



WELCOME TO THE WORLD OF BIOLOGY

ORIENTATION SESSION

Grade XI

Session 2020-21

Biology

Subject Code: 044



Objectives of Learning



Understand basic principles of Biology



Learn emerging knowledge and its relevance to individual and society



Promoting rational/scientific attitude towards issues related to population, environment and development



Awareness about environmental issues, problems and their appropriate solutions



Awareness about diversity in the living organisms and developing respect for other living beings



Understand that most complex biological phenomena are built on essentially simple processes



What to Learn! (THEORY)

Total
70 Marks
(THEORY)

UNIT 1 Diversity of Living Organisms

- **Chapter 1** The Living World
- **Chapter 2** Biological Classification
- **Chapter 3** Plant Kingdom
- **Chapter 4** Animal Kingdom

7 Marks

UNIT 2 Structural Organization in Plants and Animals

- **Chapter 5** Morphology of Flowering Plants
- **Chapter 6** Anatomy of Flowering Plants
- **Chapter 7** Structural Organization in Animals

12 Marks

UNIT 3 Cell: Structure and Function

- **Chapter 8** Cell-The unit of Life
- **Chapter 9** Biomolecules
- **Chapter 10** Cell cycle & Cell Division

15 Marks

UNIT 4 Plant Physiology

- **Chapter 11** Transport in Plants
- **Chapter 12** Mineral Nutrition
- **Chapter 13** Photosynthesis in Higher Plants
- **Chapter 14** Respiration in Plants
- **Chapter 15** Plant – Growth & Development

18 Marks

UNIT 5 Human Physiology

- **Chapter 16** Digestion & Absorption
- **Chapter 17** Breathing & Exchange of Gases
- **Chapter 18** Body Fluids & Circulation
- **Chapter 19** Excretory Products & Their Elimination
- **Chapter 20** Locomotion & Movement
- **Chapter 21** Neural Control & Coordination
- **Chapter 22** Chemical coordination & Integration

18 Marks



What to Learn! (PRACTICAL)

**Total
30 Marks
(PRACTICAL)**

**One Major Experiment
Part A**

• Experiment No. **1,3,7 & 8**

5 Marks

**One Minor Experiment
Part A**

• Experiment No. **6, 9, 10 11, 12 & 13**

4 Marks

**Slide Preparation
Part A**

• Experiment No. **2, 4 & 5**

5 Marks

**Spotting
Part B**

7 Marks

Practical Record + Viva Voce

4 Marks

Project Record + Viva Voce

5 Marks



What to Learn! (PRACTICAL) contd.

Part A List of Experiments

1. Study and description of three locally available common flowering plants, one from each of the families Solanaceae, Fabaceae and Liliaceae (Poaceae, Asteraceae or Brassicaceae can be substituted in case of particular geographical location) including dissection and display of floral whorls, anther and ovary to show number of chambers (floral formulae and floral diagrams). Types of root (Tap and adventitious); stem (herbaceous and woody); leaf (arrangement, shape, venation, simple and compound).
2. Preparation and study of T.S. of dicot and monocot roots and stems (primary).
3. Study of osmosis by potato osmometer.
4. Study of plasmolysis in epidermal peels (e.g. Rhoeo leaves).
5. Study of distribution of stomata in the upper and lower surface of leaves.
6. Comparative study of the rates of transpiration in the upper and lower surface of leaves.
7. Test for the presence of sugar, starch, proteins and fats. Detection in suitable plant and animal materials.
8. Separation of plant pigments through paper chromatography.
9. Study of the rate of respiration in flower buds/leaf tissue and germinating seeds.
10. Test for presence of urea in urine.
11. Test for presence of sugar in urine.
12. Test for presence of albumin in urine.
13. Test for presence of bile salts in urine.

Part B Study/Observation (Spotting)

1. Study of the parts of a compound microscope.
2. Study of the specimens/slides/models and identification with reasons - Bacteria, Oscillatoria, Spirogyra, Rhizopus, mushroom, yeast, liverwort, moss, fern, pine, one monocotyledonous plant, one dicotyledonous plant and one lichen.
3. Study of virtual specimens/slides/models and identification with reasons - Amoeba, Hydra, liverfluke, Ascaris, leech, earthworm, prawn, silkworm, honeybee, snail, starfish, shark, rohu, frog, lizard, pigeon and rabbit.
4. Study of tissues and diversity in shapes and sizes of plant and animal cells (palisade cells, guard cells, parenchyma, collenchyma, sclerenchyma, xylem, phloem, squamous epithelium, muscle fibers and mammalian blood smear) through temporary/permanent slides.
5. Study of mitosis in onion root tip cells and animals cells (grasshopper) from permanent slides.
6. Study of different modifications in roots, stems and leaves.
7. Study and identification of different types of inflorescence (cymose and racemose).
8. Study of imbibition in seeds/raisins.
9. Observation and comments on the experimental set up for showing:
 - a) Anaerobic respiration
 - b) Phototropism
 - c) Effect of apical bud removal
 - d) Suction due to transpiration
10. Study of human skeleton and different types of joints with the help of virtual images/models only.
11. Study of external morphology of cockroach through virtual images/models.



