



বিদ্যাসাগর বিশ্ববিদ্যালয়
VIDYASAGAR UNIVERSITY
Question Paper

B.Sc. Honours Examinations 2022
(Under CBCS Pattern)
Semester - VI
Subject: BIOTECHNOLOGY
Paper : DSE 3-T

Full Marks : 40
Time : 2 Hours

*Candidates are required to give their answer in their own words as far as practicable.
The figures in the margin indicate full marks.*

(Animal Diversity - II)

Group - A

- A. Answer any **four** questions from the following : 5×4=20
1. Discuss the classification of protochordate with proper examples of each group. 5
 2. Describe with a suitable diagram of the *Branchiostoma* digestive system. 5
 3. Write a short note on retrogressive metamorphosis in *Herdmenia*. 5
 4. Write a short note on bird migration. 5
 5. Discuss the difference between *Chondrichthyes* and *Osteichthyes* with proper examples. Write a short note on Anadromus like fish migration with a example. 3+2

6. Write a short note on Order-Urodela with a proper example. Discuss Neoteny and Paedogenesis of amphibia with examples. 2+3

Group - B

B. Answer any *two* questions from the following : 10×2=20

1. Write a brief note on reptilian classification based on fossa or fossae of the reptilian skull. Discuss the difference between Megachiroptera and Microchiroptera. Discuss marsupials with examples. 5+3+2
 2. Write a short note on the anatomy of the teleost heart with a diagram. Discuss the aortic arches of the frog with a diagram. 5+5
 3. Discuss Prosonephric, Mesonephric, and Metanephric kidneys with examples. Write difference between Ratitae and Carinate. Describe flight adaptations of birds with respect to anatomical adaptation. 6+2+2
 4. Write a short note on functional divisions of the autonomic nervous system in mammals. Write a short note on dentitions in Vertebrates based on the type of attachment of teeth on the jaw bone. Discuss Bunodont and Lophodont with examples. 5+3+2
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Or,

(Plant Biotechnology)

Group - A

A. Answer any *four* from the following questions : 5×4=20

1. Define callus. Mention the types of callus. Add a note on the significance of callus culture.
2. Write briefly about 'organogenesis' and 'encapsulation of embryo'.
3. Briefly explain the various sterilization techniques in plant tissue culture.
4. Write down the steps involved in cryopreservation.
5. What are somaclonal variations ?
6. How artificial seeds can be produced under in-vitro condition ?

Group - B

B. Answer any *two* from the following questions : 10×2=20

1. Give an account of somatic hybridization. Add a note on its significance.
 2. Write short notes on Meristem culture and Anther culture.
 3. How *Rhizobium* interacts with legume plants.
 4. How protoplast is isolated, fused and cultured ?
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Or,

(Plant Diversity - I)

Group - A

1. Answer any *four* questions : 5×4=20
- (a) Write short notes on : (i) Archegoniophore of *Marchantia*, (ii) Basidium of *Agaricus*. 2.5×2=5
- (b) Differentiate between rust and smut. Name the causal organism of rust and smut disease of wheat. 3+2=5
- (c) Describe the different types of life cycle of Algae. 5
- (d) Write down the symptoms and control measures of late blight of potato. 2+3=5
- (e) Differentiate between ascomycotina and basidiomycotina. 5
- (f) Write down the structure of capsule of *Funaria* with suitable diagram. 5

Group - B

2. Answer any *two* questions : 10×2=20
- (a) What is reindeer moss ? Compare crustose, foliose and fruticose lichen. Write down the economic importance of lichen. 1+3+6=10
- (b) Describe the life cycle of *Phytophthora infestans* with suitable diagram. 10
- (c) Describe the disease cycle and control measures of *Citrus canker*. 6+4=10
- (d) Write down the economic importance of Algae. 10
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