ST. JOSEPH PUBLIC SCHOOL

Kota Barrage Road, Kota-6 (Raj.)

C.B.S.E. New Delhi, **BIOLOGY**	**GUESS PAPER**
Class: **XII**	**2025-26**
Time: **3 HRS**	MM: **70**

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 labeled diagrams should be drawn.

Section A

1. In a grazing food chain, carnivores may also be referred to as: **[1]**

   a) Primary producers
   b) Secondary consumers
   c) Secondary producers
   d) Primary consumers

2. To speed up the malting process in brewing industry, the growth hormone used is: **[1]**

   a) Kinetin
   b) Auxin
   c) Gibberllic acid
   d) Ethylene

3. Cyanobacteria are useful biofertilizers in the fields of: **[1]**

   a) Rice
   b) Wheat
   c) Sugarcane
   d) Maize

4. If the carbon atoms fixed by producers already have passed through three species, the organisms of the trophic level of the last species would be: **[1]**

   a) secondary consumer
   b) tertiary producer
   c) tertiary consumer
   d) scavenger

5. Choose the correct statement regarding the ZIFT procedure: **[1]**

   a) Ova collected from a female donor are transferred to the fallopian tube to facilitate zygote formation.
   b) Ova collected from a female donor and transferred to the uterus.
   c) Zygote is collected from a female donor and
   d) Zygote is collected from a female donor and

transferred to the fallopian tube. transferred to the uterus.

6. **Assertion (A): Reproductive and Child Health (RCH) Care Programmes** creating awareness among people about various reproduction-related aspects. **[1]**

Reason (R): With the help of audio-visual and print media governmental and non-governmental agencies have taken various steps to create awareness among the people about reproduction-related aspects.

a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

7. Which one of the following trait of pea plants studied by mendel is dominant? **[1]**

a) Terminal pod colour
b) Green pod colour
c) Yellow pod colour
d) White pod colour

8. Which one of the following pairs of geographical areas show maximum biodiversity in our country ? **[1]**

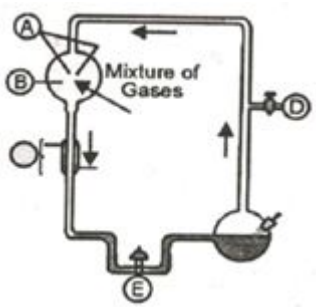
a) Eastern Ghasts and West Bengal
b) Kerala and Punjab
c) Eastern Himalaya and Western Ghats
d) Sunderbans and Rann of Kutch

9. Arrange the following steps that are shown in the figure: **[1]**

1. The plasmid is taken up into a bacterial cell which makes protein directed by human DNA
2. DNA segment incorporated into the bacterial plasmid
3. The segment of DNA removed from human cell
4. In Genetic engineering (Recombinant DNA technology)

a) $1 \rightarrow 4 \rightarrow 3 \rightarrow 2$
b) $1 \rightarrow 2 \rightarrow 3 \rightarrow 4$
c) $4 \rightarrow 3 \rightarrow 2 \rightarrow 1$
d) $2 \rightarrow 3 \rightarrow 4 \rightarrow 1$

10. What was the mixture of gases used in chamber marked A? **[1]**



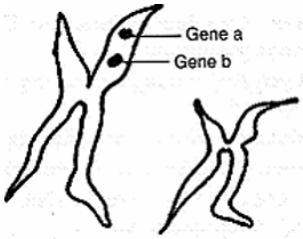
a) Oxygen O_2, ammonia (NH_3), hydrogen H_2, and water H_2O

b) Oxygen O_2, ozone O_3, hydrogen H_2

c) Methane(CH_4) v, ammonia(NH_3), hydrogen H_2 and water H_2O

d) Oxygen O_2, ozone O_3, hydrogen H_2, and water H_2O

11. Given below is a highly simplified representation of human sex chromosomes from a karyotype. The genes a and b could be of: **[1]**



a) Attached ear lobe and Rh blood group

b) Haemophilia and red green colour blindness

c) Colour blindness and body height

d) Phenylketonuria and haemophilia.

