



**12<sup>th</sup> Standard**

# **BIOLOGY**

**HALF YEARLY**

**EXAM-2023**

**Various District  
Question Paper Collection**

A

## COMMON HALF YEARLY EXAMINATION - 2022

Time: 3.00 hrs.

Standard - XII  
BIOLOGYReg.No. 

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Marks: 70

BIO - BOTANY

Marks: 35

## SECTION - 1

Note: i) Answer all the questions. ii) Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer:

8×1=8

1. "Gametes are never hybrid" This is a statement of
  - a) Law of dominance
  - b) Law of independent assortment
  - c) Law of segregation
  - d) Law of random fertilization
2. Which of the following statement is correct
  - a) Agar is not extracted from marine algae.
  - b) Callus undergoes differentiation and produces somatic embryos
  - c) Surface Steritization of explants is done by using mercuric bromide
  - d) PH of the culture medium is 5.0 to 6.0.
3. The dissolved oxygen and causes death of other aquatic organisms is popularly called Terror of Bengal is
  - a) Fracaria
  - b) Diascaria
  - c) Muraiya
  - d) Eichhornia Crassipes
4. One green house gas contributes 14% of total global warming and another contributes 6%. These are respectively indentified as
  - a) N<sub>2</sub>O and CO<sub>2</sub>
  - b) CFCs and N<sub>2</sub>O
  - c) CH<sub>4</sub> and CO<sub>2</sub>
  - d) CH<sub>2</sub> and CFCs
5. Groundnut is native of
  - a) Philippines
  - b) India
  - c) North America
  - d) Brazil
6. Golden rice differs from its parental strain by the addition of \_\_\_\_\_ beta - Carotene genes.
  - a) 4
  - b) 2
  - c) 7
  - d) 3
7. Ten percent Law was proposed by
  - a) Karl Mobius
  - b) Lindenman
  - c) Tansley
  - d) Wisemen
8. Which of the given plant produces Cardiac glycosides?
  - a) Calotropis
  - b) Acacia
  - c) Nepenthes
  - d) Utricularia

## SECTION - 2

Answer any four questions:

4×2=8

9. What are the types of style.
10. What is carbon capture and storage?
11. What is Polygenic inheritance?
12. What is Process engineering?
13. What is Cryopreservation?

14. Name the humors that are responsible for the health of human beings.

## SECTION - 3

Answer any three questions. Question No.19 is Compulsory:

3x3=9

15. Write the advantages and disadvantages of Bt cotton.  
 16. What is pollution indicators? Give example.  
 17. Write about Pseudoheterosis.  
 18. Write the useful part and Medicinal uses of the given plants.  
 a) Holybasil b) gooseberry c) Wilvam  
 19. Draw the diagram of Mature anther and label the parts:

## SECTION - 4

Answer All the questions:

2x5=10

20. What is endosperm. Explain the types. (OR)  
 Write the significance of Ploidy.  
 21. Explain the types of Ecosystem with example. (OR)  
 What are millets? What are its types? Give example for each type.

## BIO - ZOOLOGY

Marks: 35

## PART - 1

Note : i) Answer all the questions. ii) Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer. 8x1=8

1. XO type of sex determination and XY type of sex determination are examples of  
 a) Male heterogamety b) Femal heterogamety  
 c) Male homogamety d) Both (b) and (c)
2. DNA and RNA are similar with respect to  
 a) Thymine as a nitrogen base b) A single - standard helix shape  
 c) Nucleotide containing sugars, nitrogen bases and phosphates d) The same sequence of nucleotides for the amino acid phenyl alanine
3. Lamarck's 'Theory of Acquired characters' was disproved by \_\_\_\_\_  
 a) Charles Darwin b) Osborn c) Spencer d) August Weismann
4. Match the pathogen with respective disease caused by them and select the correct match using the codes given below.
- |                          |   |                        |
|--------------------------|---|------------------------|
| A) Leishmania donavani   | - | i) Amoebiasis          |
| B) Wuchereria bancrofti  | - | ii) Kala - agar        |
| C) Trypanosoma gambiense | - | iii) Sleeping sickness |
| D) Entamoeba histolytica | - | iv) Filariasis         |
- a) A - ii, B - iv, C - iii, D - i  
 b) A - ii, B - iv, C - i, D - iii  
 c) A - iii, B - i, C - ii, D - iv  
 d) A - i, B - iv, C - iii, D - ii

5. Which of the following microbes is used for the production of Fumaric acid  
 a) Aspergillus niger b) Acetobacter acetic c) Rhizopus Oryzae d) Lactobacillus
6. Which of the following is not a molecular Diagnostic technique?  
 a) Stem cell therapy b) Recombinant DNA technology  
 c) Polymerase chain reaction d) ELISA
7. Some organisms are able to maintain homeostasis of physical means  
 a) Conform b) Regulate c) Migrate d) Suspend
8. Assertion (A): The environmental conditions of the tropics are favourable for speciation and diversity of organisms.  
 Reason (R): The climate seasons, temperature, humidity and photo period are more or less stable and congenial.
- a) Both Assertion (A) and Reason (R) are true and Reason explains Assertion correctly.  
 b) Both Assertion (A) and Reason (R) are true but Reason is not the correct explanation of Assertion  
 c) Assertion (A) is true, but Reason (R) is false.  
 d) Both Assertion (A) and Reason (R) are false.

