasa efferentia and vas deferens. **[2]**

Q18. What are decomposers? Write down the functions of decomposers in an ecosystem. **[2]**

Q19. Write the mode of action of IUDs. **[2]**

Q20. What is multiple allelism? Give one example. **[2]**

Q21. Why synthesis of DNA strands is continuous on one strand and discontinuous on another strand in a replication fork? **[2]**

SECTION-C

Q22. Draw a well-labelled diagram of ovum showing **[3]**

(a) Zona pellucida
(b) Corona radiata
(c) Perivitelline space

Q23. What are the four major causes of biodiversity loss? Name any two species extinctions along with their causes. **[3]**

Q24. (a) A tRNA is charged with the amino acid phenylalanine. **[3]**

(i) Give the anticodon in this tRNA.

(ii) Write the codon for phenylalanine on mRNA.

(b) (i) If a polypeptide consists of 10 different amino acids then how many nucleotides are present in the mRNA that code these amino acids?

(ii) How many different types of tRNA are needed for 3 different types of stop codons?

Q25. (i) What is coitus interruptus? **[1]**

(ii) Differentiate between vasectomy and tubectomy. **[2]**

Q26. State the theory of biogenesis. Explain Miller's experiment in support of chemical evolution. **[3]**

OR

Explain the function of the following in the cloning vector pBR322: **[3]**

(a) *ori* (b) *rop* (c) *Hind* III site

Q27. How do transgenic animals contribute to medical science? **[3]**

Q28. (a) What represents male gametophyte in flowering plants?

(b) Explain pollen viability.

(c) What is the pollen viability periods for cereals and some members of family Rosaceae? **[3]**

SECTION-D

Note : Question numbers **29** and **30** are **Case-Based** questions. Each question has subparts with internal choice in one subpart.

Q29. Some human disorder are caused by absence or excess or abnormal arrangement of one or more chromosomes. And some are caused due to failure of cytokinesis after telophase stage of cell division.

In a clinical diagnosis, a tall statured male human 'A' was noticed with the following features **[4]**

(i) Overall masculine development

(ii) Feminine development development of breast

On the basis of above information answer the following questions:

(a) 'A' is suffering from which genetic disorder?

(b) What should be the genotype of 'A'?

(c) 'A' can have normal son but cannot have normal daughter, as father passes traits to his daughter. Explain this statement is true of false.

(d) Name any two chromosomal disorder.

OR

A molecular biologist was explaining the students in a class that operon is a co-ordinated group of genes such as structural gene, operator gene, promoter gene, regulator gene which function together and regulate a metabolic pathway as a unit. *e.g. lac* operon. He also explained that in *lac* operon, a polycistronic structural gene is regulated by a common promoter and regulatory genes. Here presented the operating system of *lac* operon by the diagram given below.

Consider the diagram and answer the questions that follow: **[4]**

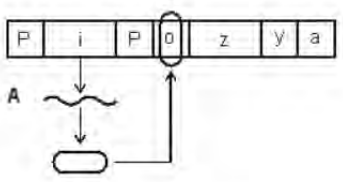


Fig.- I

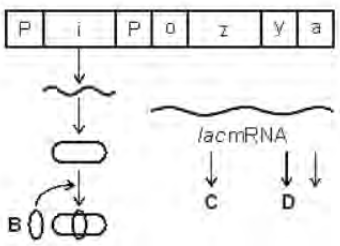


Fig.-II

(a) In which condition, the process shown in figure-II will occur?

(b) What is the function of A and B?

(c) Name the products C and D. Also state their functions.

Q30. A 35-year-old female 'X' went to the orthopaedic OPD department with complaint of a large painless swelling over the lateral aspect of her left lower limb. There was no antecedent history of injury or trauma. She informed the doctor that she went on a trip to Kerala with her family, 4 months back. On further investigation, it was revealed that there is enlargement of lymph nodes and larvae of a helminth were found in the blood smear. Answer the following questions:

(a) Identify the disease with which 'X' might be suffering. **[1]**

(b) Name the vector of above described disease and phylum to which it belongs to. **[1]**

(c) State any two symptoms associated with the disease described above. **[2]**

OR

A 43-year-old adult X has been diagnosed with an infection of reproductive tract caused by virus. This virus enters into macrophages where RNA genome of the virus replicates to form viral DNA with the help of an enzyme Y. The person suffers from bouts of fever, diarrhea and weight loss and went hospital and was diagnosed with HIV.

