

Punjab School Education Board

Sample Question Paper

10+2 Biology

Session 2024-25

Note:

- a) Question paper will consist of four sections A, B, C and D with total of 19 questions.
- b) Section-A will contain question number 1 having 20 parts of 1 mark each. 12 questions will be of Multiple-choice question type, 4 fill in the blanks, 4 are True/false.
- c) Section-B will contain questions number 2 to 11-total 10 short answer type questions of 2 marks each. Question 4,5,9,11 will have internal choice.
- d) Section-C will contain questions number 12 to 16 -total 5 questions of 3 marks each. Question 12 and 15 will have internal choice.
- e) Section-D will consist of question 17 to 19 total 3 questions of 5 marks each. All the questions have 100% internal choice.

Section A

Q1)

Each question carries one mark

Multiple Choice Questions

- I. The nuclei present in central cell of embryo sac is called
 - a. Egg Nuclei
 - b. Antipodal nuclei
 - c. Polar Nuclei
 - d. Synergid nuclei
- II. Delivery of developed fetus is scientifically called
 - a. Parturition
 - b. Ovulation
 - c. Abortion
 - d. Oviposition
- III. Disadvantages of amniocentesis is
 - a. Determination of disease in advance
 - b. Sex determination of unborn child
 - c. Both a and b
 - d. None of these
- IV. A cross between F1 hybrid and any of of parent is
 - a. Monohybrid cross
 - b. Dihybrid cross
 - c. Back Cross
 - d. Test Cross
- V. Vertebrate forelimbs are example of
 - a. Homologous organs
 - b. Analogous organs
 - c. Vestigial Organ
 - d. Nonfunctional organ
- VI. The genes causing cancer are
 - a. Structural genes

- b. Promotor genes
 - c. Oncogenes
 - d. Regulatory genes
- VII. If BOD of water sample is very high, the sample is
- a. Highly polluted
 - b. Less polluted
 - c. Not polluted
 - d. Potable
- VIII. Plasmids are used as cloning vectors because they
- a. Can be multiplied on culture
 - b. Are self-replicating in bacterial cell
 - c. Can be multiplied in lab with help of enzymes
 - d. Replicate freely outside the cell
- IX. Golden rice is enriched with
- a. Vitamin A
 - b. Vitamin K
 - c. Vitamin C
 - d. Vitamin D
- X. *Mycobacterium tuberculosis* is example of
- a. Antibiosis
 - b. Mutualism
 - c. Commensalism
 - d. Parasitism
- XI. At each trophic level in which form energy is lost
- a. Heat
 - b. Chemical
 - c. Light
 - d. Electrical
- XII. In national park protection is given to
- a. Flora only
 - b. Fauna only
 - c. Both Flora and fauna
 - d. None of these

Write True or False

- XIII. Copper T is used as birth control device by women
- XIV. Sickle cell anaemia is an example of point mutation.
- XV. Vaccination is a type of innate immunity
- XVI. In gel electrophoresis DNA fragments separate according to their charge

Fill in the blanks

- XVII. Zygote divides to formwhich is implanted in uterine wall
- XVIII. Substances which cause allergy are called
- XIX. Dragonflies are used as biocontrol agents to protect the crops from
- XX. Sacred groves is an example of.....conservation

Section B

Each question carries 2 marks.

- Q2) Write two functions of tapetum.
- Q3) What are the major components of seminal plasma?
- Q4) Name two permanent methods of birth control.

OR

Expand
ZIFT
ICSI

Q5) What do you mean by law of segregation.

OR

What will the progeny be if a woman carrier for haemophilia marries a normal man?

Q6) What is convergent evolution. Give an example

Q7) Differentiate between innate and acquired immunity.

Q8) Define sewage. Why is it harmful to us?

Q9) What are bioreactors. Name its two types.

OR

Expand PCR. Mention its any one importance in biotechnology.

Q10) Write two advantages of GM crops.

Q11) Write any two points of differences between grazing and detritus food chain.

OR

What do you mean by hotspots of biodiversity?

Section C

Each question carries 3 marks

Q12) What is DNA fingerprinting? Mention its two applications.

OR

Explain the structure of transcription unit with diagram.

Q13) Write a short note on industrial melanism.

Q14) Name the causing agent of Typhoid. Also write down its symptoms and modes of transmission.

Q15) With help of diagram, show the steps of recombinant DNA technology.

OR

What is gene therapy? Illustrate using the example of adenosine deaminase deficiency.

Q16) Name and explain the type of interaction between crown fish and sea anemone.

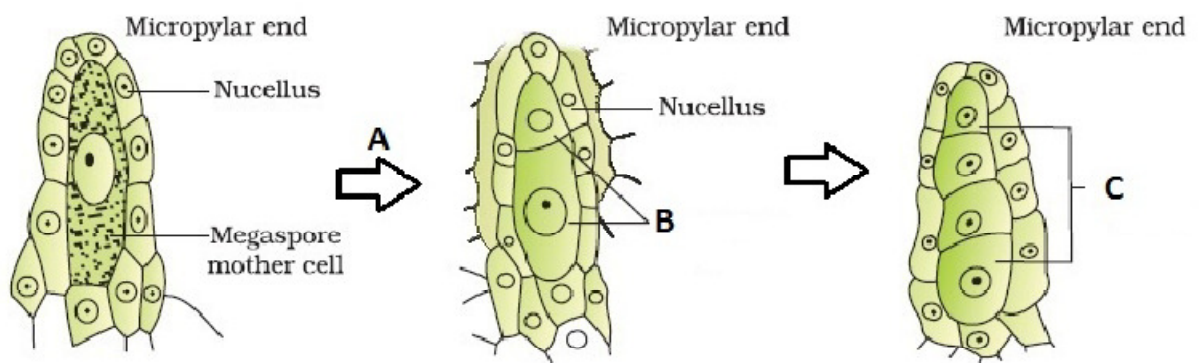
Section D

Each question carries 5 marks

Q17) Define Oogenesis. Briefly describe the process of Oogenesis with the help of labelled diagram.

