



# **BIOLOGY**

## **BOOKS - FULL MARKS BIOLOGY (TAMIL ENGLISH)**

### **HIGHER ORDER THINKING SKILLS (HOTS QUESTIONS)**

**Bio Zoology**

1. Sudha, who is on third trimester of gestation suddenly faced the labour pain and she is immediately admitted to hospital. On diagnosis, medical experts found that the position of the baby inside the uterus remain unfit for normal vaginal delivery. What would be the further step taken by the doctors to deliver the baby from uterus?



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2. Give the proper medical terminology for the following statements.

(a) Surgical sterilization in woman

(b) Surgical removal of testis.



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3. Maatran' was a famous kollywood film casted by Surya and Kajal Agarwal. In the movie, Surya played a dual role as twin brothers - Akhilan and Vimalan, who were

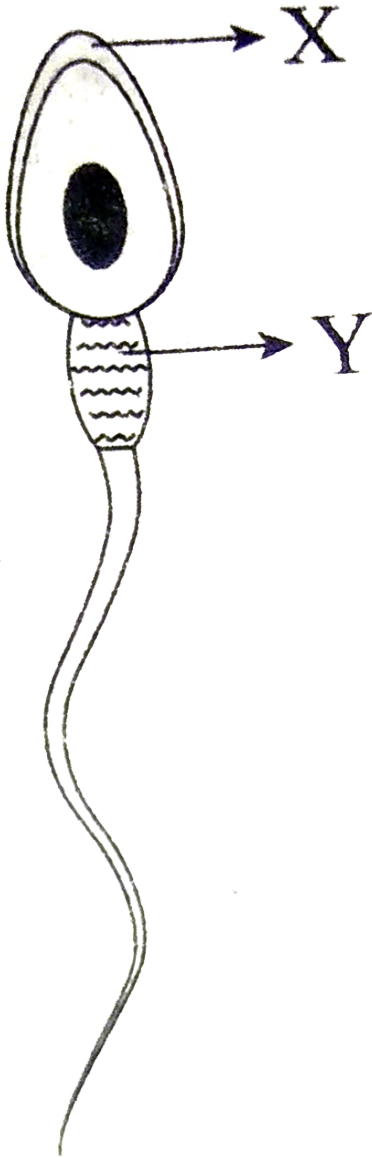
joined by birth. Which type of twins does the character represent?



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**4.** Name the cell organelle that forms the structure X and Y of the given human

spermatozoa.





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5. X is a Reproductive tract infections (RTI), caused by the pathogen Y belonging to the category Z. U, who is affected by X shows the symptoms like enlarged lymph nodes, night sweating etc. What will be X, Y and Z?



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6. Karina Kapoor is a famous Bollywood actress noted for her charming beauty. Carina is the last cartilage found in the trachea. Now answer the question. What do you mean by shaeli?



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7. State any two objectives of using condoms.



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8. Frame the amino acid sequence, which is synthesized if the following portion of DNA undergoes the process of transcription and translation.

3' ← TACAGGTCAACGTTTATT → 5'

5' ← ATGTCCAGTTGCAAATAA → 3'



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9. Given diagram represents a biochemical event occurring in an eukaryotic cells. Study



the diagram carefully and name the stages represented by the alphabets W, X, Y, Z.



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**10.** In prokaryotes (bacteria), transcription and translation are coupled process. Give reason.



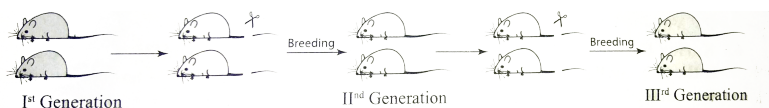
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**11.** What role does the following organs play in our body (a) Mammary glands in male (b) Wisdom

teeth (c) Human appendix.

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12. Observe the experiment and answer the questions given below.



(a) Who did this experiment?

(b) State the objective of the experiment.

(c) What is concluded through this experiment?

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**13.** Calculate the length of the DNA thread, if the DNA has  $4.7 \times 10^{-9}$  base pairs.

Length of the DNA = Total number of base pairs  $\times$  distance between two consecutive base pairs.