Based on the above information, answer the following questions:

(i) Write the name of an enzyme Y. **[1]**

(ii) What are the mode of the transmission of this disease? **[1]**

(iii) Why this person is suffering from several disorders? **[1]**

(iv) Write the name of the diagnostic test for this virus? **[1]**

SECTION-E

Q31. Explain active and passive immunity with suitable examples. **[5]**

OR

(a) How predation differs from parasitism? Explain with the help of examples.

(b) How predation is important in an ecological context. Also name any two types of parasitism. **[5]**

Q32. (a) Who gave the term 'X body'? How did he found this structure?

(b) With the help of chart, explain the process of sex determination in grasshopper. **[5]**

OR

Explain the process of DNA replication in prokaryotes with the help of a diagram. **[5]**

Q33. With reference for events starting from menstrual cycle till the events of parturition, give the name of hormones involved at each stage and explain their role. **[5]**

OR

In recombinant DNA technology, the cutting of DNA by restriction endonucleases results in the fragmentation of DNA. These fragments can be separated by technique known as gel electrophoresis.

(i) What is the basis of above described technique. **[2]**

(ii) Name the most commonly used matrix and its source in gel electrophoresis. **[1]**

(iii) A DNA molecule was treated with a restriction endonuclease and three fragments of size (a) 430 kb, (b) 130 kb and (c) 50 kb were obtained. Write the order in which these fragments will arrange themselves in the gel from cathode to anode after gel electrophoresis is complete. **[1]**

(iv) How do we isolate the desired DNA fragment from the gel? **[1]**

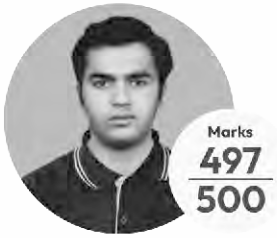
❑ ❑ ❑

CBSE Class XII Board Exam Result 2023

Top Performers from Classroom Programs

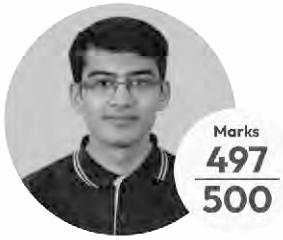
Marks 498/500

Pratistha Pal



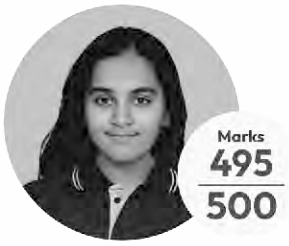
Marks 497/500

Kabir



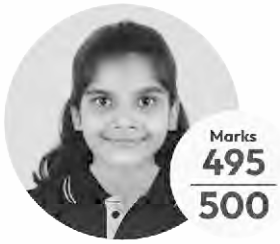
Marks 497/500

Dhruv Advani



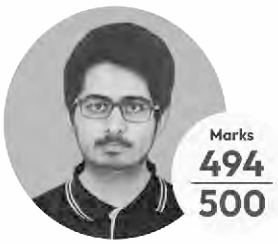
Marks 495/500

Aadya Roy



Marks 495/500

Samrudhi Pravin S

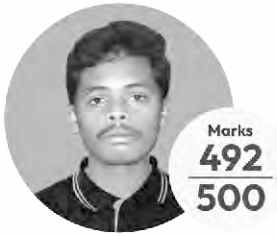


Marks 494/500

Soumil Kaul

Marks 493/500

Aaron B Manjooran



Marks 492/500

Alex Singh

Marks 492/500

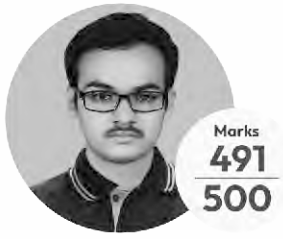
Sneha Ray

Marks 491/500

Vijay Kulkarni

Marks 491/500

Sravani Reddy



Marks 491/500

Sagnik Debnath

and many more...