Question Paper Design!

Total Time 3 hours

Max. Marks 70

S.No.	Typology of Questions	Very Short Answer (VSA) (1 mark)	Short Answer-I (SA-I) (2 marks)	Short Answer-II (SA-II) (3 marks)	Long Answer (LA) (5 marks)	Total Marks	% Weightage
1	Remembering- (Knowledge based Simple recall questions, to know specific facts, terms, concepts, principles, or theories, Identify, define, or recite, information)	2	1	1	-	7	10%
2	Understanding- (Comprehension -To be familiar with meaning and to understand conceptually, interpret, compare, contrast, explain, paraphrase information)	-	2	4	1	21	30%
3	Application (Use abstract information in concrete situation, to apply knowledge to new situations, Use given content to interpret a situation, provide an example, or solve a problem)	-	2	4	1	21	30%
4	High Order Thinking Skills (Analysis & Synthesis)- Classify, Compare, Contrast, or differentiate between different pieces of information, Organize and/or integrate unique pieces of information from a variety of sources	2	1	1	1	12	17%
5	Evaluation- (Appraise, judge, and/or justify the value or worth of a decision or outcome, or to predict outcomes based on values)	1	1	1	-	9	13%
Total		5X1=5	7X2=14	12X3=36	3X5=15	70(27)	100%



Question Paper Design (Ques Type Break-up)

