

Botany Important Questions

1. *Meloidogyne incognita* is a nematode parasite that infects the roots of tobacco plants. Its infection can be prevented by biotechnological methods.

- Name the strategy
- Explain the principle behind the strategy

2. In Angiosperms female gametophyte is known as embryo sac. Explain its development.

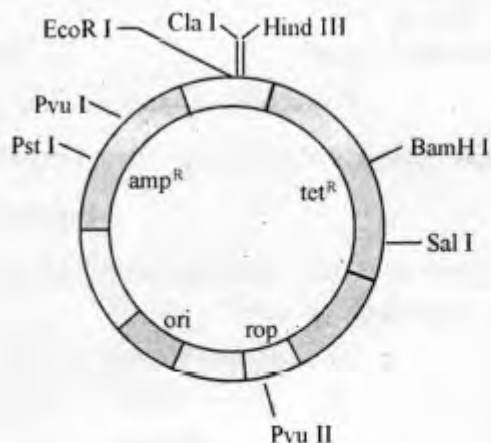
3. Bio-fortification is a practical approach to improve the public health. Name any four such crops released by IARI.

4. The DNA fragments can be separated using gel electrophoresis.

- Name the gel used in this technique
- Write the name of the technique used to remove the DNA from the gel

5. The products of ecosystem processes are named as ecosystem services. List out any four such services.

6. Observe the following figure :



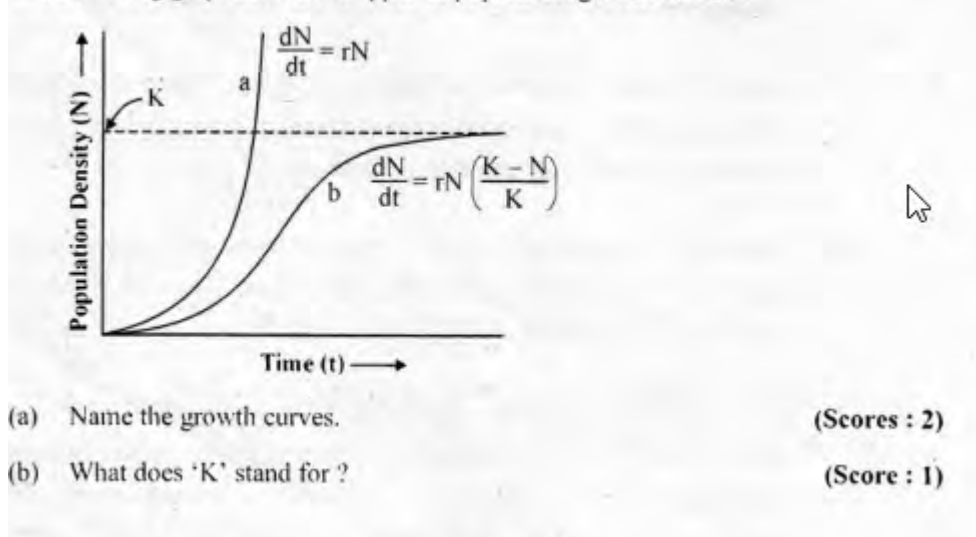
- Identify the figure.
- What does (i) tet^R (ii) rop (iii) ori denote ?

7. Insulin getting assembled into a mature form was the major challenge in commercial insulin production by rDNA technology. How did Eli Nilly Company find a solution to this problem?

8. Nature has mechanisms to promote outbreeding in plants. Explain any two mechanisms existing in plants to promote outbreeding.

9.

The following graph shows two types of population growth curves :



10.

(A) Different types of population interaction has been observed in a population.

Write the types of interaction observed among the following species :

Species A	Species B	Type of Interaction
Orchid Ophrys	Bees	_____
Cattle	Cattle Egret	_____
Sea Anemone	Clown Fish	_____
Ticks	Dogs	_____
Cuscuta	Hedge Plant	_____
Tiger	Deer	_____

(Scores : $\frac{1}{2} \times 6 = 3$)

OR

B) Organisms other than human beings manage or adapt to stressful conditions by adopting different mechanisms. Explain any three mechanisms adopted by them to maintain the internal environment.

(Scores : 3)

Zoology Important Questions

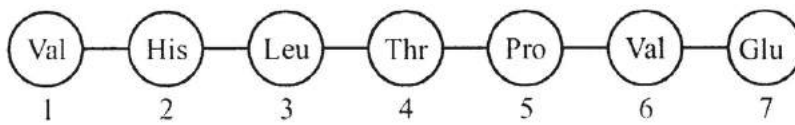
11.

Categorise the given birth control methods into three groups with proper heads

Cervical caps, Vasectomy, Cu T, Tubectomy,
Diaphragms, Condoms, Lippes Loop

12.

Examine the following fragment of beta globin chain in human haemoglobin and identify the hereditary disease with reason.

