

Government of Andhra Pradesh
Department of School Education
State Council of Educational Research & Training
DSC-2024

DSC - SCHOOL ASSISTANT SYLLABUS – BIOLOGICAL SCIENCE

1. G.K & Current Affairs	-	10M
2. Perspectives in Education	–	05M
3. Classroom implications of Educational Psychology	–	05M
4. Content	-	40M
5. Methodology	-	20M
Total	-	80 M

PART - I

I. General Knowledge And Current Affairs (Marks: 10)

PART - II

II. Perspectives in Education (Marks: 05)

1. History of Education :

- The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
- Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).
- Education in Post Independent era - Mudaliar Commission (1952-53), Kothari Commission (1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

2. Teacher Empowerment:

- Need, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

3. Educational Concerns in Contemporary India:

- Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
- Economics of Education, Education as Human Capital, Education and Human Resource Development, Literacy - Saakshar Bharat Mission.
- Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
- Adolescence Education
- Value Education – Moral Value and Professional Ethics in Education.
- Health and Physical Education
- Inclusive Education - Classroom Management in Inclusive Education
- Role of Education in view of Liberalization, Privatization and Globalization
- Programmes and Projects – APPEP, DPEP, Sarva Shiksha Abhiyan, National

Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Shiksha Abhiyan(RMSA), Rashtriya Avishkar Abhiyan (RAA), KGBVs, Model Schools.

- Incentives and special provisions – Mid Day Meals, Free Books, Scholarships, Awards, Welfare Hostels, Transportation.
- Current Trends in Education

4. Acts / Rights:

- Right of Children to Free and Compulsory Education Act - 2009
- Right to Information Act - 2005
- Child Rights
- Human Rights.

5. National Curriculum Framework - 2005: Perspectives, Guiding Principles, Learning and Knowledge, Teaching Learning Process, Assessments, Systemic Reforms.

6. National Education Policy-2020

PART - III

III. Classroom implications of Educational Psychology – 05Marks

1. **Individual differences:** Inter and intra individual differences, meaning, nature and theories of intelligence with special emphasis to multiple intelligence, IQ, assessment of intelligence, EQ, Creativity. Attitude, Aptitude, Interest, Habit and its Influence on Intelligence – Class room implementation.
2. **Learning:** Theories and approaches of learning, learning curves, Factors, Phases, Dimensions of learning, Types of learning, Transfer of learning. Memory, Forgetting, Learning and assessment– Class room implementation.
3. **Personality:** Nature, characteristics and theories of personality, factors of Personality, Assessment of Personality, Mental health, Adjustment, Stress – nature, Symptoms and management. Emotional intelligence, Management of emotions – Class room implementation.

PART - IV

IV. Content (Marks: 40) (Class VI To Intermediate level syllabus)

6 – 10 Classes:

1. **Life Process:** Our food, Components of food, Balanced diet, Malnutrition, Deficiency diseases, Plants – Types, Plant parts – functions, Types of nutrition, Nutrition in plants – Autotrophic, Parasitic, saprophytic, Insectivorous; Nutrition in animals - Different ways of taking food, Digestion in humans, Digestion in grass eating animals, feeding and digestion in amoeba; Cellular respiration, Types of respiration, Respiration in plants, Respiration in animals, Respiration versus combustion, Photosynthesis versus Respiration, Circulatory system - Human Circulatory system, Evolution of the transport system in animals, Transportation in plants; Excretion - Excretion in Human Beings, Excretion in other organisms, Excretion and release of substances in plants, Excretion Vs Secretion; Coordination in animals- Nervous and Endocrine systems, Control mechanism in plants – Plant hormones, tropic and nastic movements, Modes of

reproduction – sexual, asexual and vegetative; Sexual reproduction in plants, Seed dispersal, Sexual and Asexual Reproduction in Animals, Metamorphosis, Reproduction in a placental mammal – Man, Reproductive health, Birth control methods, Fighting against social ills, Adolescence and puberty – changes, role of hormones, Reproductive phase, Variations, Mendel's experiments on inheritance, Sex determination in human beings, Evolution – Lamarckism, Darwinism, Evidences of evolution, Human evolution

