K23U 0470

Reg. No. : .....

Name : .....

VI Semester B.Sc. Degree (CBCSS – OBE – Regular/Supplementary/ Improvement) Examination, April 2023
(2019 and 2020 Admissions)
CORE COURSE IN BOTANY/PLANT SCIENCE
6B10BOT/PLS : Environmental Science and Phytogeography

Time : 3 Hours Max. Marks : 40

***Instruction : Draw** diagrams **wherever** specified.*

PART – A
(Objective Type Questions)

Answer **all.** **(4×1=4)**

1. Wet land day is celebrated on
   a) March 2 b) January 2
   c) February 2 d) April 2
2. Chiropterophily refers to pollination by
   a) Birds b) Bats
   c) Animals d) Insects
3. Which of the following is a total stem parasite ?
   a) *Striga* b) *Cuscuta*
   c) *Vanda* d) *Loranthus*
4. Which of the following is a Ramsar site ?
   a) Sasthamkotta lake b) Mahe river
   c) Pampa river d) Periyar

PART – B
(Short Essay Questions)

Answer **any eight.** **(8×2=16)**

5. Distinguish between autecology and synecology.
6. Write brief notes on food chain.

P.T.O.

7. Comment on biogeochemical cycles.
8. Explain ecological niche.
9. What are hot-spots of diversity ?
10. Write notes on sustainable development.
11. Define phytogeography.
12. Explain ecotone and edge effect.
13. What are halophytes ? Give example.
14. Comment on decomposers and their role.
15. Explain phytoremediation.
16. What are xerophytes ? Give example.

PART – C

(Essay Questions)

Answer **any four.** **(4×3=12)**

17. Comment on ecological pyramids.
18. Write short notes on importance value index (IVI).
19. Explain the role of sacred groves in biodiversity conservation.
20. What is social forestry ? Mention its role.
21. Write a brief account on Chipko movement.
22. Distinguish between primary and secondary productivity.

PART – D

(Long Essay Questions)

Answer **any one.** **(1×8=8)**

23. Give a detailed account on air pollution, its causes, impacts and control measures.
24. Explain the structure and functioning of ecosystem.
25. Write an account on biodiversity and methods of conservation.

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K23U 0471

Reg. No. : .....

Name : .....

VI Semester B.Sc. Degree (CBCSS – OBE – Regular/Supplementary/ Improvement) Examination, April 2023
(2019 and 2020 Admissions)
CORE COURSE IN BOTANY/PLANT SCIENCE
6B11BOT/PLS : Genetics, Molecular Biology and Plant Breeding

Time : 3 Hours Max. Marks : 40

Instruction : ***Draw*** *diagrams* ***wherever*** *necessary.*

SECTION – A
(Objective Type Questions)

Answer **all** :

1. In Melandrium, type of sex determination is of
   a) XX-XY b) XX-XO
   c) ZZ-ZW d) XY-XO

2. The most common DNA conformation is
   a) Z-DNA b) B-DNA
   c) C-DNA d) A-DNA

3. Site of transcription in cell is
   a) Nucleus b) Ribosomes
   c) Endoplasmic reticulum d) None of the above

4. Sioux, an hybrid crop variety is of
   a) Potato b) Cow-pea
   c) Chilly d) Tomato

(4×1=4)

P.T.O.

SECTION – B
(Short Essay Questions)

Answer **any eight** :

5. Define law of independent assortment.
6. What is meant by co-dominance ? Give example.
7. What is meant by non-epistatic interaction of gene ?
8. Describe the gene interaction in Lathyrus regarding flower colour.
9. Differentiate between penetrance and expressivity.
10. What is Poky in Neurospora ?
11. Differentiate between transition and transversion.
12. Differentiate between centromere and telomere.
13. Define karyotype and ideogram.
14. What are polytene chromosomes ?
15. Distinguish between aneuploidy and euploidy.
16. What is meant by Turner syndrome ?

(8×2=16)

SECTION – C
(Essay questions)

Answer **any four** :

17. Describe eugenics and euphenics in detail.
18. Explain extra-nuclear inheritance in Mirabilis.

19. Describe the mechanism of crossing over.

20. Give an account of action of various mutagens.

21. Write an account of Human genome project and its significance.

22. Explain the mechanism of pest resistance in plants. **(4×3=12)**

SECTION – D
(Long Essay Questions)

Answer **any one** :

23. Explain various evidences for DNA as genetic material.

24. Describe operon concept with suitable examples.

25. Give an account of mutation breeding. **(1×8=8)**

K23U 0472

Reg. No. : .....

Name : .....

