

**Detailed Syllabus for the post of Lecturer in Life Sciences in Kerala  
General Education (DIET) (Cat.Nos:368/22, 369/22)**

**PART I - General Subject (50 Marks)**

**Module 1 : Community Engagement ±Resources & Practices**

**Total: 10 Marks**

**Unit 1: Community Resources**

Resources that enhance or facilitate the lives of people in a community - examples of community resources are factories, educational institutions, cinema halls, libraries, religious places, hospitals, community centers, parks, etc - make use of these resources in education as it develops a sense of value and belonging among students.

**Unit 2: Community Engagement**

Community Engagement in Education - and symbiotic relationship that exists between communities and Education Institutions - sustainable networks, partnerships, communication media, and activities - Linking formal learning and the local community

**Unit 3: Forms of community engagement**

Community-student engagement -Researching with the community, sharing knowledge with the community, Designing new curriculum and courses, Involving local practitioners as trainers, Social Innovation by students and the like

**Unit 4: Practices for Community engagement**

Engagement practices and activities - formal or informal - include building relationships through collaboration initiatives, community campaigns, Community

Survey, Community services, Excursions, cooperatives, small businesses, consultation meetings & conferences, sports events, cultural events, community development and community research projects.

### **Unit 5: Rural Community Development**

Social, economic, political and cultural framework of the rural society - Rural Resilience - Rural Institutions Close to Community, Participatory Learning - Approaches and Methods, Community Project Proposals and Project Management, Community living camps, Engagement with - School, Street Committee, Health Centre, Panchayat, SHGs - Programmes

## **Module II : Syllabus for General Subject - ICT in Education**

**Total: 10 Marks**

### **Unit 1: Potentials of ICT in Education**

ICT as a means to connect with the world ± Pedagogy and ICT ± Potentials and Advantages of Approaches to ICT

### **Unit 2: ICT integration in Curriculum transaction**

Computer based Curricular planning- ICT Based Model of Curriculum Transaction - Considerations for integrating ICT ± Innovations in Curriculum Transaction

### **Unit 3: ICT and Internet Resources for Teaching and Learning**

Resources ± Access and Creation, resource mobilization ± Web-based learning, Social Networking ± Virtual learning Environment - Designing e-initiatives

### **Unit 4: ICT in Classrooms**

Creating Personal learning environments - ICT integrated Inclusive education - Assistive and Adaptive technologies

### **Unit 5: ICT for Assessment and Evaluation**

Purposes and Techniques of Evaluation, Scope of ICT for evaluation- Innovative Practices in Assessment & Evaluation

### **Module 3 : PERSPECTIVES OF EDUCATION (10 Marks)**

## **PHILOSOPHICAL PSYCHOLOGICAL AND SOCIOLOGICAL PERSPECTIVES OF EDUCATION**

### **Philosophical perspectives of Education**

Role of education in philosophizing the issues of life ±Metaphysics, Epistemology, Logic, Phenomenology, Aesthetics and Axiology. Critical appraisal of schools of philosophy in the context of Twenty First Century ± aims, content, methods and ongoing changes.

Focus of education in the 21st century. Building perspectives on educational philosophies, Modern schools of Philosophy-Empiricism, Positivism, Relativism.- Post -structuralist views and eclectic views. Comparative study of philosophies and educational contributions of Indian and western thinkers

### **Psychological perspectives of education**

Learning and development- Learner Characteristics and Learning styles with special reference to pre- primary, primary, secondary, higher secondary and adult learners Learning in twenty first century classrooms., Characteristics And types, Development ± language development, emotional, moral, motor and identity development. Cognitive Functions-Thinking, Reasoning, Problem Solving and Meta-cognition, Personality- types characteristics and development

Intelligence-different types~ Multiple, Cultural, social and emotional, impact on learners. Mental Health-, Factors affecting Mental Health (parents, family environment, society, school practices) - Strategies for enhancing Mental health

### **Sociological perspectives of education**

Education for social security, wellness and progress, sustenance and transformation in society. Determinants of social change in the context of globalization.-Constraints on social change in India with respect to caste, ethnicity, class, language, religion, gender, regionalism, political interest

Education and Secularism - Role of teacher in inculcating democracy and international values.- Pluralism ± Role of education in creating unity in diversity- Nationalism and education.-Role of Education in addressing cultural lag, privatization, globalization and partnership in social progress ± Current trends in social development and transformation of values in society.