## PART - II

Note : Answer any 4 of the questions. Question No. 14 is compulsory: 4x2=8

9. What is merogamy? Give an example.  
 10. Define Hardy - Weinberg Principle.  
 11. Name the components to prepare biodiesel.  
 12. Differentiate Migration and Emigration.  
 13. List out the biodiversity hotspots in India.  
 14. Write short notes on Eutrophication.

## PART - III

Note: Answer any 4 of the questions. Question No.19 is Compulsory:

3x3=9

15. Write short notes on Polycystic Ovary Syndrome. (PCOS)  
 16. Mention the significance of Cryopreservation.  
 17. Write down any three salient features of Human Genome Project.  
 18. Differentiate between Primary and Secondary immune responses (Any three)  
 19. What are stem cell Banks? Mention their types.

## PART - IV

Note: Answer All the questions:

2x5=10

20. a) Explain the process of Spermatogenesis with a suitable diagram. (OR)  
 b) What are the applications of DNA finger printing.
21. a) Write short notes on i) Amoebiasis ii) African sleeping sickness (OR)  
 b) List out the various causes for biodiversity losses.



21.12.2022

Standard - 12

BIOLOGY

BIO - BOTANY

Maximum Marks: 70

Time Allowed: 3.00 Hours

PART - I

Choose the correct answer:

8×1=8

- New world species of cotton.
  - Gossipium arboretum
  - G. herbaceum
  - Both a and b
  - G. barbadense
- The quickest method of plant breeding is
  - Introduction
  - Selection
  - Hybridization
  - Mutation breeding
- Depletion of which gas in the atmosphere can lead to an increased incidence of skin cancer?
  - Ammonia
  - Methane
  - Nitrous oxide
  - Ozone
- Which of the following is/are not a natural ecosystem?
  - Forest ecosystem
  - Rice field
  - Grassland ecosystem
  - Desert ecosystem
- Which of the given plant produces cardiac glycosides?
  - Calotropis
  - Acacia
  - Nepenthes
  - Utricularia
- What is the secondary metabolite that is obtained from chinchona officinalis?
  - Digoxin
  - codeine
  - Capsaicin
  - Quinine
- Algae used for the production of Single cell protein
  - Alcaligenes
  - Candida utilis
  - Spirulina
  - Saccharomyces
- Part that gets transformed into seed after fertilization
  - Ovary
  - Ovule
  - Nucellus
  - Antipodal cells

Answer any four of the following.

4×2=8

- What are clones?
- Give the names of the scientists who rediscovers Mendelism.
- What are the materials used to grow microorganism like Spirulina?
- What do you mean by Embryoids?
- What is ecological hierarchy?
- Give definitions for Organic farming.

Answer any three of the following. Question Number 19 is compulsory.

3×3=9

- Enumerate the uses of turmeric.
- Differentiate primary introduction from secondary introduction.
- Expand CCS.
- What is seed ball?
- List out the functions of tapetum

Answer the following.

2×5=10

- Explain the different modes of entry of pollen tube into the ovule.  
(OR)
  - Differentiate continuous variation with discontinuous variation.
- What are restriction enzymes? Mention their types with role in Biotechnology.  
(OR)
  - Explain the basic concepts involved in plant tissue culture.

Choose the best answer:

8 × 1 = 8

- Repeated Binary fission is seen \_\_\_\_\_.  
a) Ceratium      b) Vorticella      c) Paramecium      d) Amoeba
  - Albinism is due to \_\_\_\_\_.  
a) Autosomal recessive gene      b) Autosomal dominant gene  
c) Allosomal recessive gene      d) Allosomal dominant gene
  - Which one is correctly matched \_\_\_\_\_.  
a) Reptiles and Birds - Archeopterynx  
b) Homologous organ - Convergent Evolution  
c) Neo-Darwinism - Osborn, Packard, Cope  
d) Darwin's finches - ALX1 gene
- Code:-**
- 'A' and 'D' Only
  - 'A' and 'B' only
  - 'A' only
  - A, B and D Only
- The Duration of Erythrocytic cycle of Quartan Malaria is \_\_\_\_\_.  
a) 48 Hrs      b) 72 Hrs      c) 47 Hrs      d) 36-48 Hrs
  - Cyclosporin - 'A' is an immunosuppressive drug Produced from \_\_\_\_\_.  
a) Aspergillus niger      b) Monascus purpureus  
c) Penicillium notatum      d) Trichoderma polysporum
  - Transgenic animals are those which have \_\_\_\_\_.  
a) Foreign DNA in some of their cells      b) Foreign DNA in all their cells  
c) Foreign RNA in some of their cells      d) Foreign RNA in all their cells
  - Which one is incorrectly matched?  
a) Predation - Lion and Deer  
b) Commensalism - Sucker fish and Shark  
c) Steotherms - Cat, dog, Tiger  
d) Phototaxis - moth
  - Assertion: Eutrophication due to nutrient enrichment. This causes a algal bloom which affect the quality of water.  
Reason: Red tides, if occur, can be lethal to aquatic organisms.  
a) 'A' is correct 'R' is wrong      b) Both 'A' and 'R' wrong  
c) 'A' wrong 'R' are correct      d) Both 'A' and 'R' are correct

## SECTION II

Answer any four questions.

