

कक्षा : १०

विषय : विज्ञान तथा प्रविधि

पूर्णाङ्क : ७५

समय : ३ घण्टा

क्र.स.	एकाइ	कार्य घण्टा	संज्ञानात्मक तह				समूहगत अङ्कभार	एकाइगत अङ्कभार				
			ज्ञान(१५%)	बोध (३०%)	योग (३०%)	उच्च दक्षता ( २५%)						
१	वैज्ञानिक अध्ययन	५	बहुवैकल्पिक प्रश्न (२×१)	बहुवैकल्पिक प्रश्न (४×१)	बहुवैकल्पिक प्रश्न (२×१)	बहुवैकल्पिक प्रश्न (२×१)	८	३				
२	सूचना तथा सञ्चार प्रविधि	१०						५				
३	सजीवहरूको वर्गीकरणत्रय	९					२३	४				
४	जीवन चक्र	४						२				
५	वंशानुक्रम	१६						८				
६	शारीरिक संरचना र जीवन प्रक्रियात्रय	१२						६				
७	प्रकृति र वातावरण	७					२५	३				
८	चाल र बल	१०						५				
९	चाप	५						२				
१०	ताप शक्ति	१०						४				
११	तरङ्ग	१५	७									
१२	विद्युत्तथा चुम्बकत्व	१२	छोटो प्रश्न ( २×२)	छोटो प्रश्न ( ३×२)	छोटो प्रश्न ( ५×२)	छोटो प्रश्न ( ४×२)	१९	५				
१३	ब्रह्माण्ड	५						२				
१४	तत्त्वहरूको वर्गीकरण	९						लामो प्रश्न ( १×४)	लामो प्रश्न ( २×४)	लामो प्रश्न ( २×४)	लामो प्रश्न ( २×४)	४
१५	रासायनिक प्रतिक्रिया	६										३
१६	ग्याँसहरू	८										४
१७	धातु	५	२									
१८	हाइड्रोकार्बन र यसका यौगिकहरू	६	३									
१९	दैनिक जीवनमा प्रयोग हुने रसायनहरू	६					३					
	जम्मा		१२	२२	२२	१९		७५				
	प्रश्नका प्रकार	प्रति प्रश्न अङ्कभार	प्रश्न सङ्ख्या									
१	बहुवैकल्पिक प्रश्न	१ अङ्क	२	४	२	२						
२	धेरै छोटो प्रश्न	१ अङ्क	२	४	२	१						
३	छोटो प्रश्न	२ अङ्क	२	३	५	४						
४	लामो प्रश्न	४ अङ्क	१	२	२	२						
	कुल		७	१३	११	९						

## द्रष्टव्य

- प्रश्न निर्माण गर्दा तल्लोतहका प्रश्न (ज्ञान, बोध र प्रयोग) तथा उच्च तहका प्रश्न (विश्लेषण, मूल्याङ्कन र सिर्जना) लाई माथि उल्लिखित कार्यघण्टा र अङ्कभारअनुसार बनाउनुपर्ने छ।
- प्रति प्रश्न बहुवैकल्पिक प्रश्न र अति छोटो प्रश्न १/१ अङ्क, छोटो प्रश्न २ अङ्क र लामो प्रश्न ४ अङ्कका हुनेछन्।
- समूहको जम्मा अङ्कभारमा घटबढ गर्न पाइने छैन तर समूहभित्रका एकाइहरूमा +२ हुन सक्ने गरी प्रश्न मेटिक्स बनाई प्रश्न बनाउन सकिनेछ। तर कुनै एकाइलाई शून्य गर्न पाइने छैन।
- २ वा ४ अङ्कका प्रश्नको लागि एक तत्वको एक अङ्क (ज्ञानवचप धर्पी दभ बककणलभम उभच भभिभलत भहउभअतभम बक (correct response) आउने गरी प्रश्न निर्माण गर्नुपर्ने छ।
- छोटो र लामो प्रश्न एउटै तहको वा दुई वा एक भन्दा बढी संज्ञानात्मक क्षेत्रअन्तर्गतका तहहरू समेट्ने गरी प्रश्न बनाउन पनि सकिने छ। तर समग्रमा उल्लिखित तहको जम्मा भारसँग मिल्ने हुनुपर्छ।
- वस्तुगत प्रश्नको प्रश्नपत्र छुट्टै र विषयगत प्रश्नको प्रश्नपत्र छुट्टै तयार गर्नुपर्ने छ।