12. Which technique is routinely used in HIV detection? **[1]**

a) Gel electrophoresis

b) GEAC

c) PCR

d) DNA sequencing

13. Which of the following is a technique of direct introduction of gametes into the oviduct: **[1]**

a) ET

b) MTS

c) POST

d) GIFT

14. **Assertion (A):** In molecular diagnosis, single stranded DNA or RNA tagged with radioactive molecule is called a probe. **[1]**

Reason (R): A probe always searches and hybridises with its complementary DNA in a clone of cells.

a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

15. **Assertion:** Different varieties of cheese are known by their characteristic texture, flavour and taste, the specificity coming from the microbes are used. **[1]**

Reason: Cheese is manufactured by the use of different types of microbes like bacterias or fungi.

a) Assertion and reason both are correct statements and reason is correct explanation for assertion.

b) Assertion and reason both are correct statements but reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

16. **Assertion (A):** Decomposition process is slower if detritus is rich in lignin and cutin. **[1]**

Reason (R): Decomposition is largely an oxygen requiring process.

a) Both (A) and (R) are true and (R) is the correct explanation of (A).

b) Both (A) and (R) are true, but (R) is not the correct explanation of (A).

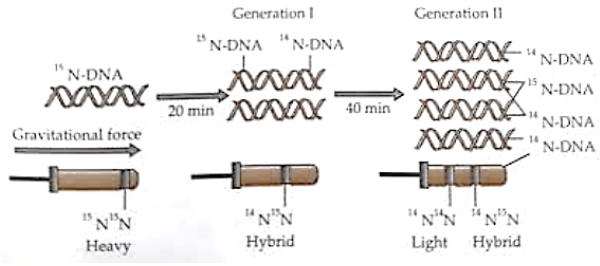
c) (A) is true, but (R) is false.

d) (A) is false, but (R) is true.

Section B

17. Why has the Indian Parliament cleared the second amendment of the country's patent bill? **[2]**

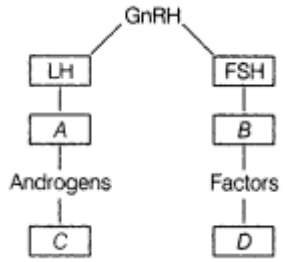
18. Results of the famous experiment given in the figure. Answer the question: **[2]**



a. Identify the given experiment.

b. Which property of the DNA is proved by this experiment?

19. Identify A, B, C and D with reference to gametogenesis in humans, in the flow chart given below. **[2]**

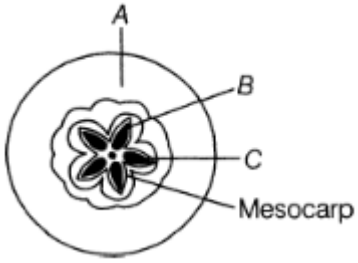


20. Name the group of organisms and the substrate they act on to produce biogas. **[2]**

OR

Common yeast is known as Baker's yeast and also as Brewer's yeast. Justify.

21. i. Given below is a TS of an apple. Identify A, B, and C. **[2]**



ii. Why is an apple categorised as a false fruit?

Section C

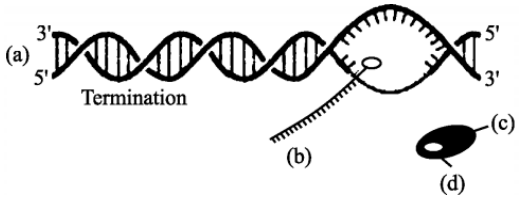
22. A patient complains of suffering from constipation, stomach ache, stool with blood clots and excess mucous. The physician diagnosed it as amoebiasis, after stool test. **[3]**

a. Write the scientific name of the microbe identified in the stool sample.

b. How do you think, the patient must have contracted it?

c. Write your suggestions to the patient to avoid infection in future.

23. The process of termination during transcription in a prokaryotic cell is being represented here. Name the label a, b, c and d. **[3]**



24. Why are coral reefs not found in the regions from west Bengal to Andhra Pradesh but are found in Tamil Nadu and on the east coast of India? **[3]**

25. Mention any two autosomal genetic disorders with their symptoms. **[3]**

26. Given below is an equation describing the Species-Area relationship between species richness and area for a wide variety of taxa as angiosperm plants, birds, bats etc. **[3]**

$S = CA^z$

a. Give a graphical representation of the given equation showing Species-Area relationship.