4 × 2 = 8

- Expand the following 1. PAN 2. CFC.
- Write down any two major functions of soil.
- Any two disadvantages of cloning.
- Which one is called "queen of drug" and why?
- Name the drugs which have Hallucinogenic effects.
- What is meant by cryptochism?

## SECTION III

Answer any three questions. Question Number 18 is compulsory.

3 × 3 = 9

- The Scrotum is acted as Thermo regulator. Why? Explain.
- Tabulate the causative agent, Symptoms and Incubation period of Genital warts
- Explain Turner's Syndrome.
- Taking the example of peppered moth, explain the action of natural selection. What do you call the above phenomenon?
- Any three uses of Transgenesis.

## SECTION IV

Answer all :

- Effects and Control of Air pollution.

(OR)

Explain the various steps involved in PCR technique.

- Explain the structure of Immunoglobulin with labelled sketch.

(OR)

Explain maintenance of pregnancy and embryonic development.

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2 × 5 = 10  
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TENKASI DISTRICT

Class : 12

Register  
Number

## COMMON HALF YEARLY EXAMINATION - 2022 - 23

Time Allowed : 3.00 Hours]

## BIOLOGY

[Max. Marks : 70

Part - I (Bio-Botany) (Marks : 35)  
Section - I

Note. (i) Answer All the questions.

8×1=8

(ii) Choose the most appropriate answer from the given four alternatives and write the option code and corresponding answer.

- Which one of the following plant reproduces by leaf?  
a) Agave                      b) Bryophyllum                      c) Gladiolus                      d) Potato
- Mutations can be induced with  
a) Gamma radiations      b) Infrared radiations      c) IAA                      d) Ethylene
- Solidifying agent used in plant tissue cellulose is  
a) Nicotinic acid              b) Cobaltous chloride      c) EDTA                      d) Agar
- Soil water available for plant is  
a) Gravitational water                      b) Chemically bound water  
c) Capillary water                      d) Hygroscopic water
- Which one of the following crop varieties correct matches with its resistance to a disease?  

Variety	Resistance to diseases
a) Pusa Komal	Bacterial blight
b) Pusa sadabahar	White rust
c) Pusa Shubhra	Chilli Mosaic Virus
d) Brassica	Pusa Swarhim
- The time duration for Sterilization process by using autoclave is \_\_\_\_\_ minutes and the temperature is ---  
a) 10 to 30 minutes and 125°C                      b) 15 to 30 minutes and 121°C  
c) 15 to 20 minutes and 125°C                      d) 10 to 20 minutes and 121°C
- Consumption of which one of the following foods present the kind of blindness associated with Vitamin A deficiency?  
a) Flavr Savr                      b) Canola                      c) Golden rice                      d) Bl. Brinjal
- Assertion (A) : Gamma rays are generally use to induce mutation in Wheat Varieties?  
Reason (R) : Because they carry lower energy to non - ionize electrons from atom  
a) A is correct R is correct explanation of A      b) A is correct "R" is not correct explanation of "A"  
c) A is correct "R" is wrong explanation of A      d) A and R is wrong

## SECTION - 2

Note : Answer any four questions.

4×2=8

- Distinguish between Tenuinucellate and Crassinucellate Ovules.
- Name the Chemicals used in Gene transfer.
- What are the uses of Gene Mapping?
- What is meant by Pedology?
- Write the difference between redifferentiation and dedifferentiation.
- What are called King and Queen of Species?

## SECTION - 3

Note : Answer any three questions. Question No. 19 is compulsory.

3×3=9

- What is tapetum? What are its function?
- Distinguish between Habitat and Niche.
- Mention the Name of Man Made Cereals. How is it formed?
- Give an account of Crzopreservation?
- What do you know about PBR322?
- What are the objectives of Plant Breeding?

## SECTION - 4

Note : Answer all the questions.

2×5=10

- (a) Give an account of Protoplast culture with diagram?  
(b) Draw the Flow chart of Ploidy? OR
- (a) Explain Ten Percent Law with example  
(b) How will you prepare an Organic pesticide for your Home Garden with the Vegetables available from your Kitchen Garden? OR

CH / 12 / Bio / 1

**PART - II ( BIO-ZOOLOGY) (Max. Marks: 35)**  
**SECTION - I**

**Note:** (i) Answer all the questions

(ii) Choose the most appropriate answer from the given four Alternatives and write the option code and the corresponding answer **8 x 1 = 8**

1. Which is the correct order of reproductive events in higher animals?
  - a) gametogenesis → fertilization → cleavage → organogenesis → gastrulation
  - b) Fertilization → gametogenesis → cleavage → gastrulation → organogenesis
  - c) Gametogenesis → cleavage → fertilization → gastrulation → organogenesis
  - d) gametogenesis → fertilization → cleavage → gastrulation → organogenesis
2. Which one of the following is true regarding HIV?
  - a) It is a sexually transmitted killer disease
  - b) It is a bacterial disease which causes immune deficiency
  - c) The genetic material is double stranded RNA
  - d) It is capable of infecting babies through droplet infection.
3. Haemophilia is more common in males because it is a
  - a) Dominant trait carried by Y chromosome
  - b) Recessive character carried by X chromosome
  - c) Dominant trait carried by X chromosome.
  - d) Recessive trait carried by Y chromosome.
4. Which one of the following is not true regarding DNA?
  - a) It is the genetic material present universally in all organisms.
  - b) It is a polymer of nucleotides
  - c) It is a self-replicating molecule
  - d) It is a storage molecule of genetic information
5. Which period is called as age of fishes?
  - a) Permian
  - b) Triassic
  - c) Devonian
  - d) Ordovician
6. Which one of the following is correctly matched?
 