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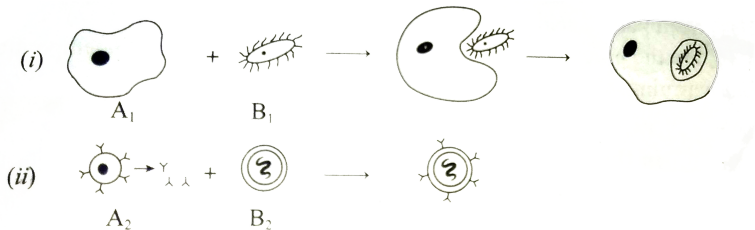
**14.** Given below is a mixture of disease affecting human beings caused by various

pathogens. Classify according to their groups.

Kala-azar, Filariasis, Chikungunya, Amoebiasis, Candidiasis, Plague, Shigellosis, Break bone fever, enteric fever, Athlete's foot.



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**15.**

In the picture given above,  $A_1$  and  $A_2$  denotes two different types of cells performing body's defence mechanism against the pathogens

$B_1$  and  $B_2$  Name the cellular type represented by  $A_1$  and  $A_2$  and also mention the respective type of immunity conferred by  $A_1$  and  $A_2$



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**16.** X is an Echinoderm showing radial symmetry with water vascular system and tube feet. (a) An arm of X is damaged in an accident and later it was grown and regained its original form

(a) Name the Echinoderm - X.

(b) What is the biological phenomenon that led to the regain of lost arm?



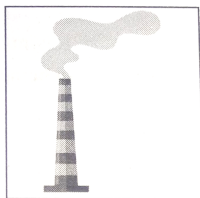
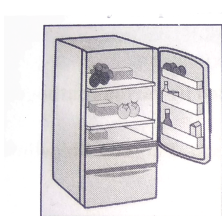
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17. The site for sperm production is



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18. Identify the pictures given below



(a) Name the emission from these products, substances, locations which are harmful to environment.

(b) In which way does these emissions affect the environment.



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**19.** From the hint given below,

(a) Identify the person in the picture.

(b) Mention the famous book written by him.

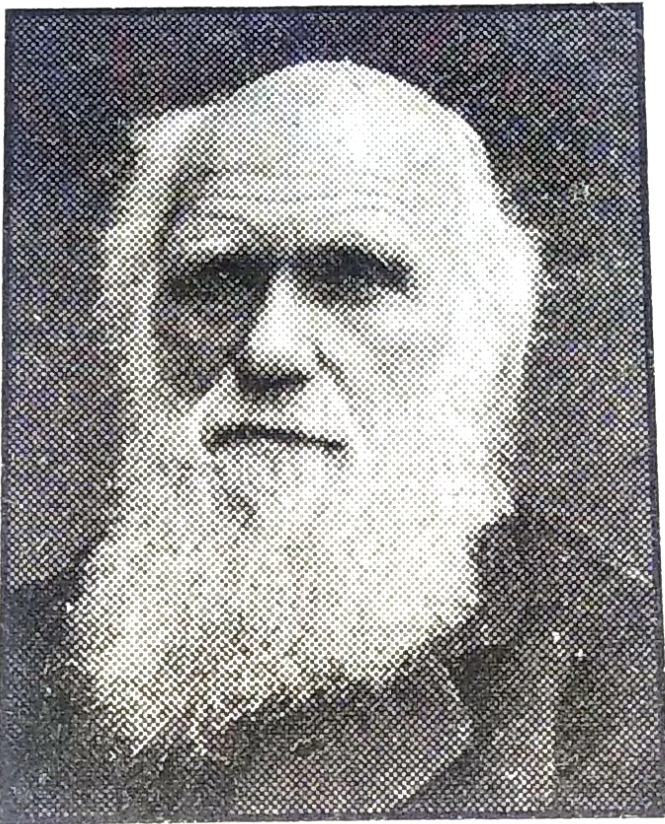
(c) Name the research field which he was

famous for?

[Hints: finches - prodigality of production -

Intraspecific struggle - speciation - Russel

Wallace-selection ]



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**20. (i) Noble Laureate**

(ii) Person who worked on fungus.

(iii) Discoverer of queen of drugs.

Using the given clues answer the questions.

(a) Who is in the picture?