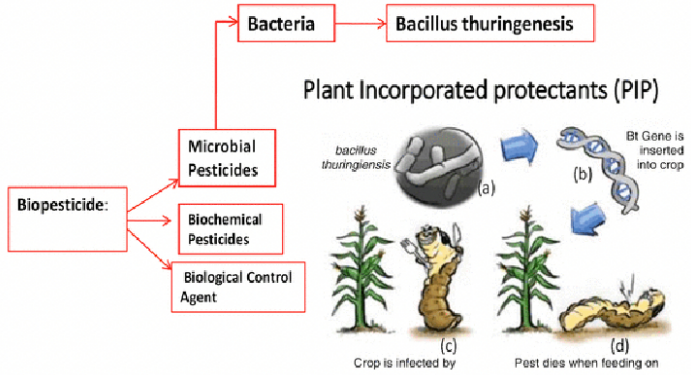
b. What does **S** represent in the given equation?

c. What is the value of **Z** (regression coefficient) for frugivorous birds and mammals in the tropical forests of different continents?

OR

Explain rivet popper hypothesis. Name the ecologist who proposed it.

27. The image below describes the types and the process of bio-pesticides. **[3]**



i. What is meant by the term bio-pesticide?

ii. Name and explain the mode of action of a popular bio-pesticide.

28. How does industrial melanism in Biston betularia illustrate the action of natural selection? Explain briefly. **[3]**

Section D

29. **Read the following passage and answer the questions that follow.** **[4]**

In 1981, the health workers of United States of America had become aware of the increased frequency of Kaposi's sarcoma, cancer of the skin and blood vessels and another disease pneumocystis pneumonia, a respiratory infection caused by a protozoan. Both these diseases were very rare in the general population, but occurred frequently in more severely "immunosuppressed" individuals. This led to the recognition of the immune system disorder that was named Acquired Immune Deficiency Syndrome (AIDS).

In 1983, virologists working in the USA and France had identified a causative agent for 'AIDS', now known as Human Immunodeficiency Virus (HIV). 'HIV' follows a set path to attack the human body to cause the disease.

a. Name the group of cells the HIV attacks after gaining entry into the human body and write the various events that occur within this cell. **(1)**

b. Write the expanded form of the diagnostic test used for detecting AIDS. Write the possible treatment available for the disease at present. **(1)**

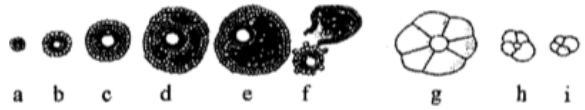
c. Mention any two steps suggested by WHO for preventing the spread of this disease. **(2)**

OR

"A patient suffering from AIDS does not die of this disease but from some other infection." Justify the statement. **(2)**

30. **Read the following text carefully and answer the questions that follow:** **[4]**

The following is the illustration of the sequence of ovarian events **a** to V in a human female:



i. Identify the figure that illustrates corpus luteum and name the pituitary hormone that influences its formation. (1)

ii. Specify the endocrine function of corpus luteum. How does it influence the uterus? Why is it essential? (1)

iii. What is the difference between **d** and **e**? (2)

OR

Draw a neat labelled sketch of mature oocyte. (2)

Section E

31. Illustrate the design of a bioreactor. Highlight the difference between a flask in your laboratory and a bioreactor which allows cells to grow in a continuous culture system. **[5]**

OR

i. Why should a cell be made competent to take up an alien DNA? How can a bacterial cell be made competent using calcium ions? Explain.

ii. 1. State the importance of gel electrophoresis in biotechnology.
2. Explain the principle on which this technique works.
3. Mention why ethidium bromide is used in this technique.

32. Explain the process of microsporogenesis in angiosperms. **[5]**

OR

i. Mature seeds of legumes are non-albuminous. Then, can it be assumed that double fertilisation does not occur in legumes? Explain your answer.

ii. List the differences between the embryos of dicot (pea) and monocot (grass) families.

33. a. List any four major goals of Human Genome project. **[5]**

b. Write any four ways the knowledge from HGP is of significance for humans.

c. Expand BAC and mention its importance.

OR

a. Why did Hershey and Chase use ^{35}S and ^{32}P in their experiment? Explain.

b. State the importance of blending and centrifugation in their experiment.

c. Write the conclusion they arrived at after completing their experiment.

Note: This guess paper has been prepared with the aim of helping students score good marks; however, it does not guarantee that the Board examination will contain exactly the same questions.