a. Kala azar	-	Tinea pedis
b) Athlete's foot	-	Sand fly
c) Amoebiasis	-	trophozoite
d) African sleeping sickness	-	flea
7. **Assertion (A) :** Probiotic microbes are involved in idly preparation.  
**Reason (R) :** Lactobacillus lacti is used in it.
  - a) Both (A) and (R) are true and (R) explains (A)
  - b) Both (A) and (R) are true and (R) does not explain (A)
  - c) Both (A) and (R) are false
  - d) (A) is true but (R) is false
8. Which of the following is known as lungs of planet Earth?
  - a) Tundra forest
  - b) Rain forest of Northeast India
  - c) Taiga forest
  - d) Amazon rain forest

**SECTION - II**

**Note :** Answer any four of the following questions.

9. What is Parthenogenesis? Give two examples from animals? **4x2=8**
10. Differentiate Foeticide from infanticide.
11. State Hardy Weinberg equilibrium.
12. What is Metastasis?
13. Differentiate antibodies from antibiotics?
14. What you mean by Sacred groves?

**SECTION - III**

**Note :** Answer any three of the following questions. Question Number 19 is compulsory. **3x3=9**

15. How can we control Eutrophication?
16. Write an adaptations of Eurythermy?
17. Mention the role of acrosomal reaction and the formation of Fertilization membrane.
18. Write the characteristics of Huntington Chorea?
19. Why tRNA is called an adaptor Molecule?

**SECTION - IV**

**Note :** Answer all the questions.

20. (a) Describe the structure of human Ovum with a neat labelled diagram. OR **2x5=10**  
(b) Explain the process of DNA Replication.
21. (a) Describe the structure of Immunoglobulin molecules. OR  
(b) List out the various causes for biodiversity losses.

CII / 12 / Bio / 2

PERAMBALUR

Register Number :

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**HALF YEARLY EXAMINATION - 2022**Std: **12****BIOLOGY**

Marks : 70

Time : 3.00 hr

**PART I - (Bio-Botany) (Marks - 35)****PART - I****I. Answer all the questions**

8x1=8

Choose the most appropriate answer from the given four alternatives and write the option and the corresponding answer.

- Identify the correctly matched pair.
  - Tuber - Allium cepa
  - Sucker - Pistia
  - Rhizome - Musa
  - Stolon - Zingiber.
- Which of the following is not a biotic component of the ecosystem.
  - Organic Components
  - Bacteria
  - Inorganic compounds
  - Humus
- Match the following.
 

A. A pair of chromosomes Extra with diploid	-	i. Monosomy
B. one chromosomes extra To the diploid	-	ii. tetrasomy
C. One chromosome loses From diploid	-	iii. Trisomy
D. Two individual chromosomes lose from diploid	-	iv. Double monosomy
- In which techniques Ethidium Bromide is used.
  - polymerized chain Reaction
  - Southern Blotting Techniques
  - Agarose Gel Electrophoresis
  - Western Blotting Techniques
- In the following plants which one is called as 'king of bitters'.
  - Nilavembu
  - keezhanelli
  - vembu
  - Pepper
- \_\_\_\_\_ is a modification of a biological structure where by an ancestral trait reappears after having been lost through reemergence of sexual reproduction.
  - Atavism
  - Recurve organism
  - hybrids
  - Dominant organism
- The selected tissue to establish a new Plant in a culture medium.
  - Embryoid
  - callus
  - platlets
  - Explant
- The unit for measuring ozones thickness.
  - Joule
  - Kilos
  - Dobson
  - watt

P. Sanjeev raj  
V.P.V. Hr. Sec. Sch

**PART - II****II. Answer any Four of the following**

4x2=8

- How will you identify a vector?
- What is endothecium?
- What is Test cross?
- What are jumping genes?
- What is Myromecophily?
- Define - Cybrid.

**PART - III****III. Answer any Three questions. Question No. 19 is compulsory**

3x3=9

- List out the functions of tapetum?
- Distinguish habitat and niche
- Draw and lable the structure of Embryo sac.
- What is - Pollen kitt
- Draw labeled structure of Plasmid P<sup>BR</sup>322

**PART - IV**

Std : 12 Biology



**IV. Answer all the questions****2x5=10**

20. a. What is parthenocarphy? Write its significance (or)  
b. Explain in complete dominance with an example.
21. a. Write the Applications of plant tissue culture (or)  
b. Shape of pyramid in a particular ecosystem is always different in shape, Explain with example.