2. **Living World:** Living and Nonliving things, Characteristics of living organisms, Different types of habitat and adaptation, Skeletal parts – Bones, Joints, Cartilage; muscles, Movements in animals, Cell – The basic unit of life, Types of cells, Cell structure and function, Cell division, Animal Tissues, Plant tissues, Introduction to microorganisms, Useful Microorganisms, Harmful microorganism, Food preservation, Agricultural Practices, Improvement in crop yields, Storage of food, Food from Animals - Animal Husbandry
3. **Our Environment – Ecology:** Our Environment - Food chain, Food web, Ecological pyramids, Effects of human activities on ecosystems, Steps towards prevention; Natural resources - Renewable and non-renewable resources, conservation; Bio diversity - Forests, Flora, fauna, interrelation of organisms, Advantages of forests, Deforestation - effects, Conservation of forest and wildlife – Protecting areas, endangered and endemic species; Air & water pollutions - Causes, effects and prevention, Water, Sewage, Treatment of polluted water, Better housekeeping practices, Sanitation and Disease, Alternative arrangement for sewage disposal; Global Environmental Issues - Green house effect, Global warming, Acid rains; Nitrogen cycle.

Intermediate:

BOTANY

- Diversity in the Living World:
- The living world – Biological – Classification – Science of plants – Botany – Plant Kingdom
- Structural Organisation in Plants - Morphology,
- Representation in Plants
- Plants Systematics,
- Cell: Structure and Functions,
- Internal Organizations of Plants
- Plant Ecology
- Plant Physiology
- Microbiology
- Genetics
- Molecular Biology
- Biotechnology

- Plants
- Microbes and Human Welfare.

ZOOLOGY

- Diversity of Living World
- Structural organization in Animals
- Animal Diversity-I
- Animal Diversity-II (Phylum: Chordata)
- Locomotion & Reproduction in Protozoa
- Biology in Human Welfare
- Type study of *Periplaneta Americana*
- Ecology & Environment.
- Human Anatomy and Physiology- I
- Human Anatomy and Physiology- II
- Human Anatomy and Physiology- III
- Human Anatomy and Physiology- IV
- Human Reproduction
- Generics
- Organic Evolution
- Applied Biology

V. Teaching Methodology (Marks: 20)

1. The Nature & Scope of Science: A brief introduction of Oriental and Western Science, Nature of Science, Scope of Science, Substantive and Syntactic Structure of Science.
2. Aims and Values of Teaching Biological Sciences: Aims of teaching Biological Sciences, Values of teaching Biological Sciences.
3. Objectives of Teaching Biological Sciences: Importance of Objectives of Teaching Biological Sciences, Bloom's Taxonomy of Educational Objectives and limitations, Writing Instructional Objectives and Specifications.
4. Academic Standards in Biological Science.
5. Approaches and Methods of Teaching Biological Sciences: Inductive Approach and Deductive Approach, Methods of Teaching 1. Lecture Method, 2. Lecture cum Demonstration Method, 3. Heuristic Method, 4. Project Method, 5. Experimental Method, 6. Laboratory Method.

6. Planning for effective Instruction: Year Plan, Unit Plan, Lesson Plan - Herbartian and Bloom's Approach, Criteria for Evaluation of Lesson Plan. Self Evaluation and Peer Evaluation, Learning experiences - Characteristics, Classification, Sources and Relevance, Teaching - Learning Material and Resources in Biological Sciences.
7. Science Laboratories: Importance of Practical work in Biological Sciences, Planning Science Laboratory, Procurement, Care and Maintenance of Laboratory Equipment, Maintenance of different Registers, Safety and First aid, Development of Improvised Apparatus
8. Science Curriculum: Principles of Curriculum Construction, Defects in the existing School Science Curriculum, Correlation of Biological Sciences with other School Subjects, Qualities of a good Biological Science Text-book.
9. Biological Science Teacher: Qualities of a good Biological Sciences Teacher, Roles and Responsibilities
10. Non-formal Science Education: Science club, Eco-club, Blue-club, Red ribbon club, Science fairs - Objectives, levels of organizations, importance, Science Laboratories, Role of NGOS and State in popularizing science.
11. Evaluation: Concept and process of Measurement and Evaluation, Continuous Comprehensive Evaluation, Tools of Evaluation, Preparation of Scholastic Achievement Test(SAT), Analysis and interpretation of scores.