

10+2
BIOLOGY
(Sample Paper)

Time allowed =3hrs

M.Marks=70

Note:

1. Question paper has four parts A, B, C, D with total 17 questions.
2. Section-A has question number 1 having 28 questions of 1 mark each. 16 questions are MCQ type, 6 fill in the blanks and 6 True/false.
3. Section-B has question 2 to question 11-total 10 questions of 2 marks each. Question 4,6,9,10 have internal choice.
4. Section-c has question 12 to question 15 -total 4 questions of 3 marks each. Question 14 and 15 have internal choice.
5. Section-D has question 16 and question 17 total 2 questions of 5 marks each. Both questions have 100% internal choice.

Section-A

a (Multiple Choice Questions) :

- (i) The unique event of flowering plant is-
(a) Fertilisation (b) Hybridisation
(c) Syngamy (d) Double fertilization
- (ii) Foetal sex determination test is known as-
(a) Sterilisation (b) Barrier method
(c) Amniocentesis (d) Coitus interruptus
- (iii) Gregor Mendel used which plant in his experiments?
(a) Gram (b) Pea
(c) sunflower (d) Hibiscus
- (iv) Presence of an additional copy of the chromosome number 21 is -----
(a)Down's Syndrome (b) Turner's Syndrome
(c) Kline felter's syndrome (d) Phenylketonuria
- (v) In bacteria RNA is of types -----
(a) 2 (b) 5
(c) 4 (d) 3

- (vi) The process in which introns are removed and exons are joined in a defined order is known as-
- (a) capping (b) Splicing
(c) Tailing (d) mutation
- (vii) Malignant malaria is caused by
- (a) Plasmodium vivax (b) Plasmodium pneumonia
(c) plasmodium malariae (d) plasmodium falciparum
- (viii) The primary lymphoid organ is –
- (a) Spleen (b) Tonsils
(c) Bone marrow (d) Appendix
- (ix) Baker's yeast is known as-
- (a) Trichoderma polysporum (b) Saccharomyces cerevisiae
(c) Acetobacter aceti (d) Clostridium butylicum
- (x) Masses of bacteria associated with fungal filaments to form mesh like structures is known as-
- (a) Floccs (b) Biological oxygen demand
(c) Primary sludge (d) Activated sludge
- (xi) Restriction enzymes are also known as-
- (a) Palindromes (b) Selectable marker
(c) Molecular scissors (d) Gene cloning
- (xii) Plasmid DNA acts as –
- (a) Vectors (b) Gene Gun
(c) cloning sites (d) Clones
- (xiii) Bt is known as –
- (a) Bacillus tumor (b) Bacillus thuringiensis
(c) Bacillus toxin (d) Bacillus tomato
- (xiv) Organisms which can tolerate and thrive in a wide range of temperatures are known as-
- (a) Stenothermal (b) Stenohaline
(c) Eurythermal (d) Euryhaline

(Section-B)

- Q.2 Do pollen grains survive in adverse conditions?
Q.3 What functions do fallopian tube perform?
Q.4 Is the use of contraceptive justified?

Or

Do you think that reproductive health in our country has improved in last 50 years? If yes, mention such areas of improvement.

- Q.5 On which fact the law of segregation is based?
Q.6 At which ends do capping and tailing of hnRNA occur respectively?

or

How do histones acquire positive charge?

- Q.7 Where does the sexual reproduction of malarial parasite takes place in its life cycle?
Q.8 Why do we prefer to call secondary waste water treatment as biological treatment?
Q.9 Explain the role of lysing enzymes in biotechnology.

Or

Why does Bt toxin not kill the Bacillus?

- Q.10 Why do small mammals of the polar region have short ears and short limbs?

Or

Why is the problem of predation in plants is more severe than that in animals?

- Q.11 What are exotic species? (2 marks each)

(Section-C)

- Q.12 A man with blood group A married a woman with blood group B. They have a son with AB blood group and a daughter with blood group O. Work out the cross and show the possibility of such inheritance.
Q.13 If a double-stranded DNA has 20% of cytosine, calculate the percentage of adenine in the DNA.
Q.14 Explain the terms

- (i) Primary response (ii) Secondary response

Or

Differentiate between Primary and Secondary sewage treatment?