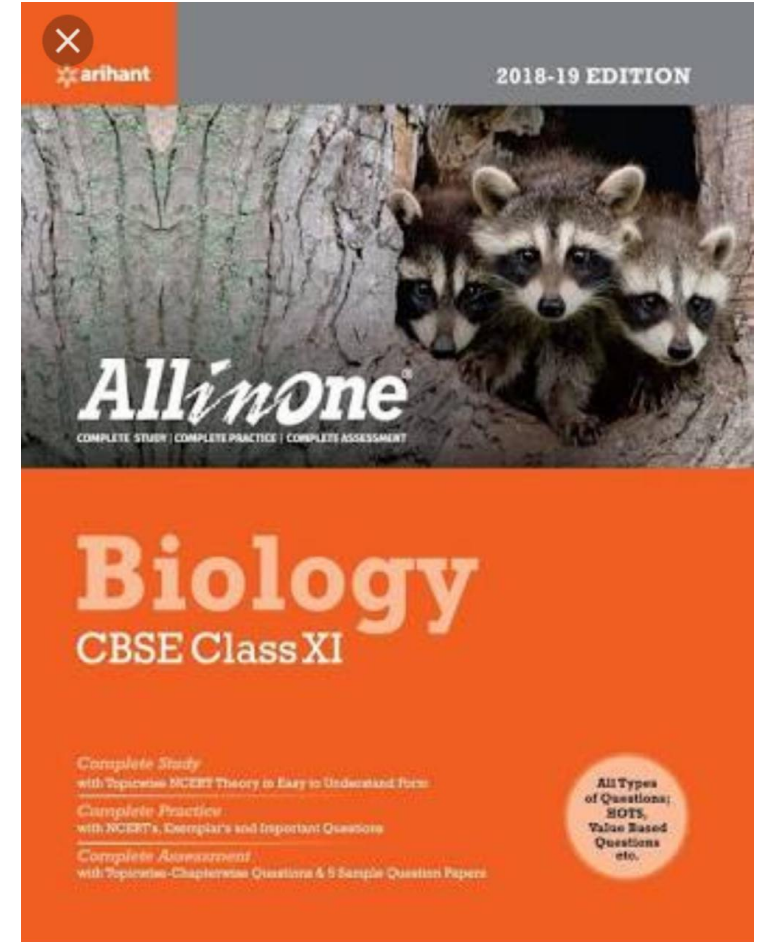
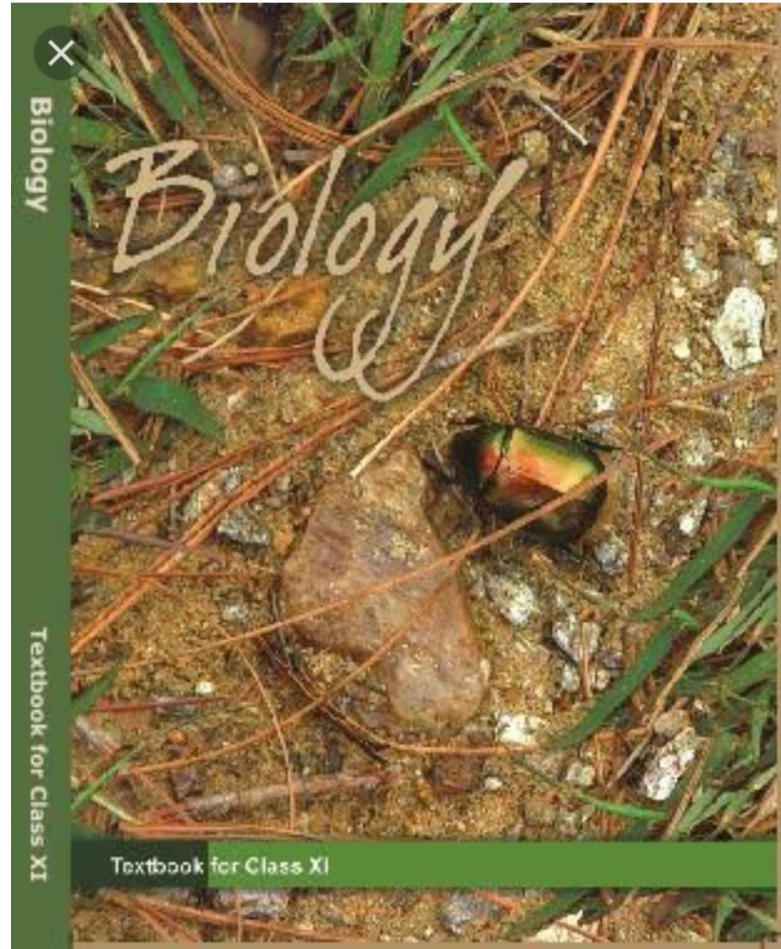
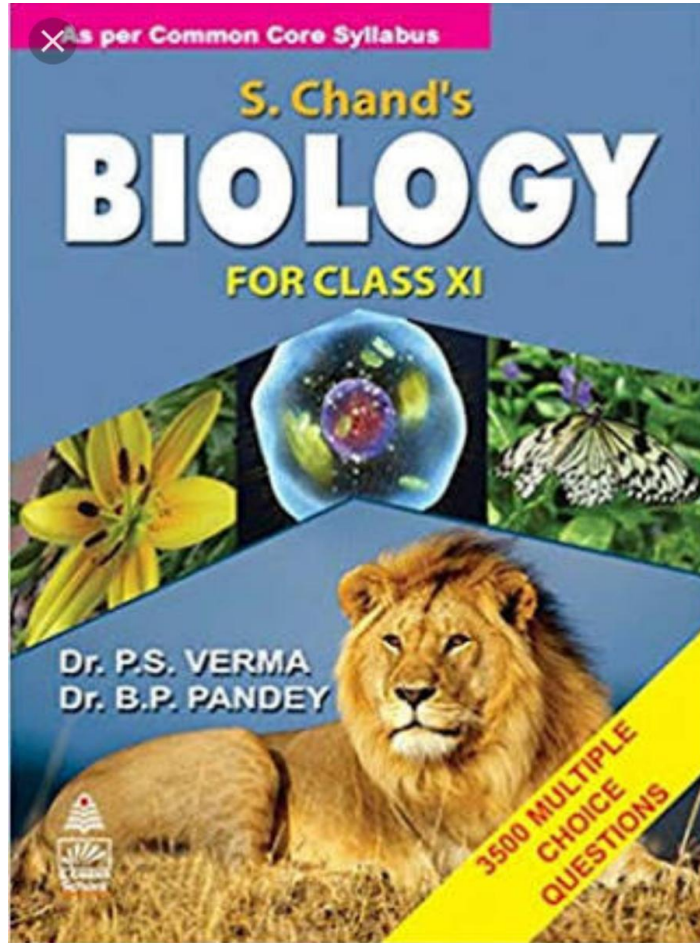
Type of Question	Mark(s) per Question	Total No. of Questions	Total Marks
VSA	1	5	5
SA-I	2	17	14
SA-II	3	12	36
LA	5	3	15
Total		27	70

1. **Internal Choice:** There is no overall choice in the paper. However, there is an internal choice in one question of 2 marks weightage, one question of 3 marks weightage and all three questions of 5 marks weightage.