VI Semester B.Sc. Degree (CBCSS – OBE – Regular/Supplementary/ Improvement) Examination, April 2023
(2019 and 2020 Admissions)
CORE COURSE IN BOTANY / PLANT SCIENCE
6B12BOT/PLS : Biotechnology and Bioinformatics

Time : 3 Hours Max. Marks : 40

***Instruction** : Draw diagrams **wherever** necessary.*

PART – A

Objective type questions. Answer **all.** **(4×1=4)**

1. A Cellular process in which a differentiated cell loses its special form or function, or reverts to an earlier developmental stage
   a) Dedifferentiation
   b) Redifferentiation
   c) Differentiation
   d) None
2. Artificially encapsulated plant material for propagation
   a) Terminator seeds
   b) Synthetic seeds
   c) Dorminant seeds
   d) None
3. Excision and insertion of gene is called
   a) Gene therapy
   b) Biotechnology
   c) Genetic Engineering
   d) None
4. Golden rice is obtained by genetic engineering to biosynthesize
   a) Special vitamins
   b) Beta-carotene
   c) Harmones
   d) None

P.T.O.

PART – B

Short essay questions. Answer **any eight.** **(8×2=16)**

5. What is the benefits of biotechnology in Agriculture ?
6. What is Golden rice ? In what way it is different from normal rice ?
7. What is redifferentiation and differentiation ?
8. Explain PCR.
9. Mention the uses of Gel electrophoresis.
10. What is molecular DNA marker ?
11. Explain DNA finger printing.
12. Explain ENTREZ.
13. What is the role of *Agrobacterium* in Biotechnology ?
14. Mention the difference between cDNA library and genomic library.
15. Mention the principles of rDNA technology.
16. What is replica plating ?

PART – C

Essay questions. Answer **any four.** **(4×3=12)**

17. Mention the components of MS media.
18. Explain RAPD.
19. Explain Nucleotide sequence database.
20. Describe the role of biotechnology in crop improvement.
21. Write notes on terminator seeds.
22. Explain PBR 322.

PART – D

Long essay questions. Answer **any one.** **(1×8=8)**

23. Explain secondary metabolite production in bioreactors.
24. Explain BLAST in detail.
25. Describe the application of nanotechnology in life sciences.

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K23U 0473

Reg. No. : .....

Name : .....

VI Semester B.Sc. Degree (CBCSS – OBE – Regular/Supplementary/ Improvement) Examination, April 2023
(2019 and 2020 Admissions)
CORE COURSE IN BOTANY/PLANT SCIENCE
6B13BOT/PLS : Evolution and Palaeobotany

Time : 3 Hours Max. Marks : 40

***Instruction : Draw** diagrams **wherever** specified.*

PART – A

Objective type questions. Answer **all**. **(4×1=4)**

1. The term 'microevolution' was coined by
   a) Darwin b) Lammarck
   c) Sumner d) Goldschmidt
2. Genetic drift is
   a) An orderly change in gene frequency
   b) A random change in population size
   c) An orderly change in population size
   d) A random change in gene frequency
3. Which group of plants first developed vessels ?
   a) Angiosperms b) Bryophytes
   c) Pteridophytes d) Gymnosperms
4. Approximate age of earth is
   a) 4.5 m.y. b) 3.5 b.y.
   c) 5000 years d) 4.5 b.y.

PART – B

Short essay questions. Answer **any eight**. **(8×2=16)**

5. Compare impressions and compressions.
6. Describe *Homo erectus*.

P.T.O.

7. Define Triticale.
8. Differentiate monophyly and polyphyly.
9. Explain Germplasm theory.
10. Enlist the differences between apes and humans.
11. Explain species concept.
12. Mention the impacts of crop domestication.
13. Write a note on factors affecting gene frequency in a population.
14. Explain how hybridization is linked to evolution.
15. Describe the evolutionary changes happened during the formation of Pteridophytes.
16. Mention the formation of embryo in the course of plant evolution.

PART – C

Essay questions. Answer **any four.** **(4×3=12)**

17. Summarize the contributions of Bribal Sahni in the field of Palaeobotany.
18. Describe Hardy-Weinberg law.
19. Enumerate molecular evidences for Darwinism.
20. Prepare a note on Phylogenetic trees with suitable diagram.
21. Explain the role of polyploidy in the process of evolution.
22. Explain sympatric speciation.

PART – D

Long essay questions. Answer **any one.** **(1×8=8)**

23. Discuss the characteristics of *Lyginopteris* with suitable diagrams.
24. Write an essay on the background and postulates of Darwin's Natural Selection theory.
25. Describe how gene sequences are playing crucial role in studying the evolution of a species.