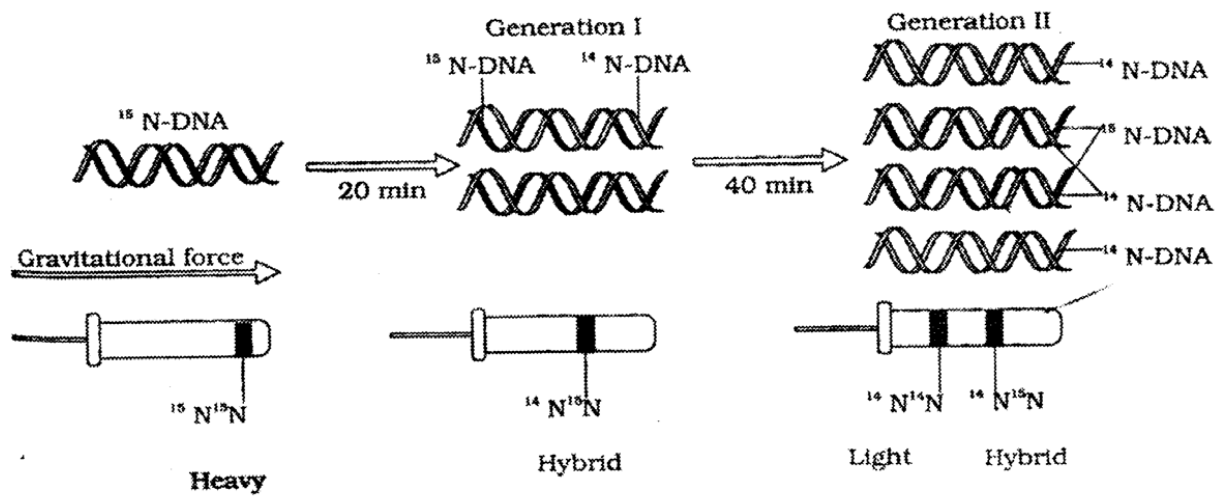


(Scores : 2)

13. Differentiate Active Immunity from Passive Immunity. Give an example of passive immunity.

14.

Results of a famous experiment is given in the figure. Answer the questions.



(Separation of DNA by Centrifugation)

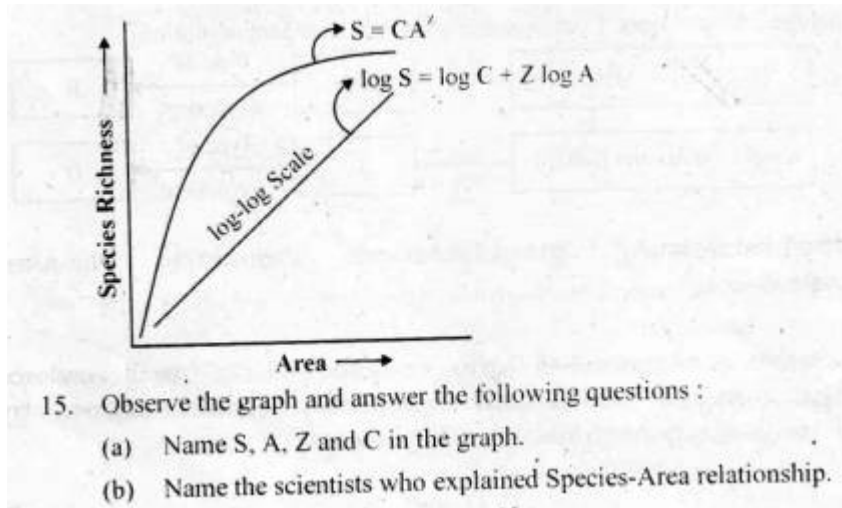
- Identify the experiment.
- Which property of the DNA is proved by this experiment ?

15. In a classroom discussion, a student said that the sex of the baby is determined by father. Analyze the statement and give the reason for it.

16. DNA is a tightly packed structure and is found as units called nucleosomes.

- Explain the concept of nucleosomes
- Differentiate between euchromatin and hetero- chromatin

17.

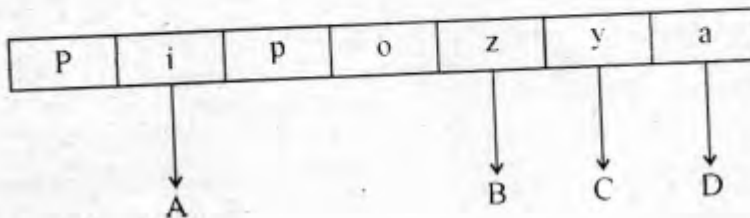


18. Sexually transmitted disease (STD) are mainly transmitted through sexual contact.

- Name two examples of sexually transmitted disease
- Explain any two methods adopted to prevent STDs.

19.

- In lac Operon lactose act as inducer molecule. Evaluate the statement and explain it. (Score : 1)
- Observe the diagram of lac Operon and identify labelled parts A, B, C and D. (Scores : 2)



20. Morphine is said to be an abused drug. Discriminate the terms of “use” and “abuse” of drugs based on this example.