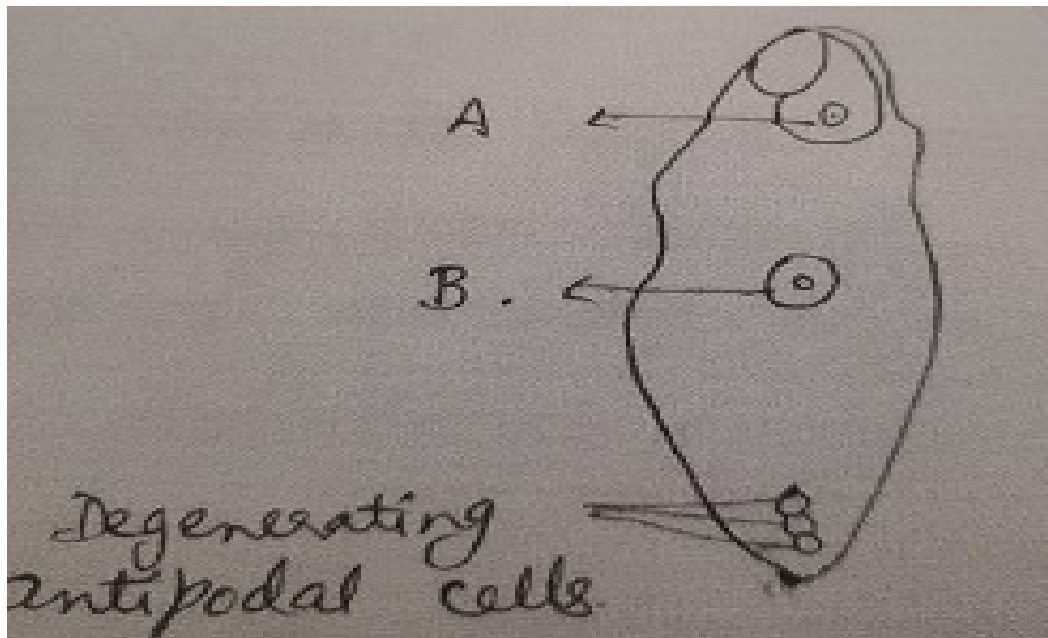
Q.15 What are sticky ends? How are they formed?

Or

How has the fungus, *Trichoderma polysporum* proved to be very essential to organ transplant patients? (3 marks each)

(Section-D)

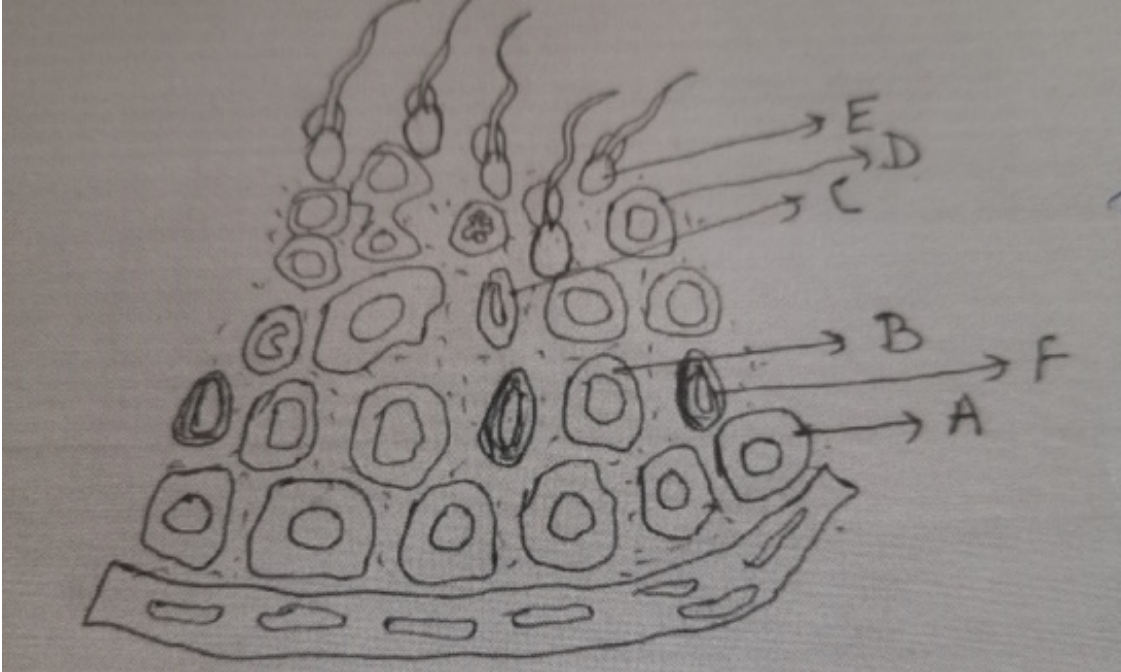
- (a) What is triple fusion? What is the product of this process? Where and how does it take place? Name the nuclei involved in triple fusion.
- (b) Give the name of the structure, which the parts A and B shown in the diagram given below respectively develop into.