2. The above template is only a sample. Suitable internal variations may be made for generating similar templates keeping the overall weightage to different form of questions and typology of questions same.



Textbooks to Refer





Glorifying Career



MEDICAL & HEALTHCARE SERVICES

Doctor

Para medical

Veterinary Sciences

Pharmaceutical

Physiotherapy

Radiography

Nutrition & Dietetics

Rehabilitation Therapy



SCIENCE & RESEARCH

Food technology

Biomedical Engg.

Biotechnology

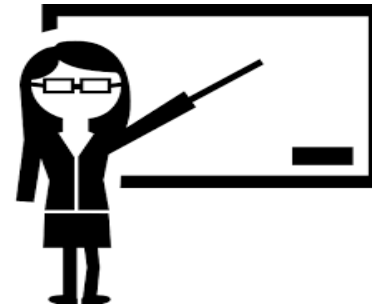
Micro Biology

Bio Chemistry

Agriculture

Fisheries Science

Scientist



ACADEMICIANS

Teacher

Professor

Research fellowship

Doctorate



CIVIL SERVICES

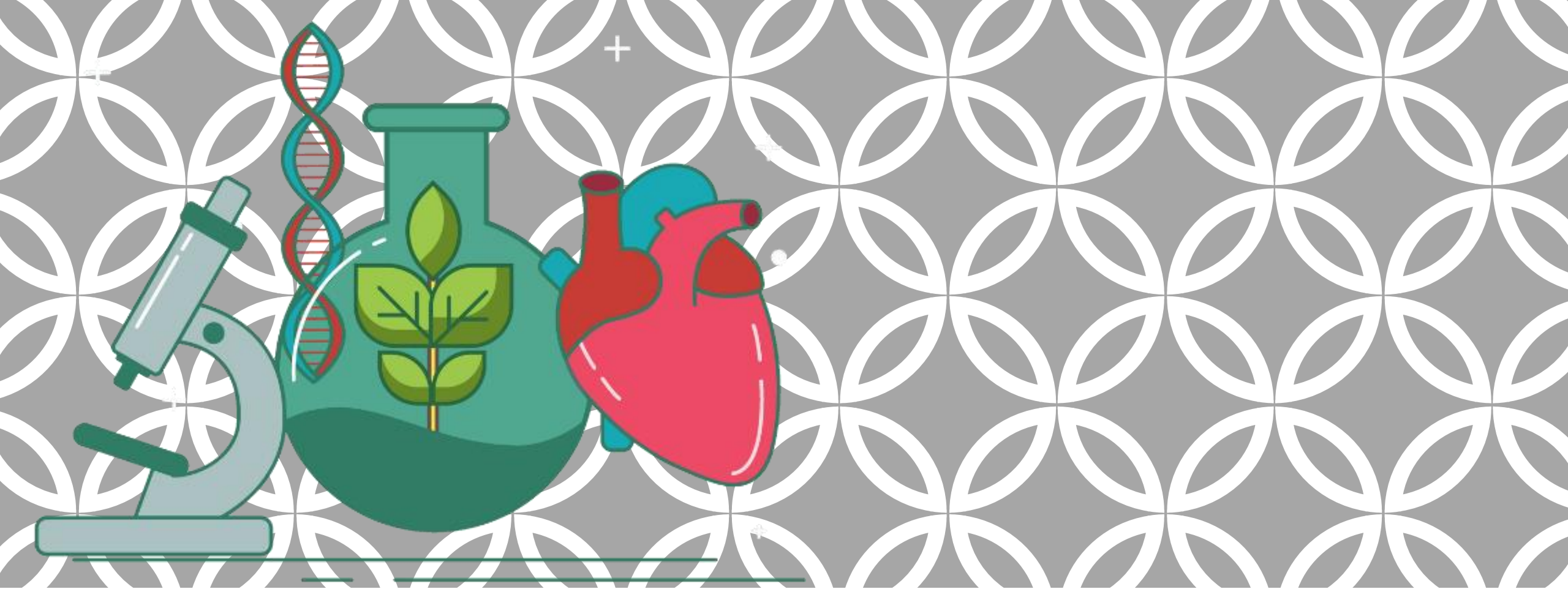
IAS

IPS

Bureaucrat

Intelligence Services

And Lot many more!!!



THANK YOU

All the Best & Happy Learning