**SYLLABUS-2083**  
**FIRST TERMINAL EXAMINATION**

**Science**

**Grade: 10**

Unit	Topics	Working hrs	Teaching methods	Teaching materials	Evaluation & technique tools
1	<b>Scientific Learning</b> <ul style="list-style-type: none"> <li>Variables and its types</li> <li>Importance of control variable</li> <li>Differences between fundamental unit and derived units</li> <li>Dimension analysis, Analysis of equation</li> </ul>	5	1. Discussion 2. Lecture 3. Demonstration 4. Problem solving	Charts, diagrams, measuring instruments, equation examples	1. Class Test 2. Homework 3. Viva 4. Problem solving exercises
2	<b>Classification of Organism</b> <ul style="list-style-type: none"> <li>Concept of five kingdom system</li> <li>Characteristics of phylum/division of Plantae &amp; Animalia</li> <li>Classification of angiosperm up to class</li> <li>Classification of vertebrate up to class</li> <li>Relation between organic evolution and classification</li> </ul>	9	1. Discussion 2. Lecture 3. Demonstration 4. Chart study	Charts, flash cards, plant and animal specimens	1. Class Test 2. Homework 3. Viva 4. Project/Diagram drawing
3	<b>Life Cycle (Honey Bee)</b> <ul style="list-style-type: none"> <li>Types of honey bee</li> <li>Life cycle of honey bee</li> <li>Importance of honey and honey bee</li> </ul>	4	1. Discussion 2. Lecture 3. Demonstration 4. Observation	Honey bee models, charts, videos	1. Class Test 2. Homework 3. Viva 4. Observation report
7	<b>Force and Motion</b> <ul style="list-style-type: none"> <li>Concept of gravitation and related numericals</li> <li>Acceleration due to gravity</li> <li>Gravitational force and weight</li> <li>Free fall and applications</li> </ul>	10	1. Discussion 2. Lecture 3. Demonstration 4. Problem solving	Charts, motion diagrams, stopwatch, weights	1. Class Test 2. Homework 3. Viva 4. Numerical problem solving
8	<b>Pressure</b> <ul style="list-style-type: none"> <li>Pascal's Law, demonstration and applications</li> <li>Upthrust in liquids and gases</li> <li>Archimedes principle, demonstration and applications</li> </ul>	5	1. Discussion 2. Demonstration 3. Practical	Syringe, water column, liquids, objects of different densities, charts	1. Class Test 2. Homework 3. Viva 4. Practical observation
9	<b>Heat</b> <ul style="list-style-type: none"> <li>Thermal energy and molecular motion</li> <li>Anomalous expansion of water</li> <li>Specific heat capacity and numericals</li> <li>Thermometers: laboratory,</li> </ul>	10	1. Discussion 2. Demonstration 3. Practical 4. Problem solving	Metal rods, candle, thermometer samples, water, charts	1. Class Test 2. Homework 3. Viva 4. Practical observation / Numerical solving

**SYLLABUS-2083**
**Science**
**Grade: 10**

Unit	Topics	Working hrs	Teaching methods	Teaching materials	Evaluation & technique tools
	clinical, digital • Temperature scales				
14	<b>Classification of Elements</b> • Mendeleev's & Modern Periodic Law • Electronic configuration (up to atomic no. 20) • Modern periodic table classification (group, period, block) • Metals, non-metals, metalloids; atomic size, electronegativity, valency, reactivity	9	1. Lecture 2. Discussion 3. Demonstration 4. Problem solving	Periodic table charts, flash cards, element models	1. Class Test 2. Homework 3. Viva 4. Diagram & numerical solving
15	<b>Chemical Reactions</b> • Types of chemical reactions with examples • Factors affecting rate of reaction	6	1. Discussion 2. Demonstration 3. Practical	Chemicals, reaction setups, charts	1. Class Test 2. Homework 3. Viva 4. Practical observation
13	<b>Information and Communication Technology</b> • Digital signal and transmission, uses • Negative effects of digital technology • Netizenship • Audio/video software, cutting and joining audio/video • Online reputation	10	1. Lecture 2. Demonstration 3. Hands-on practice	Computers, multimedia software, charts, audio/video files	1. Class Test 2. Homework 3. Practical test 4. Viva
—	<b>Revision</b>	—	Discussion, problem solving	Textbook, multimedia, charts	Class test, homework, oral test

