

BOTANY

I Answer all the questions -1 Mark each 3

1. Morphologically and genetically similar organisms are called ...
2. Intine : Cellulose :: Exine :
3. Breeding between unrelated animals called

II Answer any Three of the following – 2 Marks each 6

4. Triple fusion is the fusion of three nuclei. Name them. Where it occur ?
5. Riya in her garden growing some plants through leaves.
 - a) Name one plant propagated through leaves
 - b) Write the significance of vegetative propagation

6. What are Chasmogamous flowers?

Can cross pollination occur in Cleismogamous flowers? Why ?

7. Expand MOET. What does it aims for ?
8. Write short note on Totipotency and Explant.

III Answer any Two of the following – 3 Marks each 6

9. Make a chart showing the differences between Zoospore and zygote
10. Tender coconut has liquid and mature one has solid endospore.
 - a) Mention the function of endosperm
 - b) How both the endosperm functions in coconut.

11. Biofortification is the practical approach to improve public health a) What is it ? b) Give four examples of biofortified vegetable crops.

ZOOLOGY

I Answer all the questions -1 Mark each 3

1. Fertilisation occurs in.....region of fallopian tube
2. Natural contraceptive method of avoiding sex during fertile period is
3. F1 hybrid is crossed with its recessive parent is called

II Answer any Three of the following – 2 Marks each 6

4. Give the function of the following
 - a) Endometrium
 - b) Acrosome
5. What are STDs? Name two STDs
6. What is Pleiotropy? Give one example
7. Differentiate Spermatogenesis and Spermiogenesis
8. Expand MTP. In which emergency conditions does it allowed to do?

III Answer any Two of the following – 3 Marks each 6

9. Give one example for each of the following
 - a) Sex-linked recessive disease
 - b) Inborn error in metabolism
 - c) Autosome linked recessive disease
 - d) 21st Trisomy
10. Menstrual cycle is the cyclic process in human Reproductive System. Explain the major events of different phases of Menstrual cycle.
11. With chromosome condition and minimum two symptoms categorise the following chromosomal disorders.
 - a) Down's syndrome
 - b) Klinefelter's syndrome
 - c) Turner's syndrome

BOTANY

I Answer all the questions -1 Mark each 3

1. The interaction between a tree and epiphyte is called
2. The enzyme used to cut the nucleotide sequence is
3. The bacterial gene that produce Bt toxin is known as

II Answer any Three of the following – 2 Marks each 6

4. What is RNA interference?
How it can be used for produce nematode resistant plant ?
5. What is Gene therapy? Illustrate ADA deficiency.
6. Write two difference between Plasmid DNA and Chromosomal DNA.
7. Name two basic types of competition between organisms.
Which one is more tense and why?
8. DNA cannot pass through cell membrane. Give reason.
What is competent host?

III Answer any Two of the following – 3 Marks each 6

9. Predation is important for maintaining ecological stability.
a) What is Predation? b) Give examples for predation in animal and plants
10. Describe briefly
a) Origin of Replication b) Bioreactor c) Downstream processing
11. Compare and contrast the advantage and disadvantage of production of Genetically Modified crops.

ZOOLOGY

I Answer all the questions -1 Mark each 3

1. DNA fingerprinting was developed by
2. Theory of Biogenesis of life was put forward by
3. Spreading of cancer cells to distant places through blood is called

II Answer any Three of the following – 2 Marks each 6

4. You are provide with a sequence of DNA. Write the mRNA sequence transcribed from it and group the N bases to triplet codons.
TACATGCCTAAGCCA
5. Industrial Melanism forms a classical example for current evolution.
Justify the statement.
6. Differentiate Cell Mediated Immunity and Humoral Immunity.
7. Write note on a) Template strand b) Okazaki fragments
8. Explain three types of natural selection.

III Answer any Two of the following – 3 Marks each 6

9. Innate immunity functions with help of four barriers. Explain
10. Make a flow chart showing different steps of DNA finger printing
11. Write a short note on following theories of evolution.
a) Theory of Inheritance of acquired characters
b) Natural selection theory c) Mutation theory

BOTANY

I Answer all the questions -1 Mark each 3

1. The species that invade to a nude area called
2. Phenomenon of keeping earth warm due to some gases called
3. Natural ageing of lake by biological enrichment is called

II Answer any Three of the following – 2 Marks each 6

4. Differentiate between Standing state and Standing crop in an ecosystem
5. Expand CNG and CFC
6. Which ecological pyramid is always upright and cannot be inverted?
why it cannot be inverted ?
7. What is Global warming ? Suggest two remedies to reduce it.
8. What is Primary productivity?
What are the factors affecting primary productivity?

III Answer any Two of the following – 3 Marks each 6

9. Construct a pyramid of Biomass starting with Phytoplankton.
Label its three levels.
10. Distinguish between Production and Decomposition
11. Deforestation is highly dangerous to our Environment.
Write the hazardous effects of Deforestation and two methods to control it.

ZOOLOGY

I Answer all the questions -1 Mark each 3

1. Cholesterol lowering agent statin is produced from fungus
2. Kerala has the Biodiversity hotspot
3. Symbiotic bacteria lives in root nodules of leguminous plant is

II Answer any Three of the following – 2 Marks each 6

4. Tropical region show greater biodiversity than temperate region.
Justify the statement with examples.
5. Write note one a) Mycorrhiza b) Cyanobacteria
6. What are Sacred Groves?
State their significant role in Biodiversity conservation. .
7. List out the microbes from which the following chemicals produced
a) Citric Acid b) Acetic Acid c) Butyric Acid d) Lactic Acid
8. Name a National Park and a Wild Life Sanctuary of Kerala

III Answer any Two of the following – 3 Marks each 6

9. Integrated Pest Management (IPM) can be achieved by use of Biocontrol agents. List out advantages and examples of Biocontrol agents.
10. Elucidate In-Situ and Ex-Situ conservation of biodiversity with examples
11. Microbes are widely used in Sewage treatment.
a) Explain Physical and Biological treatment of sewage.
b) How BOD is related with purity of water bodies.