

SYLLABUS – 2020 - 21

SUBJECT : SCIENCE

STANDARD : 10

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2. Optics	2.1 Properties of light 2.2 Refraction of Light 2.3 Refraction of composite Light 2.5 Lenses 2.5.1 Other Types of Lens 2.6 Images formed due to refraction through a convex and concave lens 2.7. Refraction through convex lens 2.8 Applications of Convex lens 2.9 Refraction through concave lens 2.10 Applications of concave lens 2.11 Lens Formula 2.12 Sign Convention 2.16 Human eye 2.17 Defects in eye

<p>3. Thermal Physics</p>	<p>3.1 Temperature 3.1.1 Absolute scale (Kelvin scale) of temperature 3.1.2 Thermal equilibrium 3.2 Thermal Energy 3.2.1 Characteristic features of heat energy transfer 3.2.2 Other units of Heat energy 3.4 Fundamental laws of gases 3.4.1 Boyle's law 3.4.2 Charles' law 3.4.3 Avogadro's law</p>
<p>4. Electricity</p>	<p>4.1 Electric Current 4.1.1 Definition of Electric Current 4.1.2 SI unit of Electric current 4.2 Electric circuit 4.2.1 Electrical components 4.3 Electric potential and Potential difference 4.3.1 Electric Potential 4.3.2 Electric Potential Difference 4.3.3 Volt 4.4 Ohm's law 4.5 Resistance of a material 4.5.1 Unit of Resistance 4.6 Electrical resistivity and conductivity 4.6.1 Electrical resistivity 4.6.2 Conductance and Conductivity 4.8 Heating effect of current 4.8.1 Joule's Law of Heating 4.9 Electric power 4.9.1 Unit of electric power 4.9.2 Consumption of electrical energy</p>

<p>5. Acoustics</p>	<p>5.1 Sound waves 5.1.1 Longitudinal Waves 5.1.2 Categories of Sound waves 5.1.3 Difference between the sound and light waves 5.2 Reflection of sound 5.2.1 Laws of reflection 5.2.2 Reflection at the boundary of a denser medium 5.2.3 Reflection at the boundary of a rarer medium 5.2.4 Reflection of sound in plane and curved surfaces 5.3 Echoes 5.3.1 Conditions necessary for hearing echo 5.3.2 Applications of echo</p>
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	6.6. Safety measures 6.6.1 Permitted range 6.6.2 Preventive Measures
7. Atoms And Molecules	7.1 Atom and Atomic mass 7.1.1 Relative Atomic mass 7.2 Molecule and molecular mass 7.2.1 Classification of molecules 7.3 Difference between atoms and molecules 7.6 Avogadro hypothesis 7.7. Applications of Avogadro's Law 7.9 Solved problems
8. Periodic Classification Of Elements	8.1 Modern periodic law 8.2 Modern periodic table 8.2.1 Features of periods 8.2.2 Features of groups 8.6. Properties of metals 8.6.1 Physical properties 8.6.2 Chemical properties 8.10 Alloys 8.10.1 Amalgam 8.10.2 Method of making alloys 8.10.3 Types of alloys 8.11 Corrosion 8.11.2 Methods of preventing corrosion
9. Solutions	9.2 Components of solutions 9.3 Types of solutions 9.3.1 Based on physical state of the solute and solvent 9.3.2 Based on type of solvent 9.3.3 Based on amount of solute 9.3.4 Concentrated and dilute Solutions 9.6 Hydrated salts and water of crystallization

	<p>9.6.1 Copper sulphate pentahydrate</p> <p>9.6.2 Magnesium sulphate heptahydrate</p> <p>9.7 Hygroscopy</p> <p>9.8 Deliquescence</p>
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11. Carbon And Its Compounds	<p>11.1 General characteristics of organic compounds</p> <p>11.2 Classification of organic compounds based on the pattern of carbon chain</p> <p>11.3 Classes of organic compounds</p> <p>11.3.1 Hydrocarbons</p> <p>11.3.2 Characteristics of hydrocarbons</p> <p>11.3.3 Classification based on functional groups</p> <p>11.4 Homologous series</p> <p>11.4.1 Characteristics of homologous series</p> <p>11.5 Nomenclature of organic compounds</p> <p>11.5.1 Why do we need nomenclature?</p> <p>11.5.2 Components of IUPAC name</p> <p>11.5.3 IUPAC rules for naming organic compounds</p> <p>11.5.4 IUPAC nomenclature of hydrocarbons - Examples</p> <p>11.5.5 IUPAC nomenclature of other classes</p> <p>11.6 Ethanol</p> <p>11.6.1 Manufacture of ethanol</p> <p>11.6.2 Physical properties</p> <p>11.6.3 Chemical properties</p> <p>11.6.4 Uses of ethanol</p> <p>11.8 Organic compounds in daily life</p>