**BIO – ZOOLOGY (Marks : 35)****PART – I****I. Choose The correct Answer****8x1=8**

1. The hormone inhibin is secreted by  
a. Leydig cells    b. sertoli cells    c. Skene's gland    d. prostate gland
2. Albinism is caused due to the lack of the enzyme  
a. Thyroxine    b. Thymulin    c. Tyrosinase    d. Amylase
3. A mRNA molecule is produced by  
a. Transcription    b. Replication    c. Duplication    d. Tranlation
4. Who published the book 'Philosophie Zoologique'  
a. Darwin    b. Spence    c. Osborn    d. Lamarck
5. The duration of Erythro cytic cycle in quartan Malaria is  
a. 48 hours    b. 36 hours    c. 72 hours    d. 16 hours
6. Which of the following is referred to as industrial alcohol  
a. Methanol    b. Ethanol    c. Ethane    d. Methane
7. The rule explains the relationship between lower the temperature and more the vertebrae in fishes  
a. Bergmann's rule    b. Allen's rule    c. Rensch's rule    d. Jordan's rule
8. Which of the following forest is known as the lungs of the planet earth?  
a. Tundra forest    b. Taiga forest  
c. Amazon rain forest    d. Rain forest of north east India

**II. Answer any four of the Following****4x2=8**

9. Differentiate between the seasonal breeders and continuous breeders with example
10. What are Multiple Alleles?
11. What is meant by genophore?
12. What are Haptens?
13. What is bioremediation?
14. Write short notes on Ecosan toilets?

**III. Answer Any three of the Following****3x3=9**

15. What is Aminocentesis? It is banned in our country, Is it necessary? Comment.
16. What are the salient features of Mutation theory?
17. Differentiate between somatic cell gene therapy and germ line gene therapy
18. Write a note on:    i. Hibernation    ii. Aestivation    iii. Diapause
19. Tabulate the difference between Insitu and Exsitu conservation.

**IV. Answer all the Questions****2x5=10**

20. a. Explain the various phases of the menstrual cycle. (Or)  
b. Why the human genome project is called a mega project? mention the main goals of human genome project.
21. a. Draw and explain the structure of HIV virus. (Or)  
b. Explain the three steps involved in sewage treatment.

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Std : 12 Biology

HTV  
XII - Std

HALF YEARLY EXAMINATION - 2022  
BIOLOGY

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Time: 3.00 Hrs

Marks : 70

PART - I (Bio-Botany) (35 marks) Section - I

Note : 1. Answer all the questions. 2. Choose the most appropriate answer from the given four alternative and write the option code and the corresponding answer :- 8 X 1 = 8

- A plant called X possesses small flower with reduced perianth and versatile anther. The probable agent for pollination would be a) Water b) air c) butterflies d) beetles
- A protoplast is a cell  
a) undergoing division b) without cell wall c) without plasma membrane d) without nucleus
- The figure below is the diagrammatic representation of the vector pBR 322. Which one of the given options correctly identifies its certain components.  

a) Ori	-	original restriction enzyme
b) rop	-	reduced osmotic pressure
c) Hind III, EcoRI	-	selectable markers
d) amp <sup>R</sup> , tet <sup>R</sup>	-	antibiotic resistance genes
- Column - I represent the size of the soil particles and Column II represents type of soil components. Which of the following is correct match for the Column I and Column II.  

<b>Column - I</b>		<b>Column - II</b>
I. 0.2 to 2.00 mm	-	i) Silt soil
II. Less than 0.002mm	-	ii) Clayey soil
III. 0.002 to 0.02mm	-	iii) Sandy soil
IV. 0.002 to 0.2 mm	-	iv) Loamy soil

a) I-ii, II-iii, III-iv IV-i    b) I-iv II-i III-iii IV-ii    c) I-iii II-i III-iii IV-iv    d) None of the above
- Which one is in descending order of a food chain.  

a) Producers → Secondary → Consumers → Primary Consumers → Tertiary Consumers  
 b) Tertiary Consumers → Primary Consumers → Secondary Consumers → Producers  
 c) Tertiary consumers → Secondary Consumers → Primary consumers → Producer  
 d) Tertiary consumers → Producers → Primary consumers → Secondary consumers
- With respect of Eichhornia  
 Statement A : It drains off oxygen from water and is seen growing in standing water.  
 Statement B : It is an indigenous species of our country.  

a) Statement A is correct and Statement B is wrong  
 b) Both Statement A and B are correct  
 c) Statement A is correct and Statement B is wrong  
 d) Both statements A and B are wrong
- Importing better varieties and plants from outside and acclimatizing them to local environment is called  

a) cloning                      b) heterosis                      c) selection                      d) introduction
- The active principle trans - tetra hydro canabial is present in  

a) Opium                      b) Curcuma                      c) Marijuana                      d) Andrographis



Section - II

Note : Answer any four of the following questions :-

4 X 2 = 8

- Draw the structure of T.S. of mature anther and label its parts.
- Define : Bioremediation.
- Write a note on cryopreservation.
- Of the total sunlight, only 2 - 10% of the solar energy is used by green plants for photosynthesis explain why?
- What is heterosis?
- Give definitions for organic farming?

Section - III

Note : Answer any three of the following questions. Question No. 19 is compulsory :-

3 X 3 = 9

- Bring out the different steps involved in mechanism of crossing over.
- List out the application of plant tissue culture.
- Explain afforestation with case study.
- Distinguish habitat and niche.
- What are the objectives of plant breeding?

