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FOR GOA CLASS 12 PREPARATION

Goa Board Class 12 Syllabus 2027 Biology Practical

EXAM	YEAR	TYPE	SUBJECT
Goa Class 12	2027	Syllabus	Biology

SYLLABUS OF BIOLOGY PRACTICAL – CLASS XII (2026-27)

Duration of practical examination – 3 Hours

Maximum marks – 20 marks

List of Experiments

Section A – Physiology Experiment (06 Marks)

1. To determine the pH and water holding capacity of garden or paddy field soil.
2. To detect presence of phosphate, nitrate and sulphate salts in paddy field soil.
3. To study B.O.D. of the given sample of pond water.
4. To study the effect of different temperature on the action of salivary amylase on starch.
5. To study the effect of different pH on the action of salivary amylase on starch.

Section B – Preparation of temporary stained slide (04 Marks)

1. Onion root tip for mitosis
2. Onion/Rheo anther for meiosis.

Section C – Identification/Spotting (06 marks)

1. Adaptations in insect pollinated flower (*Ocimum*/*Leucas*/*Salvia*)
2. Adaptations in wind pollinated flower (Maize/Grass)
3. Study of T.S. of Testis (Any vertebrate)
4. Study of T.S. of Ovary (Any vertebrate)
5. Study of V.S. of Blastula (Any vertebrate)
6. Prepared pedigree chart of inability to roll the tongue.
7. Prepared pedigree chart of Widow's peak.
8. Identification of organisms, disease and symptoms caused.
   a. *Ascaris lumbricoides*
   b. *Entamoeba histolytica*
   c. *Plasmodium vivax*
9. Adaptation of plant to dry condition (e.g. Opuntia/ Cactus)
10. Adaptation of plant to aquatic condition (e.g. Water Hyacinth/Hydrilla/Lotus)
11. Adaptation of animal to dry condition (e,g, Desert Lizard/Kangaroo Rat specimen/chart/ Photograph to be given)
12. Adaptation of animal to aquatic condition (e.g Rohu Fish)
13. Identification of homologous organs in plants (eg. Thorn in bougainvillea and tendril of cucurbita)
14. Identification of homologous organs in animals (eg. forelimb of frog and wings of bird/bat)
15. Identification of analogous organs in plants (eg. potato and sweet potato)
16. Identification of analogous organs in animals (eg. wing of bat and wings of butterfly)

Section D- Laboratory record/Journal and Viva (04 marks)

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Biology Practical's Class XII (Academic year 2026-27)

1) Duration of practical examination – 3 Hours
2) Maximum marks – 20 marks

Instructions and Marking Scheme

Section A- Physiology Experiments **(06)**

1. **To determine pH and water holding capacity of Garden or Paddy field soil.**
   - Brief procedure, working and set-up of experiment. 02
   - Systematic recording of data and noting the observations with calculations. (no using calculator) 02
   - Inference 01
   - Precautions 01

2. **To test for the presence of Nitrate, Phosphate and Sulphate salts in paddy field soil.**
   - Control- Distilled water
   - Experiment- Soil extract with Nitrate, Phosphate and Sulphate
   - Brief procedure, working and set-up of experiment. 02
   - Systematic recording of data and noting the observations. 02
   - Inference 01
   - Precautions 01

3. **To study B.O.D. of Pond water sample**
   - Control- Tap water
   - Experiment- Pond water
   - Brief procedure, working and set-up of experiment. 02
   - Systematic recording of data and noting the observations with calculations. (no using calculator) 02
   - Inference 01
   - Precautions 01

4. **To study the effect of temperatures on activity of Salivary amylase**
   - Brief procedure, working and set-up of experiment. 02
   - Systematic recording of data and noting the observations. 02
   - Inference 01
   - Precautions 01

5. **To study the effect of pH on activity of Salivary amylase**
   - Brief procedure, working and set-up of experiment. 02
   - Systematic recording of data and noting the observations. 02
   - Inference. 01
   - Precautions. 01

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	Section B – Preparation of temporary stained slide		**(04)**
1.	**Onion root tip for Mitosis**		
	Preparation and staining of Mount		01
	Identification of the stage/stages		01
	Correct diagram and labelling		01
	Identifying features (any two)	½ mark each	01
2.	**Onion/Rheo anther for meiosis**		
	Preparation , staining of Material and mounting		01
	Identification of the stage/stages		01
	Correct diagram and labelling		01
	Identifying features (Any Two)	½ mark each	01
	Section C – Identification/Spotting		**(06)**
A]	**Adaptations in insect/ wind pollinated flowers**		01
1.	**Adaptations in insect pollinated flower (Ocimum/Leucas/Salvia)**		
2.	**Adaptations in wind pollinated flower (Maize/Grass)**		
	Identification		½ mark
	Description		½ mark
B]	**Study of permanent histology slides**		01
1.	**Study of T.S. of Testis (Any vertebrate)**		
2.	**Study of T.S. of Ovary (Any vertebrate)**		
3.	**Study of V.S. of Blastula (Any vertebrate)**		
	Identification		½ mark
	Description or sketch and label		½ mark
C]	**Identification of organisms, disease and symptoms caused.**		01
	a) Ascaris lumbricoides		
	b) Entamoeba histolytica		
	c) Plasmodium vivax		
	Identification of disease causing organism		½ mark
	Disease and its symptoms		½ mark
D]	**Study of adaptation of plant/animal to dry/ aquatic conditions.**		01
1.	**Adaptation of plant to dry condition (Suitable live specimen to be given)**		
2.	**Adaptation of animal to dry condition (Photograph to be given as kangaroo Rat is a rare species and specimen is not available)**		

3. **Adaptation of plant to aquatic condition (Suitable live specimen to be given)**
4. **Adaptation of animal to aquatic condition (Suitable preserved specimen to be given)**

Identification ½ mark
Comment on the adaptation ½ mark

- **Do not use plastic models of above specimens.**

E] **<u>Study of prepared pedigree charts</u>** 01

1. **Prepared pedigree chart of inability to roll the tongue.**
2. **Prepared pedigree chart of Widow's peak.**

Identification of the trait ½ mark
Comments on the pedigree chart ½ mark

- **Only pedigree chart to be kept. Do not keep picture of the trait**

F] **Study of homologous and analogous organs in plants and animals** 01

Identification of the organ ½ mark
Comments on the evolutionary relationship ½ mark

Section D- Laboratory record/Journal and Viva **(04)**

1. Completed and certified Journal 02
2. Viva voice 02