<p>12. Plant Anatomy And Plant Physiology</p>	<p>12.1 Tissues 12.2 Tissue system 12.3 Internal structure of dicot root (Bean) 12.5 Internal structure of dicot Stem (Sunflower) 12.7 Internal structure of dicot or dorsio-ventral leaf (Mango) 12.9 Plant Physiology 12.9.1 Plastids 12.9.2 Structure of chloroplast 12.9.3 Functions of chloroplast 12.9.4 Photosynthesis 12.9.5 Where does photosynthesis occur? 12.9.6 Photosynthetic pigments 12.9.7 Role of sunlight in photosynthesis 12.9.8 Factors affecting photosynthesis 12.11 Types of respiration 12.11.1 Aerobic respiration (Except Stages) 12.11.2 Anaerobic respiration 12.11.3 Respiratory quotient</p>
<p>14. Transportation In Plants And Circulation In Animals</p>	<p>14.1 Means of Transport in Plants 14.2 Root hair - water absorbing unit 14.3 Pathway of water absorbed by roots 14.4 Types of movement of water into the root cells 14.5 Transpiration 14.6 Root pressure 14.7 Uptake of minerals 14.8 Translocation of Mineral Ions 14.9 Phloem Transport 14.10 Translocation of sugars 14.12 Blood 14.15 Structure of Human heart</p>

	<p>14.15.2 Heart Beat</p> <p>14.17 Blood Groups</p>
16. Plant And Animal Hormones	<p>16.1 Plant Hormones</p> <p>16.1.1 Auxins (Except Went's Experiment)</p> <p>16.1.2 Cytokinins</p> <p>16.1.5 Ethylene</p> <p>16.2 Human Endocrine glands</p> <p>16.2.1 Pituitary Gland</p> <p>16.2.2 Thyroid Gland</p> <p>16.2.5 Adrenal Gland</p> <p>16.2.6 Reproductive Glands</p> <p>16.2.7 Thymus Gland</p>
17. Reproduction In Plants And Animals	<p>17.3 Sexual Reproduction in Plants</p> <p>17.4 Pollination</p> <p>17.6 Fertilization in Plants</p> <p>17.7 Sexual reproduction in human</p> <p>17.7.1 Male reproductive organ - Structure of Testes</p> <p>17.7.2. Female reproductive organ - Structure of Ovary</p> <p>17.8 Gametogenesis</p> <p>17.8.1 Structure of human Sperm</p> <p>17.8.2 Structure of Ovum</p> <p>17.9 Menstrual cycle - Process of Ovulation</p> <p>17.14 Personal Hygiene</p> <p>17.14.1 Body Hygiene</p> <p>17.14.2 Toilet Hygiene</p> <p>17.14.3 Menstrual and napkin Hygiene</p>

18. Genetics	18.1 Gregor Johann Mendel – Father of Genetics 18.2 Monohybrid cross-Inheritance of one gene 18.3 Dihybrid Cross- Inheritance of two genes and Law of Independent Assortment 18.4 Mendel’s laws 18.5 Chromosomes, DNA & genes 18.5.1 Structure of a Chromosomes 18.5.4. Karyotype 18.6 Structure of DNA 18.6.1 Watson and Crick model of DNA 18.6.2 DNA Replication 18.6.3 Significance of DNA 18.7. Sex Determination 18.7.1. Sex Determination in Human
19. Origin And Evolution Of Life	19.1 Theories on origin of life 19.3 Theories of Evolution 19.6 Ethnobotany
20. Breeding And Biotechnology	20.2 Green Revolution 20.2.2 Plant breeding for disease resistance 20.2.3 Plant breeding for insects/pests resistance 20.2.4 Plant breeding improved nutritional quality 20.3 Methods of Plant Breeding for Crop Improvement 20.4 Animal Breeding 20.6 Biotechnology in Medicine
21. Health And Diseases	21.1 Abuse and types of abuse 21.2 Drug and tobacco abuse 21.3 Drug abuse 21.4 Tobacco abuse 21.5 Alcohol abuse 21.6 Rehabilitation measures for alcoholics 21.9 Obesity

	<p>21.11 Cancer</p> <p>21.12 AIDS</p>
22. Environmental Management	<p>22.1 Conservation and judicious use of Resources</p> <p>22.5 Renewable and non-renewable Energy Resources</p> <p>22.6 Non-Conventional (Alternative) Energy Resources</p> <p>22.6.3 Shale gas</p> <p>22.6.5 Water energy</p> <p>22.6.6 Tidal energy</p> <p>22.7 Rainwater Harvesting</p> <p>22.8. Electrical Energy Management</p> <p>22.9 E-Waste and its management</p>
Practical	<p>2. Determination of focal length of a convex lens</p> <p>3. Determination of resistivity</p> <p>4. Identification of exothermic and endothermic reactions</p> <p>5. Testing the solubility of salt</p> <p>8. Photosynthesis</p> <p>10.To study the law of dominance</p> <p>13. Identification of blood cells</p>