Section - IV

Note : Answer all the questions :

2 X 5 = 10

- Give a detailed account on parthenocarpy. Add a note on its significance. (OR)  
 Explain about dihybrid cross.
- What is single cell protein? Mention its application. (OR)  
 Various stages of succession are given below. From the rearrange them accordingly. Find out the type of succession and explain in detail.  
 Reed - swampstate, phytoplankton stage, shrub stage, submerged plant stage, forest stage, submerged free floating state, marsh meadow stage.

## Bio - Zoology Section - I

Note : i. Answer all the questions. ii. Choose the given four alternatives and write the option code and the corresponding answer :-

8 X 1 = 8

1. The mode of reproduction in bacteria by  
a) Formation of gametes b) Endospore formation c) Conjugation d) Zoospore formation
2. Mammalian egg is  
a) Mesolecithal and non cleidoic b) Microlecithal and non cleidoic  
c) Alecithal and non Cleidoic d) Alecithal and cleidoic
3. Patau syndrome is also referred to as  
a) 13 - Trisomy b) 18 - Trisomy c) 21 - Trisomy d) None of these
4. Which period was called age of fishes.  
a) Permian b) Triassic c) Devonian d) Ordovician
5. The purpose of biological treatment of waste water is to  
a) Reduce BOD b) Increase BOD c) Reduce sedimentation d) Increase sedimentation
6. Animals that can move from fresh water to sea called as  
a) Stenothermal b) Eurythermal c) Catadromous d) Anadromous
7. In which year Indira Gandhi with life Sanctuary established  
a) 1976 b) 1988 c) 1967 d) 1986
8. The Neanderthal man had the brain capacity of  
a) 1400CC b) 650 - 800 CC c) 350 - 450 CC d) 1600CC

## Section - II

Note : Answer any three of the following question.

4 X 2 = 8

9. Name an organism where cell division is itself a mode of reproduction.
10. Expand the following. a) ZIFT b) ICSI
11. Differentiate - Template strand and coding strand.
12. What are interferons? Mention their role.
13. Give the diagnostic - characters feature of a Biome?
14. How can we control entrophication?

## Section - III

Note : Answer any three of the following question. Q.No. 19 is compulsory :-

3 X 3 = 9

15. Draw and label Human Sperm?
16. Who disproved Lamarck's theory of acquired characters? How?
17. Explain how ADA deficiency can be corrected?
18. Tabulate and analysis of two species population interaction.
19. Write notes on the following. a) Entrophication b) Algal Bloom.

## Section - IV

Note : Answer the following questions :-

2 X 5 = 10

20. a) Give a schematic representation of spermatogenesis and Oogenesis in human.  
(OR)  
b) How does Hardy - Weinberg's expression ( $p^2+2pq+q^2=1$ ) explain that genetic equilibrium maintained in a population? List any four factor that can disturb the genetic equilibrium.
21. a) Mention the advantages and disadvantages of cloning?  
(OR)  
b) How does recycling help reduce pollution?

HALF YEARLY EXAMINATIONS - 2022  
BIOLOGY

12 - STD

TIME: 3.00 Hrs

BIO - BOTANY

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Marks: 70

PART - I

Answer all the questions. Choose the Correct Answers.

8×1=8

- 1) Identify the incorrect pair  
a) sporopollenin - exine of pollen grains.  
b) Tapetum - Nutritive tissue for developing microspores  
c) Nucellus - Nutritive tissue for developing embryo embryo  
d) obturator - directs the pollen tube into micropyle
- 2) 1) Independent assortment induce genetical variation  
2) Ascorbic acid decreases the damage caused by by hydrogen peroxide  
3) Genetic map are useful in protecting results. of trihybrid Crosses  
4) Codine used as Cardiac tonic of the above statements, the correct statements are respectively.  
a) 1 and 3                      b) 1, 2, 4                      c) 1 and 4                      d) 4 only
- 3) In a fresh water environment like pond, rooted autotrophes are  
a) Nymphaea and typha    b) Ceratophyllum and Utricularia.    c) Wolffia and pista    d) Azolla and lemna
4. Which of the following is not a gaseous cycle  
a) oxygen                      b) carbon                      c) Nitrogen                      d) calcium
5. Match the following:  
A. Indian Acalypha                      -                      1) Psychoactive drug.  
B. opium poppy                      -                      2) Calcium  
C. Veldt grape.                      -                      3) Entrepreneurial plant  
D. Seaweed liquid. fertilizer -                      4) Ringworms  
a) a-4 c-3    c-1 d-2    b) a-4 b-1 c-3 d-4    c) a-4 b-2 c-1 d-3    d) a-4 b-1 c-2 d-1
- 6 **Statement (A):** Energy pyramid is always upright  
**Reason (R):** Gradual increase in energy transfer at a successive trophic level from producers to upper levels.  
a) A and R wrong                      b) A Correct R wrong                      c) A and R Correct                      d) A wrong R correct
7. Protoplast viability is tested with ..... before the culture.  
a) Fluorescein diacetate.    c) cation concentrations.    b) PEG    d) Sodium acetate.
- 8 Depletion of which gas in the atmosphere. Can lead to on increased incidence of Cancer?  
a) Methane                      b) Ozone                      c) Ammonia                      d) Nitrous oxide

PART-II

Answer Any Four of the following questions.

