



'সমানো মন্ত্র: সমিতি: সমানী'

UNIVERSITY OF NORTH BENGAL
B.Sc. Programme 5th Semester Examination, 2021

DSE1/2/3-P1-ZOOLOGY

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

**The question paper contains three parts GROUP-A, GROUP-B and GROUP-C.
The candidates are required to answer any *one* from *three* groups.
Candidates should mention it clearly on the Answer Book.**

GROUP-A

ANIMAL BIOTECHNOLOGY

1. Answer any **five** questions from the following: 1×5 = 5
 - (a) Animal cell culture are widely used to produce — Insulin / Thyroxine.
 - (b) The first successfully cloned animal from somatic cells was _____.
 - (c) Which enzyme is termed as 'molecular glue'?
 - (d) Define totipotency.
 - (e) Write the causes of cystic fibrosis.
 - (f) Define monoclonal antibody.
 - (g) Expand YAC and MAC.
 - (h) Write one significance of making knockout mice.

2. Answer any **three** questions from the following: 5×3 = 15
 - (a) Describe the transformation technique using calcium chloride.
 - (b) Describe the DNA microinjection technique used for producing transgenic animals.
 - (c) Write the characteristics of an expression vector.
 - (d) Write down the steps for setting up primary cell culture.
 - (e) Describe the technique of DNA sequencing by Sangar method.

3. Answer any **two** questions from the following: 10×2 = 20
 - (a) Write on the nomenclature of restriction endonuclease. Discuss in detail about the Type II restriction enzyme. Add a short note on cDNA library. 2+6+2
 - (b) State the different applications of transgenic animals in production of pharmaceuticals and production of donor organs. 6+4

- (c) Describe the principles and procedure of PCR used in laboratories. Write on the applications of PCR in medical science. 3+4+3
- (d) What is recombinant DNA technology? Describe the characteristics of different cloning vectors. 2+8

GROUP-B

APPLIED ZOOLOGY

1. Answer any **five** questions from the following: 1×5 = 5
- What is definitive host?
 - Write the scientific name of tea mosquito bug.
 - What is haemozoin?
 - Mention two important precautions followed in transportation of fish seeds.
 - What do you mean by filariform larva?
 - State two control measures of *Xenopsylla cheopis*.
 - Give two examples of exotic fish.
 - What is zoonosis?
2. Answer any **three** questions from the following: 5×3 = 15
- Write a note on the transmission and prevention of typhoid.
 - Describe the life history of *Entamoeba histolytica*.
 - Write short note on artificial insemination in cattle.
 - State the medical importance and control of *Aedes*.
 - Write down the principles of breeding in fowls.
3. Answer any **two** questions from the following: 10×2 = 20
- Write about the biology, control and damage caused by *Sitophilus oryzae*. 6+2+2
 - Describe the life cycle of *Plasmodium vivax* with suitable diagram.
 - Give a brief account on pathogenicity of *Taenia solium* and *Anchylostoma duodenale*. 5+5
 - Illustrate polyculture in fish farming with examples and discuss its merits over other methods. 7+3

GROUP-C

AQUATIC BIOLOGY

1. Answer any **five** questions from the following: 1×5 = 5
- Define lotic ecosystem.
 - Define phytoplankton.
 - Expand: CZM.

(d) Which of the following is a mismatch?

- (i) Benthic zone-Terrestrial area (ii) Littoral zone-near the shore
(iii) Limnetic zone-open and well-lit area (iv) None of these

(Choose the correct option)

(e) The colour of the water is measured using the _____ scale. (Fill in)

(f) What do you mean by turbidity?

(g) What is the cause for hardness in water?

(h) What is cold light?

2. Answer any **three** questions from the following: 5×3 = 15

(a) Briefly describe the structure of wetland ecosystem.

(b) What is BOD? Differentiate BOD from COD. 2+3

(c) Write a note on the nitrogen cycle in lakes.

(d) Explain in brief the theories of coral reef formation.

(e) Describe the preliminary treatment methodology of sewage treatment process.

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

(a) Discuss the adaptations found in deep sea organism. Mention the impacts of salinity on aquatic organisms. 7+3

(b) What are the sources of marine pollution? Explain its control measures. 5+5

(c) Give a brief account of intertidal zone. Briefly describe the different types of organisms in estuaries. 6+4

(d) Describe the light stratification found in lakes. Mention the impact of turbidity in lakes. 6+4

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