



'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL

B.Sc. Programme 5th Semester Examination, 2021

SEC2-P1-ZOOLOGY

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

**The question paper contains Group-A and Group-B.
The candidates are required to answer any *one* from *two* Groups.
Candidates should mention it clearly on the Answer Book.**

GROUP-A

APICULTURE

1. Answer any **five** questions from the following: 1×5 = 5
 - (a) What is a pollen basket?
 - (b) Write the systematic position of *Apis*.
 - (c) What is Royal Jelly?
 - (d) What is Bee Wax?
 - (e) Write the scientific name of Rock Bee.
 - (f) Define swarming.
 - (g) What is Propolis?
 - (h) Write two salient features of *Apis dorsata*.

2. Answer any **three** questions from the following: 5×3 = 15
 - (a) Write a brief note on Bee Pasturage.
 - (b) Write in brief on the cause, symptoms and diagnosis of Chalk brood.
 - (c) Write about different casts of honey bee in a colony with their morphological differences along with their activities in a colony.
 - (d) Write about Round dance and Waggle dance of honey bee which act as method of communication.
 - (e) What are the selective characteristics of honey bees for apiculture?

3. Answer any **two** questions from the following: 10×2 = 20
 - (a) Describe different stages of life cycle of Honey bee along with a neat diagram.
 - (b) Describe Langstroth hive in detail. State its advantages over the other bee hive types. 5+5

- (c) Describe in detail the names and uses of different products of apiculture.
- (d) Name one prevalent bacterial and one protozoan disease of honey bee. Mention their causative agents, pathogenesis, symptoms and control measures. $2 \times 5 = 10$

GROUP-B

AQUARIUM FISH KEEPING

1. Answer any **five** questions from the following: $1 \times 5 = 5$
- (a) Give an example of invasive ornamental fish.
 - (b) What is the purpose of using aerators in aquarium?
 - (c) Write the name of an antibacterial agent used in fish transportation.
 - (d) How do you remove chlorine from water?
 - (e) Name one rooted and one floating plant used in aquarium.
 - (f) Give scientific name of Angel fish.
 - (g) What is living capsule of nutrition?
 - (h) What is the generally accepted ratio of male and female fish for breeding purpose?
2. Answer any **three** questions from the following: $5 \times 3 = 15$
- (a) Elucidate briefly the potential scope of the aquarium fish keeping industry as a cottage industry.
 - (b) Analyze the potential of aquarium fishes as larval predators.
 - (c) Describe the common characteristic features of molly and anemone fish.
 - (d) Name the causative agent, symptoms and treatment measures of two protozoan diseases.
 - (e) Outline the process of *Artemia* culture.
3. Answer any **two** questions from the following: $10 \times 2 = 20$
- (a) What do you mean by open and closed system of fish transport? Mention the principles and factors which are associated with fish transport. How do you transport brood fish? $2+5+3$
 - (b) Write down the essential accessories that are required for an aquarium. Mention the vital parameters to test routine aquarium maintenance. What are the basic requirements to start ornamental fish farming business? $4+2+4$
 - (c) How would you build a good aquarium? Which factors will affect the water quality of an aquarium? $5+5$
 - (d) Write about the preparation procedure of formulated fish feed. What is the composition of fish food that are used in aquariums? $6+4$

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