4 x 2 = 8

9. What is orinithophily?
10. What is syndenesis?
11. Write any two characters of vectors
12. What is cell suspension culture?
13. Define positive Interaction with examples.
14. What is PAR?

PART - III

Answer any three of the following question.. Question No-14 is compulsory.

3x3=9

15. Write any Three effects of global warming on plants.
16. Give any three examples for Ex situ Conservation.
17. Write the Botanical name, family and of uses Cashewnut.
18. Draw and label the parts of Mature Embryo.
19. Differentiate Linkage and crossing. over.

PART-IV

Answer all the questions.

2 x 5 = 10

20. Write the applications of plant Tissue culture. (OR) Define Heterosis. Explain its types
21. Explain the First law of thermodynamics with examples. (OR) Give an account on Golden Rice.

12 Biology PAGE - 1

## PART - I BIO-ZOOLOGY (SECTION -1)

TOTAL MARKS: 35

**Note: Answer all the questions Choose the most appropriate answer.**

8 x 1 = 8

1. *Biston betularia* is best example for  
a) Convergent evolution (b) divergent evolution c) Industrial melanism (d) None of the above
2. Which of the following is true about Rh factor in the offspring of a parental combination Ddx Dd  
a) All will be Rh-positive b) Half will be Rh positive  
c) About 3/4 will be Rh negative d) About one fourth will be Rh
3. Read the given statements and select the correct option negative.  
**Statement 1:** Diaphragms, cervical caps and Vaults are made of rubber and are inserted into the female reproductive tract to cover the Cervix before coitus  
**Statement 2:** They They are chemical barriers of Conception and are reusable.  
a) Both statements 1 and 2 are correct and statement 2 is the correct explanation of statement 1  
b) Both statements 1 and 2 are correct but Statement 2 is not the correct explanation of statement 1.  
c) statement 1 is correct but statement 2 is incorrect. d) Both statements 1 and 2 are incorrect
4. This codon has dual function both its acts as initiator codon and also codes for the amino acid methionine  
a) UAA (b) AUG c) UAG (d) UGA
5. With which of the following, 'the Agenda 21' of Rio Summit, 1992 is related to?  
a) Sustainable development. b) Combating the consequences of population,  
c) Mitigation of norms of Green House gases (HGS) emission.  
d) Technology transfer mechanism to developing Countries for clean-energy production.
6. Suspend is a type of animal responses observed in the animals which does not include this.  
a) hibernation b) diapause c) Aestiva tion (d) Migration.
8. Which of the following microorganism is used for production of citric acid in industries?  
a) *Lactobacillus bulgaris* (b) *Penicillium species*. c) *Aspergillus niger* (d) *Rhizopus nigricans*.
7. Chickengunya is a  
a) Viral disease (b) Bacterial c) Fungal d) Protozoan

## SECTION - 2

**NOTE: Answer any four questions only.**

4X 2=8

9. What is Eutrophication?
10. hat are the two types of Epimorphosis?
11. Differentiate Somatic cell gene therapy from germ cell gene therapy.
12. Write short note on Saheli.
13. What the positive attitudes created due to to the participation in an exercise Programme?
14. Mention the extra embryonic membranes.

## SECTION - 3

**Notes Answer any three Question number 19 of the following questions Compulsory.**

15. What is Lyon's hypothesis? 3 x 3 = 9
16. What is parthenogenesis? Give two examples reproduce by parthenocarpic of animals method.
17. Draw a neat labelled sketch of Immunoglobulin.
18. What is amniocentesis? Why this test is banned in country?
19. Differentiate birth rate from death rate.

## SECTION - 4

**NOTE: Answer the following.**

2 x 5 = 10

20. A) Explain the types of fossilization. B) State any three goals of human genome Project. (OR)  
Explain the various phases of menstrual cycle.
21. What are the various reasons for biodiversity losses.? (OR)  
Give short notes on. (a) clot buster (b) Sub-unit recombinant vaccines.

12 Biology PAGE - 2



## Standard 12

### BIOLOGY

Time: 3.00 Hrs.

Marks: 70

- Instructions:**
1. Check the question paper for fairness of printing. If there is any lack of fairness, inform the Hall Supervisor immediately.
  2. Use Blue or Black ink to write and underline and pencil to draw diagrams.

**Note:** Candidate should answer Part - I (Bio-Botany) & Part - II (Bio-Zoology) in separate answer - books.

### PART - I [BIO-BOTANY]

Marks: 35

#### Section - I

**Note:** i) Answer all the questions.

8×1=8

ii) Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer.

- 1) Size of pollen grain in Myosotis is \_\_\_\_\_ micrometer.
 

a) 10	b) 20	c) 200	d) 2000
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- 2) Alternative forms of a gene are / is called
 

a) Genome	b) Alleles	c) Genotype	d) Genetic code
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- 3) **Match the following:**

1. Exonuclease	-	A) add or remove phosphate
2. Endonuclease	-	B) binding the DNA fragment
3. Alkaline phosphatase	-	C) cut the DNA at terminus
4. Ligase	-	D) cut the DNA at middle

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
a) A	B	C	D		b) C	D	B	A
c) A	C	B	D		d) C	D	A	B
- 4) Virus free plants are developed from
 

a) cell suspension culture	b) organ culture
c) Meristem culture	d) Protoplast culture
- 5) For the given statements with respect to Eichhornia select the suitable answer.
 

