SYLLABUS FOR TET 2011
SCIENCE
[Biology, Chemistry and Physics]
For U.P. level (Classes VI-VIII)

Total Marks : 30

Biology

1. **Introductory Biology**
   - Branches of Biology and its scope
   - Importance of Biology in everyday life
   - Significant discoveries and invention, contribution of scientists

2. **Living World**
   - Classification of plants and animals with their characteristic features.
   - Cell – Concept of cell, cell theory, cell types, structure of cells and functions of cell organelles, difference between plant and animal cells.
   - Cell Division – Types, Cell cycle and processes of cell division.
   - Tissues – Different types of plant and animal tissues, their distribution and functions.

3. **Plant World**
   - Plant morphology – Different parts of plants and their functions.
   - Plant physiology – Photosynthesis, Nutrition, Excretion and Respiration.
   - Reproduction in plants – vegetative, asexual and sexual.

4. **Animal World**
   - Organ systems and their functions – Digestive system, Respiratory system, Circulatory system, Excretory system, Nervous system, Endocrine system and Reproductive system.
   - Sense organs in man
   - Nutrition and deficiency diseases

5. **Our Environment**
   - Pollution
   - Concept of ecosystem and its types

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- Natural resources and their conservation

6. Application of Biology

A. Economic Botany

Economic importance of some important plants :

- Cereals (Paddy, Maize, Wheat)
- Oil yielding plants (Mustard, Chitranella)
- Medicinal plants (Neem, Tulsi, Rauwolfia & Chinchona)
- Fibre yielding plants (Jute, Cotton and Ramie)
- Timber yielding plants (Sal, Teak, Sisoo and Holong)
- Preliminary idea of modern agricultural practices
- Plant diseases : Late blight on potato, Rust of wheat, Blast of rice – their causative organisms and control measures)
- Pest control measures

B. Economic Zoology

Economic importance of animals :

- Modern animal husbandry
- Pisciculture
- Sericulture
- Vermiculture

C. Microbes

Virus, Bacteria, Protozoa, Algae and Fungus :

- Common microbial diseases in man : Malaria, Cholera, Ring worm, Dysentery, Diarrhoea, Typhoid, AIDS and Hepatitis.

7. Recent trends in Biology

Hybridization techniques, Preliminary idea of gene and its function, Gene banks, Genetic Engineering, Gene Therapy and Tissue culture.

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Chemistry

1. **Elements and Compounds :** Elements, Concept of Atom and Molecules, Compound, Mixture, Atomic mass, Molecular mass, Symbols, Formula, Valency, Chemical Equations, Mole Concept, Balancing of simple chemical equations, Simple calculations based on mole concept.

2. **Periodic classification of elements :** Atomic structure, Periodic law, Modern Periodic Table, Basic idea of periodicity of properties of elements.

3. **Nature of Chemical Bond :** Ionic bond, Electrovalent and Covalent bond, Differences between Electrovalent and Covalent compounds.

4. **Physical and Chemical Change :** Differences between chemical and physical change.

5. **Biomolecules :** Foods and its components, elementary idea about the composition and functions of Carbohydrates, Proteins and Lipids, Sources and Deficiency diseases of Vitamins.

6. **Properties of Water :** Temporary and permanent hardness of water, removal of hardness by different methods.

7. **Acids, Bases and Salts :** Different salts and their reaction with Acids and Bases, weak and strong acids and bases, idea of pH, neutralization reaction.

8. **Fibre and Fabric :** Natural and synthetic fibre, Polymer.

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Physics

1. **Kinematics**

   Elementary concepts of Scalars and Vectors.

   Motion in a straight line : distance and displacement, speed and velocity, uniform and non-uniform motion, average and instantaneous speed and velocity, uniform acceleration, graphical representation of motion (position-time and velocity time), periodic motion.

2. **Laws of Motion**

   Newton's first law of motion : qualitative concept of force, inertia of rest and inertia of motion and their examples.

   Newton's second law of motion : quantitative concept of force

   Newton's third law of motion and examples

   Law of conservation of linear momentum

3. **Heat and Temperature**

   Differences between heat and temperature, measurement, transfer of heat.

4. **Light**

   Rectilinear propagation of light : shadows, eclipses

   Reflection of light : plane and spherical mirrors, laws of reflection

   Refraction of light : refractive index, total internal refraction, refraction in lenses, laws of refraction

5. **Sound**

   Oscillations and waves, kind of waves

   Sound waves, sources of sound, propagation of sound through solids, liquids and gases, ultrasound.

6. **Electricity**

   Electric charge and Coulomb's law

   Electric field, electric intensity and electric potential and potential difference.

   Electric current, primary cell, ohm's law, AC and DC, series and parallel combinations of resistances.

   Heating effects of electric current, power of electrical appliances, magnetic effects of electric current, Oersted's experiment; chemical effects of electric current, electrolysis and electroplating, Faraday's laws of electrolysis.

7. **Some natural phenomena**

   Lightning, thunder storms and cyclones, tsunami, floods, earthquakes : causes and precautions.

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