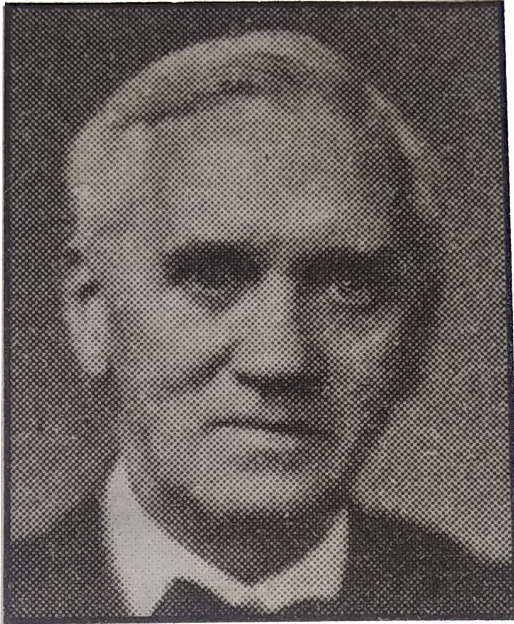
(b) Name the fungus in which he did his experiment.

(c) Why he was awarded Noble prize?

(d) Which is called queen of drugs?

(e) What will be the action of the drug on bacterial cell?

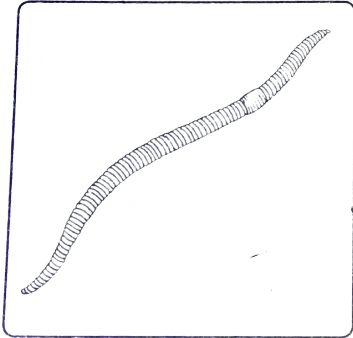
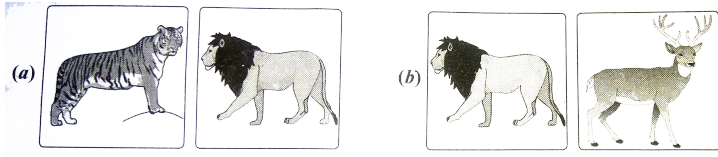
(f) When was the queen of drugs discovered?



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**21.** Observe the picture and name the type interaction between the organism and explain

them.



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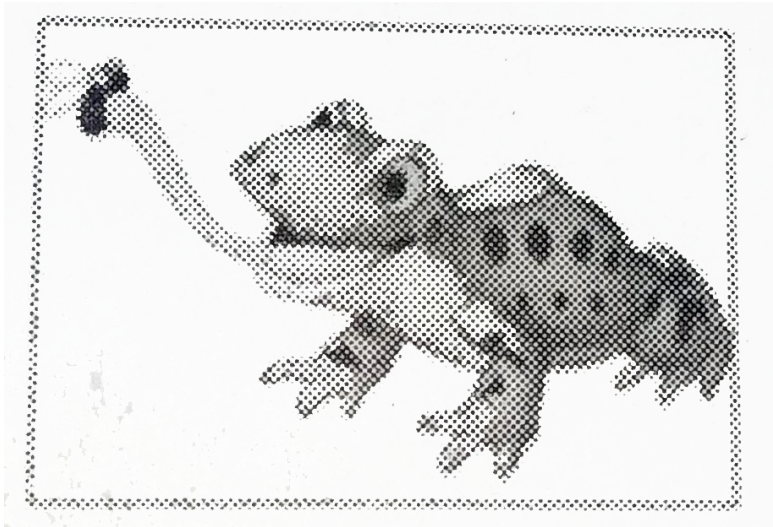
22. Observe the picture given towards your right side and answer the questions

(a) Name the type of species interaction

represented by this picture

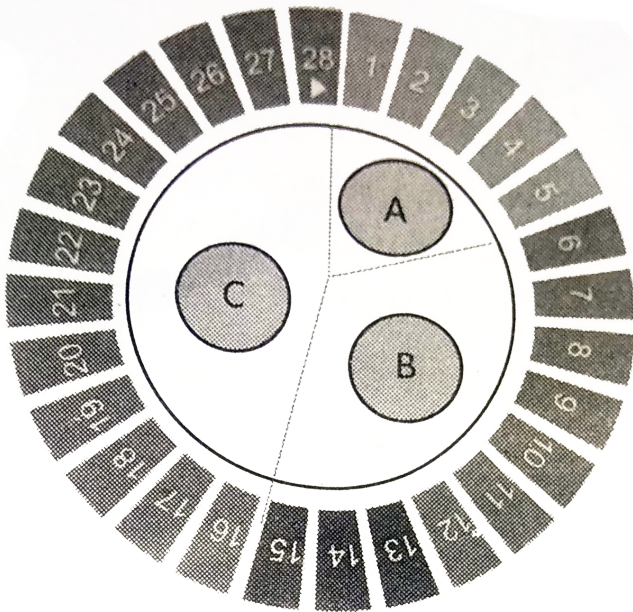
(b) Whether it is a positive interaction or negative interaction?