**Statement A** : It drains of oxygen from water and is seen growing in standing water.

**Statement B** : It is an indogenous species of our country.

  - a) Statement A is correct and statement B is wrong.
  - b) Both the statement A and B are correct.
  - c) Statement A is wrong and statement B is correct.
  - d) Both the statement A and B are wrong.
- 6) Which of the following is incorrectly paired?
 

a) Wheat	-	Himgiri
b) Milch breed	-	Sahiwal
c) Rice	-	Ratna
d) Pusa komal	-	Brassica

## V12Bio

2

- 7) Tectona grandis is coming under the following
- |                     |              |
|---------------------|--------------|
| a) Dipterocarpaceae | b) Lamiaceae |
| c) Ebenaceae        | d) Fabaceae  |
- 8) Pedogenesis refers to
- |               |           |         |          |
|---------------|-----------|---------|----------|
| a) Population | b) Fossil | c) Soil | d) Water |
|---------------|-----------|---------|----------|

## Section - II

Answer any four of the following:

4×2=8

- 9) The endosperm of Angiosperm is different from Gymnosperm. Do you agree? Justify your answer.
- 10) What do you know about the word pBR 322?
- 11) What is CCS?
- 12) In 4 o'clock plant
- Pale green leaved plant (Male) × Dark green leaved plant (Female)

↓

□

Explain the type of inheritance.

- 13) Write the Botanical name and family of Nilavembu. Write any one of its uses.
- 14) What is called phytoremediation?

## Section - III

Answer any three of the following. Question No. 19 is compulsory:

3×3=9

- 15) What is polyembryony? Write its uses.
- 16) What is gene mapping? Mention its uses.
- 17) What is Green House Effect? Draw the relative contributions of green house gases.
- 18) Define Heterosis.
- 19) How are artificial seeds produced?

## Section - IV

Answer the following questions:

2×5=10

- 20) a) What are the King and Queen of spices? Write their uses.  
(OR)
- b) Water is essential for life. State the reason. Write any four features for plants which enable them to survive in water scarcity environment.
- 21) a) Discuss the steps involved in Microsporogenesis.  
(OR)
- b) Write the applications of plant tissue culture.

## Section - 1

Note: i) Answer all the questions.

8×1=8

ii) Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer.

- 1) The glandular accessory organ which produces the largest proportion of semen is
  - a) Seminal vesicle
  - b) Bulbourethral gland
  - c) Prostate gland
  - d) Mucous gland
- 2) Haemophilia is more common in males because it is a
  - a) Recessive character carried by Y chromosome
  - b) Dominant character carried by Y chromosome
  - c) Dominant trait carried by X chromosome
  - d) Recessive trait carried by X chromosome
- 3) Which of the following is the correct sequence of event with reference to the central dogma?
  - a) Transcription, Translation, Replication
  - b) Transcription, Replication, Translation
  - c) Duplication, Translation, Transcription
  - d) Replication, Transcription, Translation
- 4) The difference between DNA sugars and RNA sugars is
  - a) One oxygen atom excess in deoxyribose sugars
  - b) One oxygen atom less in ribose sugars
  - c) Two oxygen atoms less in ribose sugars
  - d) One oxygen atom less in deoxyribose sugars
- 5) In the E waste generated by the mobilephones. Which among the following metal is most abundant?
  - a) Gold
  - b) Copper
  - c) Silver
  - d) Palladium
- 6) **Assertion (A)** : XX - XO type of sex determination is seen in bed bugs, cockroaches and grasshoppers.  
**Reason (R)** : The sex of offspring depends upon the sperm that fertilizes the egg.
  - a) Both (A) and (R) are true and (R) is not the correct explanation for (A).
  - b) Both (A) and (R) are false.
  - c) (A) is true and (R) is false.
  - d) Both (A) and (R) are true and (R) is the correct explanation for (A).
- 7)  $\beta$  cells that produce and release large amounts of antibody is called
  - a) Killer cells
  - b) Memory cells
  - c) Basophils
  - d) Plasma cells
- 8) Competition between species leads to
  - a) Extinction
  - b) Mutation
  - c) Amensalism
  - d) Symbiosis



KK12Bio

4

## Section - 2

**Note: Answer any four of the following questions.**

4×2=8

- 9) What is the composition of semen?
- 10) What is Karyotyping?
- 11) Write any two application of DNA finger printing technology.
- 12) Write a notes on connecting links with example.
- 13) What is Bioremediation?
- 14) Write the important and potential application of human stem cells.

## Section - 3

**Note: Answer any three of the following questions.**

3×3=9

**Question number 19 is compulsory.**

- 15) What is regeneration? Explain its types.
- 16) Write about gene banks.
- 17) Name the hormone secreted by thymus gland and mention two functions of the hormone.
- 18) Write the difference between Primary Immune response and Secondary Immune response.
- 19) How does chemical mediation act as physiological barrier?

## Section - 4

**Note: Answer the following questions.**

2×5=10

- 20) Mention the advantages and disadvantages of cloning.

**(OR)**

Give an account of modern synthetic theory.

- 21) Write the salient features of Human genome project.

**(OR)**

Write a detailed note on various types of natural methods of contraception.

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