3+2=5 Marks

Or

Study the given figure:



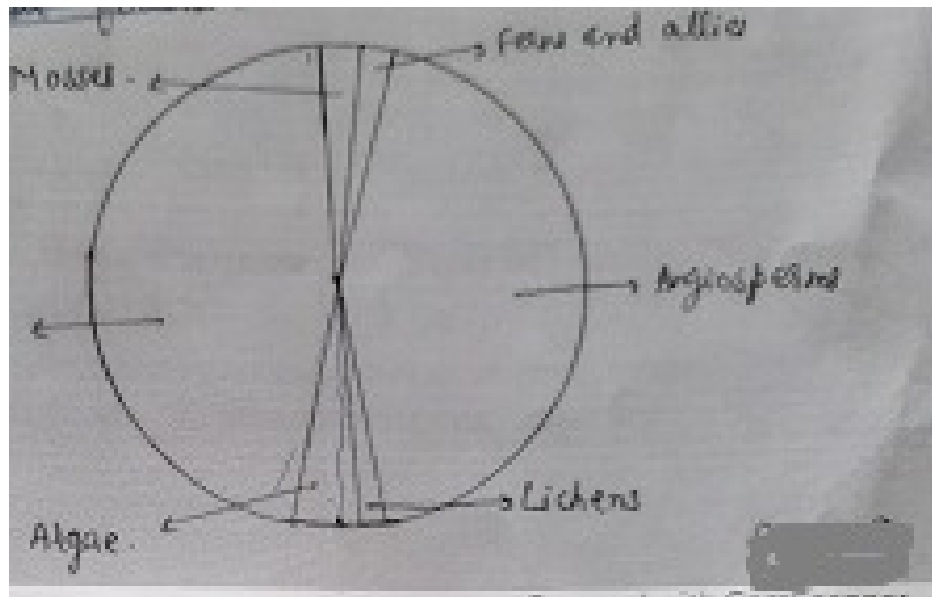
- (a) Pick out and name the cells that undergo spermiogenesis.
- (b) Name 'A' and 'B' cells. What is the difference between them with reference to the number of chromosome?
- (c) Pick out and name the motile cells.
- (d) What is 'F' cell? Mention its function.
- (e) Name the structure of which the given diagram is a part.

(1+1+1+1+1)=5 marks

- Q.17 (a) Differentiate between Mutualism and commensalism.
- (b) List any three adaptive features evolved in parasites enabling them to live successfully on their hosts. (2+3)=5

Or

Observe the global biodiversity distribution of major plant taxa in the below diagram and answer the question that follows-



- (a) Which group of plants are the most endangered?
- (b) Why are mosses/ferns so few? Give reason.
- (c) How do fungi that are heterotrophs sustain themselves as a large population?
- (d) Which group of plants is most advanced and which one is most primitive?

(1+1+1+2)=5