(c) Define the type of interaction.



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23. The given figure shows the schematic representation of menstrual cycle in human female. What does the alphabets A,B,C indicates with regard to the cycle?



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## Bio Botany

1. How do you call? (a) the study of wines (b) the study of fermentation process.



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2. Sita is a owner of confectionary. She got an order from one of her customers to prepare 150 loaves of bread for a birthday party. On her making process of bread, though there is a

time constrain, she prepared the dough and kept it aside undisturbed for few hours. Later she made the required number of breads and delivered to customer on time. A day after the party, customer appreciated Sita for the soft and good quality of bread that she supplied to party.

(a) Why Sita kept aside the dough undisturbed?

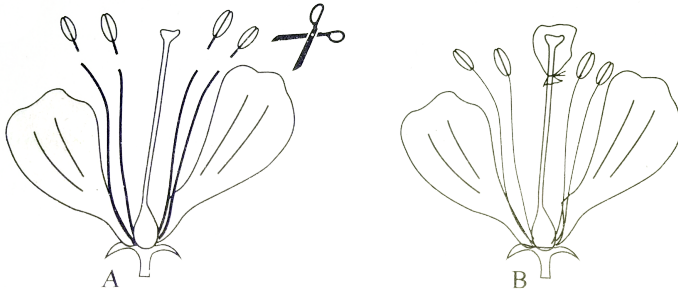
(b) Name the living organism involved in the process.

(c) What are the products of the process?

(d) How this process enhances the quality of food?

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3.



The above picture represents two different process carried out by the plant breeders.

Name the process A and B and define them.

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4. Match the common names of plants with their respective binomial

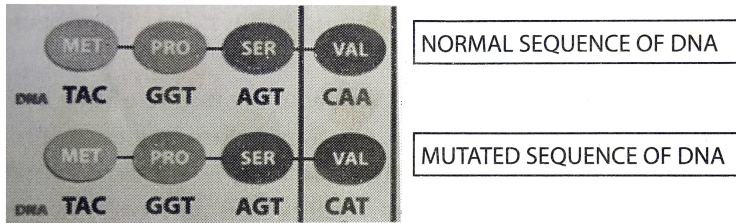
- |                  |                                  |
|------------------|----------------------------------|
| A. Rice          | 1. <i>Abelmoschus esculentus</i> |
| B. Ragi          | 2. <i>Eleusine coracana</i>      |
| C. Green gram    | 3. <i>Lawsonia inermis</i>       |
| D. Lady's finger | 4. <i>Vigna mungo</i>            |
| E. Turmeric      | 5. <i>Azadirachta indica</i>     |
| F. Teak          | 6. <i>Borassus flabellifer</i>   |
| G. Neem          | 7. <i>Oryza sativa</i>           |
| H. Henna         | 8. <i>Curcuma longa</i>          |
| I. Palm          | 9. <i>Tecomastans</i>            |



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5. Identify the type of mutation from the marked portion of the given DNA

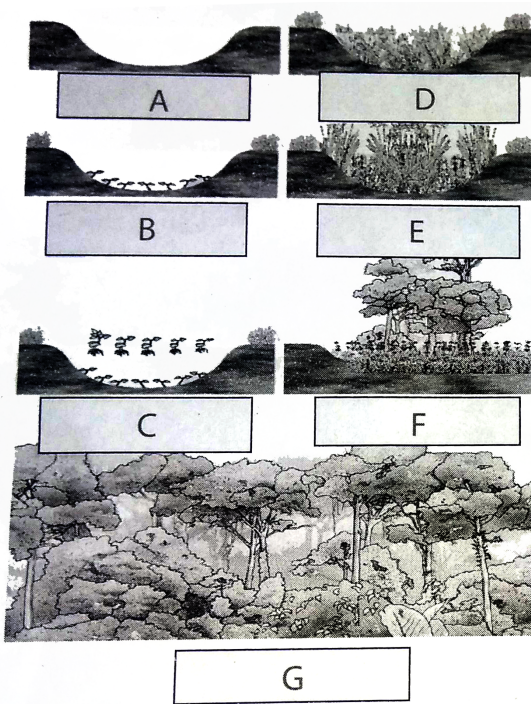
sequence.Explain.



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6. The diagram given below represents the hydrosere plant succession. Name the stages

from A to G



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