



# BIOLOGY

## BOOKS - SRIJAN BIOLOGY (ENGLISH)

### SELF ASSESSMENT PAPER 2

#### Part I

1. What are pre-fertilization events of sexual reproduction?



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2. What are intra uterine devices?



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3. What is GMO?



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4. What are plasmids?



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5. What is autecology?



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6. Ecotone is



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7. Expand the following abbreviations:

IUCN



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8. What is a gene pool?



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9. Each of the question/statement has four suggested answers. Rewrite the correct answer

Typhoid is classified as a :

A. Viral disease

B. Genetic disorder

C. Bacterial disease

D. Protozoan disease

**Answer:**



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**10.** An antibiotic resistance gene in a vector usually helps in the selection of

A. Compound cells

B. Transformed cells

C. Recombinatn cells

D. None of the above

**Answer:**



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**11. PCR technique was invented by:**

A. Kary Mullis

B. Boyer

C. Sanger

D. Cohn

**Answer:**



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**12. Acrosome is filled with:**

A. Lipids

B. Hormones

C. Digestive enzymes

D. None of these

**Answer:**



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**13.** Give scientific contribution of each of the following scientists :

(1) T.H. Morgan (2) Gregor Mendel (3) Gamow  
(4) Sutton and Boveri



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**14. Define the following :**

(i) Germ pores (ii) Menarche



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**15. Legumes fertilise the soil but cereals do not, why?**



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16. Some blue green algae are used as biofertilisers because they can



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## Part II Section A

1. How does endosperm in angiosperm become triploid?



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2. Mention the reasons for difference in ploidy of zygote and primary endosperm nucleus in an angiosperm.



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3. What is family planning ? Name any two mechanical methods of birth control.



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4. Interference is



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5. Name an opioid drug and its source plant.

How does the drug affect the human body?



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6. Secondary sewage treatment is mainly a:



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7. What is mutualism? Mention any two examples where the organisms involved are commercially exploited in agriculture.



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8. How are malignant tumours different from benign tumours ? Why are some patients treated with  $\alpha$ -interferons?



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9. Name the two special types of lymphocytes in humans. How do they differ in their roles in immune response?



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## Part II Section B

1. Which is a triploid tissue? How is the condition achieved in a fertilised ovule?



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2. Is pollination and fertilization necessary in apomixis ? Give reason.



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3. Name two hormones that are constituents of contraceptive pills. Why do they have high and effective contraceptive value? Name a commonly prescribed non-steroidal oral pill.



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4. Name the type of human cell HIV attacks on its entry into the body. Explain the events that occur in the cell which further lead to cause immuno deficiency syndrome.



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5. How can you, as an individual, prevent the loss of biodiversity?



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6. Why are flocs important in biological treatment of waste water?



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7. What is GMO ? List any four possible advantages of a GMO to a farmer



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8. Draw a labelled diagram of the internal structure of human ovary.



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9. (a) Draw a sectional view of a seminiferous tubule of human. Label sertoli cell, spermatagonia and leydig cell on it and write their functions.

(b) Explain the role of pituitary and sex hormones in the process of spermatogenesis.





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## Part II Section C

1. What is gene therapy? Name the first clinical case where it was used.



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2. How is transgenic tobacco plant protected against *Meloidogyne incognita*?



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3. List the key tools used in recombinant DNA technology



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4. Explain the role of lactose as an inducer in a lac operon



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5. How did Hershey and Chase proved that DNA is the hereditary material? Explain their experiment with suitable diagram.



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6. If a true breeding homozygous pea plant with green pod and axial flower as dominant characters is crossed with a recessive homozygous pea plant with yellow pods and

terminal flowers, then what would be the:

Genotype of the two parents?



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7. If a true breeding homozygous pea plant with green pod and axial flower as dominant characters is crossed with a recessive homozygous pea plant with yellow pod and terminal flowers, then what would be the:

Phenotype and genotype of the  $F_1$  offspring?



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8. If a true breeding homozygous pea plant with green seed and axial flower as dominant characters is crossed with a recessive homozygous pea plant with yellow seeds and terminal flowers, then what would be the:

Phenotypic distribution ratio in  $F_2$  population?



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9. List the structural gene involved in the digestion of lactose in E.coli, Highlight the function of each one.



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