Unit	Topics	Working hrs	Teaching methods	Teaching materials	Evaluation & technique tools
5	<b>Physiological Structure &amp; Life Process</b> <ul style="list-style-type: none"> <li>• Blood circulation (blood, plasma, corpuscles, function of blood)</li> <li>• Heart structure &amp; heart attack (risk factors, prevention, diagnosis)</li> <li>• Blood vessels, pulmonary &amp; systemic circulation, blood pressure</li> <li>• Diabetes, uric acid</li> </ul>	12	1. Lecture 2. Discussion 3. Demonstration 4. Practical	Heart & blood models, charts, multimedia, blood flow diagram	1. Class Test 2. Homework 3. Viva 4. Practical report
6	<b>Nature and the Environment</b> <ul style="list-style-type: none"> <li>• Climate change: causes, effects, prevention</li> <li>• Endangered animals &amp; rare plant conservation</li> <li>• Medicinal plants &amp; their conservation</li> </ul>	7	1. Lecture 2. Discussion 3. Field observation 4. Demonstration	Plant & animal specimens, charts, multimedia, maps	1. Class Test 2. Homework 3. Viva 4. Field report
10	<b>Light</b> <ul style="list-style-type: none"> <li>• Refraction, total internal reflection, dispersion</li> <li>• Lenses: convex, concave, ray diagrams, magnification, power</li> <li>• Human eye: image formation, defects (myopia, hyperopia, cataract, color blindness), correction &amp; corneal injury</li> </ul>	15	1. Lecture 2. Demonstration 3. Practical 4. Problem solving	Lenses, ray box, screen, charts, multimedia	1. Class Test 2. Homework 3. Viva 4. Ray diagram drawing / Practical
12	<b>The Universe</b> <ul style="list-style-type: none"> <li>• Role of gravitational force</li> <li>• Big Bang Theory</li> <li>• Hubble Constant</li> <li>• Future of universe</li> </ul>	5	1. Lecture 2. Discussion 3. Multimedia presentation	Charts, solar system models, videos	1. Class Test 2. Homework 3. Viva 4. Diagram / Project work
16	<b>Some Gases</b> <ul style="list-style-type: none"> <li>• Lab preparation &amp; properties of CO<sub>2</sub>, NH<sub>3</sub></li> <li>• Uses of CO<sub>2</sub> &amp; NH<sub>3</sub></li> <li>• Acid rain: causes, effects, control</li> <li>• Greenhouse effects: causes, effects, control</li> </ul>	8	1. Demonstration 2. Practical 3. Lecture	Lab apparatus, chemicals, charts, multimedia	1. Class Test 2. Homework 3. Viva 4. Practical observation
17	<b>Metals</b> <ul style="list-style-type: none"> <li>• Minerals &amp; ores of iron, copper, aluminium, silver</li> <li>• Process of separating metals from ores</li> </ul>	5	1. Lecture 2. Demonstration 3. Practical	Mineral & metal samples, charts	1. Class Test 2. Homework 3. Viva 4. Practical report
—	<b>Revision</b>	—	Discussion, practice, Q&A	Textbooks, charts, multimedia	Class test, oral test, homework

**SYLLABUS-2083**  
**PRE-QUALIFYING EXAMINATION**

**Science**

**Grade: 10**

Unit	Topics	Working hrs	Teaching methods	Teaching materials	Evaluation & technique tools
4	<b>Heredity</b> a. Chromosome: Mitosis & meiosis, chromosome, gene, DNA vs RNA, sex determination, types of chromosomes b. Genetics: Mendel's pea plant, monohybrid cross, Mendel's laws, genetic technology & applications	12	1. Lecture 2. Discussion 3. Demonstration 4. Practical / Problem solving	Charts, models of chromosomes, pea plant specimens, diagrams	1. Class Test 2. Homework 3. Viva 4. Practical / Project work
11	<b>Current Electricity and Magnetism</b> • AC vs DC • Magnetic field effect on straight wire & solenoid • Magnetic flux & electromagnetic induction: laws, devices • Dynamo & AC generator, transformer: structure, working, types, uses • Motor effect & devices, numeric problems	12	1. Lecture 2. Demonstration 3. Practical 4. Problem solving	Electric circuit setups, magnets, coils, meters, transformers, charts	1. Class Test 2. Homework 3. Viva 4. Numerical & Practical observation
18	<b>Hydrocarbon and its Compounds</b> • Hydrocarbon introduction & examples • Saturated vs unsaturated hydrocarbon • Molecular & structural formula, IUPAC name (up to 3 C atoms) • Types of alcohol: methanol, ethanol, glycerol	6	1. Lecture 2. Demonstration 3. Problem solving	Charts, molecular models, formulas, multimedia	1. Class Test 2. Homework 3. Viva 4. Diagram drawing / Practical
19	<b>Chemicals Used in Daily Life</b> • Food preservation methods • Cleaning chemicals (lemon, reetha, ash) • Soap & detergents • Insecticides & precautions • Chemical pollution: causes, effects, control	6	1. Lecture 2. Demonstration 3. Practical	Samples of soaps, detergents, insecticides, cleaning agents, charts	1. Class Test 2. Homework 3. Viva 4. Practical observation
—	<b>Revision</b>	—	Discussion, practice, Q&A	Textbooks, charts, multimedia	Class test, oral test, homework