OR

Observe the given diagram and answer the following questions.



a) Which type of cell division occurs in the diagram marked A

b) The two cells formed in B are called _____

c) In figure marked C, four cells are formed. What are they?

d) What happens to the cells marked C?

e) What is the total process called?

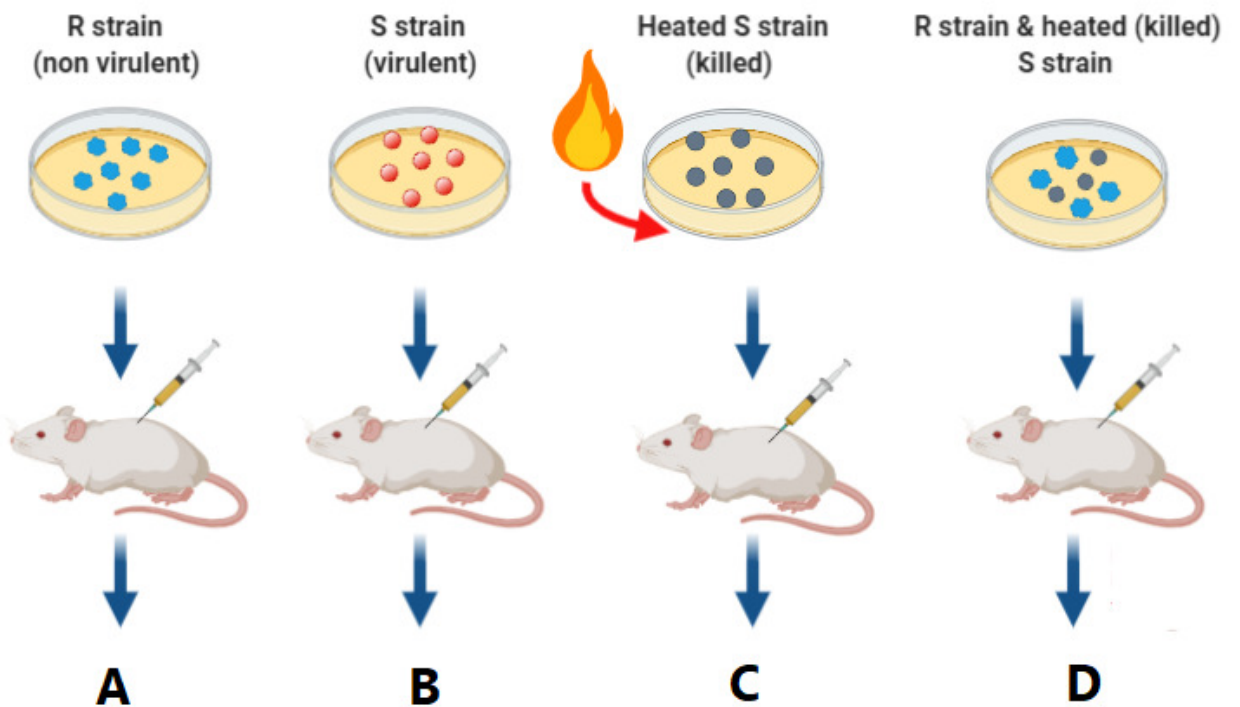
1X5=5

Q18) Describe the individuals with the following chromosomal abnormalities

1. Trisomy of chromosome 21
2. XXY
3. XO

OR

Observe the given diagram and answer the following questions.



- | | |
|---|---|
| a) Who performed this experiment? | 1 |
| b) What was the conclusion after this experiment? | 2 |
| c) Write the results of the experiment A-D. | 2 |

Q19) How can the loss of biodiversity be prevented.

OR

Read the passage carefully and answer the following questions

A constant input of solar energy is the basic requirement for any ecosystem to function and sustain. Primary production is defined as the amount of biomass or organic matter produced per unit area over a time period by plants during photosynthesis. It is expressed in terms of weight ($g\ m^{-2}$) or energy ($kcal\ m^{-2}$). The rate of biomass production is called productivity. It is expressed in terms of $g\ m^{-2}\ yr^{-1}$ or $(kcal\ m^{-2})\ yr^{-1}$ to compare the productivity of different ecosystems. It can be divided into gross primary productivity (GPP) and net primary productivity (NPP). Gross primary productivity of an ecosystem is the rate of production of organic matter during photosynthesis. A considerable amount of GPP is utilised by plants in respiration. Gross primary productivity minus respiration losses (R), is the net primary productivity (NPP).

- | | |
|--|---|
| a. Define gross primary productivity | 2 |
| b. What is the main requirement of ecosystem functioning | 1 |
| c. What is the unit of productivity | 1 |
| d. $GPP - Respiration = \dots\dots\dots$ | 1 |