

“Dissemination of Education for Knowledge, Science and Culture”

-Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur (Empowered Autonomous)

Department of Zoology

Academic Year: 2025-26

Date: 09/08/2025

Notice

All students of B.Sc. II Minor are hereby informed that your open book test for paper **Ethology** is scheduled on 16/08/2025. As per the part of continuous evaluation attendance is compulsory to all.



Ms. P. S. Shetfalkar

Teacher Incharge



Dr. G. K. Sontakke

HEAD
DEPARTMENT OF ZOOLOGY
VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)

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B.Sc. II Sem III (Minor)

Paper- Ethology

Open Book Test

Question 1. Explain schooling in fish

10M

OR

Question 1. What is the mating system? Explain in detail the male and female mating system

10M


Ms. P. S. Shetfalkar
Teacher Incharge

B. Sc II Sem III (Minor) 2025-26

Paper - Ethology

Open Book Test.

7902	1.	Siya Kailas More	More	7902
	2.	Tasneem Bhola Nadaf	T.B. Nadaf.	7907
	3.	Smran Mahamad Pendhari	Smr	7906
7903	4.	Asiya Dastgir Nadaf	Asiya.	7903
7900	5.	Pratiksha Prashant Kulkarni	Kulkarni.	7900
7905	6.	Sheeya Sunil Patil	Patil	7905
7961	7.	Vaidchi A. Pable	Pable	7961
7964	8.	Chhavi R. Yadav	Chhavi	7964
7893	9.	Aradhya S. Mohite	P.S. Mohite.	7893.
7823	10.	Swati. A. Patil	Patil	7823
7821	11.	Aditi. J. Patil	Patil	7821
7822	12.	Pranali. M. Patil	Pranali	7822


Head

Department of Zoology
Vivekanand College Kolhapur
(An Empowered Autonomous Institute)



॥ ज्ञान, विज्ञान आणि सुसंस्कार यासाठी शिक्षण प्रसार ॥

- शिक्षणमहर्षी डॉ. बापूजी साळुंखे

VIVEKANAND COLLEGE, KOLHAPUR.
(Empowered Autonomous)

SUPPLIMENT

Jr. Supervisor's Sign. : *[Signature]*Students Sign. : *[Signature]*

Seat No. : 7902

Seat No. in words :

Suppliment No. :

8898

Centre - VCK

प्र. क्र.
Q. No.

1. Explain Schooling in fishes.

(10m)

2. What is the mating system? Explain in detail male & female mating system.

Ans:- 1]

Definition:- Schooling is a social behaviour in which fish swim together in the same direction in a coordinated and organized manner. It is a common phenomenon in many fish species and offers several evolutionary advantages.

• Key Characteristics of Schooling

- Coordination :- Fish maintain a precise distance from their neighbours.
- Uniformity :- All fish swim in the same direction and respond rapidly to changes in movement.
- Structure :- The school often appears as a single, unified shape that can change dynamically.

• Mechanism Behind Schooling in Fishes -

Fish rely on multiple sensory inputs to maintain cohesion and coordination.

1. Sensory Systems Involved-

02	Section	Q. No.																	
		Marks																	

प्र. क्र.
Q. No.

a) Lateral line system

b) Vision

c) Olfaction (Smell)

d) Hearing

2. Neural and Cognitive Processing

- Fish brains contain specialized neural circuits to process motion cues from neighbors.

- They make rapid decisions based on:-

i) Attraction (to stay with the group)

ii) Repulsion (to avoid collisions)

iii) Alignment (to move in the same direction.)

- This "local rule-based" decision making leads to emergent collective behaviour.

3. Behavioral Rules (Self-organizing Principles)

Most schooling behaviour can be explained by three simple interaction zones:-

1) Repulsion zone

2) Alignment zone

3) Attraction zone

- Fish constantly adjust their position based on these zones relative to others.

4. Communication

Although fish don't use complex sounds or gestures like mammals or birds, they communicate via:-

- Body posture and movement changes.

- Fish patterns (from reflective scales, especially)

