

## **B-201-C: PEDAGOGY OF BIOLOGICAL SCIENCE**

**Internal Assessment:** 30 marks

**External Assessment:** 70 marks

**Note:** The Question paper is divided into four sections. Section-A contains Multiple Choice Objective questions of one mark each. Section-B contains Very Short Answer questions of 2 marks each, Section-C contains Short Answer questions of four marks each and Section-D contains Long Answer questions of 15 marks each. Attempt all questions of Section-A and Section-B, any five questions out of seven from Section-C and two questions out of four from Section-D. Answer of very short answer questions (section-B) should be maximum of 25 words only. Answer of short answer questions (section-C) should not exceed 150 words.

### **Objectives**

The pupil teacher will be able:

- To understand the nature of Biology its aims, values & objectives of teaching Biological sciences.
- To develop the conceptual understanding related to pedagogy of Biological sciences in context of school and learner.
- To equip student teacher to promote understanding of Biological sciences in learners.
- To organize pedagogic study of Biological sciences at school level in collective way.
- To enrich knowledge and teaching competencies for conducting theory and practical lessons.
- To equip pupil teacher with necessary skills for acting as co-constructor of knowledge.

### **UNIT-I: DEVELOPMENT OF BIOLOGICAL SCIENCE AND PURPOSE OF ITS TEACHING**

- Biology as a discipline: Nature, scope and importance.
- Development of Biology in Indian and International context: Landmark discoveries
- Need and significance of teaching Biology, Aims and objectives of teaching biological science.
- Qualities and competencies of an effective Biology teacher.

### **UNIT –II: CURRICULUM DEVELOPMENT**

- Place of Biology in school curriculum.
- Correlation of Biology with other school subjects.
- Organization of Biology curriculum: Principles, selection and sequencing of content.
- Critical analysis of biological curriculum and textbook at upper primary, secondary and senior secondary level.

### **UNIT- III: METHODS AND STRATEGIES OF BIOLOGICAL SCIENCE TEACHING**

- Methods of teaching Biological science: Autocratic- Lecture, Explanation, Demonstration and Question-Answer. Democratic- Observation, Inductive, Deductive, Enquiry, Experimentation, Problem-solving, Heuristic, Project, Laboratory, Field visit.
- Techniques of teaching Biology: Assignment, Self study, Group discussion, Role playing, Supervised study, Programmed learning.
- Audio-visual aids, Improvised apparatus and ICT for Biological science teaching.
- Unit plan and lesson planning based on using 6e's (Engage, Explore, Explain, Elaborate, Evaluate, Extend).

### **UNIT- IV: EVALUATION & ASSESSMENT**

- Evaluation in Biology: need, importance and types-Formative, Summative and Continuous and comprehensive.
- Techniques of evaluation for Biological science.
- Teaching of Gifted and Backward students of biology –their Identification, characteristics and provision for education, diagnostic work and remedial teaching.
- Organization of school activities related to Biology and their relevance.

### **PRACTICUM**

- Content analysis and Framing Content as per Programme instruction and CAI
- Development of lesson plan based on 6e's (Engage ,Explore, Explain ,Elaborate, Evaluate, Extend) with the help of ICT.
- Preparation of teaching aids and improvised apparatus
- Collection of various audio and video clippings with reference to content.
- Assignment
- Group discussion
- Preparation of Achievement and Diagnostic test.

- Organizing activities such as eco clubs, science fair and exhibition at school level.

**Suggested Readings**

- Vaidya N., Science Teaching for the 21<sup>st</sup> Century, Deep and Deep Publishers, 1999.
- Sashi Kiran Pandey:Teaching of Science: R.Lall Book Depot, Merrut.2011.
- Mangal, S.K., Teaching of Science, New Delhi: Arya Book Depot, 1992.
- Agarwal, D.D., Modern Methods of Teaching Biology, New Delhi, Sorup and Sons, 2002