#### **Module 4 : Teaching aptitude (10 Marks)**

##### **Teaching aptitude.**

- Teaching -characteristics, levels, phases and maxims
- teaching methods, techniques and strategies
- modern trends in professional development and ethics
- technology integration in education
- Research, evaluation and innovations in classroom teaching, -

#### **Module 5 : Research Aptitude (10 Marks)**

- Research Meaning, Characteristics and Types
- Steps to Research
- Methods of Research
- Aims of Educational Research
- Research Ethics
- Research paper, Article, Workshop, Seminar, Conference and Symposium
- **Thesis writings ±its characteristics and Format**

## **PART II**

### **LIFE SCIENCE-PEDAGOGICAL ASPECTS**

#### **MODULE I**

##### **PEDAGOGIC CONTENT KNOWLEDGE-INTRODUCTION-ANALYSIS-APPLICATION**

Pedagogic content knowledge analysis of major concepts of life science-cellular organization, developmental biology, system physiology-plants & animals, inheritance biology, ecological principals, evolution & behavior, and applied biology( factual, conceptual, procedural and meta cognitive knowledge)

Pedagogic content knowledge analysis-steps (content analysis, learning outcomes, teaching-learning processes, resources, inputs) . Principles of teaching biological science: Science as inquiry, development of process skills of Science, scientific attitude and critical thinking, relating Science to daily life, Science and society. Studying linkages between concepts within the same subject and across subjects.

**(5 marks)**

#### **MODULE II**

##### **PLANNING OF INSTRUCTION**

Instructional planning- Principles, components, stages and types. Components -creating goals, choosing methodologies and strategies, and selecting relevant assessments. Unit plan and Lesson plan: stating objectives, selecting the content, selecting approach/strategy, designing learning experiences, skills of integrating ICT skills, demonstrating skills, questioning, assessment and evaluation.

**(5 marks)**

#### **MODULE III**

##### **APPROACHES TO CURRICULUM TRANSACTION**

Teacher initiated and student initiated methods, approaches and techniques

Constructivist: situated learning, cognitive apprenticeship, social mediation, negotiation and scaffolding-different types; Use of constructivists learning

designs; creating various learning situations and contexts, inquiry based; investigatory and social inquiry approaches; discovery, discussions, explorative field based activities, experiential learning, learning episodes, concept learning, inductive and deductive, concept mapping; reflective learning; self learning strategies and differential learning . Co-operative and collaborative learning-meaning and its role in curriculum transaction.

**(15 marks)**

## **MODULE IV**

### **DESIGNING AND DEVELOPMENT OF MATERIALS FOR EFFECTIVE LIFE SCIENCE LEARNING**

Development of materials for curriculum transaction and their integration o Learner centered textbooks and transacting curriculum beyond textbooks o Curricular materials: Textbooks, presentation of content, language, illustrations, episodes, stories and practical exercise etc.; Teachers guide: its role in transaction o Guidelines to prepare Textbooks and Teachers Handbook and Source books. o ICT in transaction of curriculum, various modes of ICT (PLM, CAL, CAI); its importance and role o Concept of communication in transaction; its importance; Various communication means and media; Importance of communication transaction of learning experience; Necessary requirement for proper communication

Improvised aids, activity aids, projected and non projected aids. curricular materials-text books, learning supplements, teacher texts, other enrichment materials

**(10 marks)**

## **MODULE V**

### **APPLICATION OF TECHNOLOGICAL RESOURCES FOR LIFE SCIENCE EDUCATION.**

E resources in teaching and learning-Digital resources-multi media, e book reader, open learning resources, online repositories, virtual libraries, e journals, web 2 tools relevant to life science. Technology for pedagogical innovations: web

quest, PBL, virtual tours, MOOC, flipped classroom. Learning materials developed by SIET,NCERT,SAMAGRA,IT@SCHOOL,VICTERS for the learning of life science

(5 marks)

## MODULE VI

### ASSESSMENT IN LIFE SCIENCE EDUCATION

Assessment in the teaching and learning of biological science, ongoing trends in assessment, future trends in assessment. Process and product assessment in biology; Performance Assessment criteria in assessing projects, experiments, group work and individual activities in Biological science. Continuous assessment in Biological science and the role of a science teacher in providing feedback and remediation. Diagnosing learning difficulties and misconception in Biological Science.

ICT and Assessment: e-portfolio, electronic rubrics, online and offline assessment tools ±rubrics, survey tools, puzzle makers, test generators, reflective journal, and question bank. Use of web 2.0 tools for assessment

(8 marks)

## MODULE VII

### CHANGING ROLES AND RESPONSIBILITIES OF SCIENCE TEACHERS

Reflective teaching: concept and strategies for making teachers reflective practitioners. Teacher's ability to integrate pedagogical knowledge with the content knowledge of Science. Classroom management, teaching competencies, coping strategies for teachers' stress.

(2 marks)

***NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper.***