Class 7
PHYSICS

MID TERM 1

1. Physical quantities and measurement
2. Motion

HALF YEARLY ASSESSMENT

1. Physical quantities and measurement
2. Motion
3. Energy
4. Light energy

MID TERM 2

3. Energy
5. Heat

FINAL TERM ASSESSMENT

4. Light energy
5. Heat
6. Sound
7. Electricity and Magnetism

CLASS 7 – PHYSICS (ICSE)

NEP 2020 Aligned Scope of Syllabus

MID TERM 1

1. Physical Quantities and Measurement

Concepts

- Physical quantities: definition and classification (fundamental & derived)
- Units: SI system, need for standardization
- Measurement of length, mass, time, temperature
- Volume, area, density, speed
- Least count and accuracy
- Measuring instruments: metre scale, measuring cylinder, beam balance, stopwatch
- Errors in measurement (basic idea)

Learning Objectives (LOs)

- Define physical quantities and differentiate between fundamental and derived quantities
- Identify and use SI units correctly
- Measure physical quantities using appropriate instruments with accuracy
- Calculate least count of common instruments
- Record observations systematically with units
- Develop awareness of measurement errors and ways to minimize them

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2. Motion

Concepts

- Definition of motion and rest
- Types of motion: rectilinear, circular, periodic (and its variations)
- Multiple motions
- Distance and displacement (basic distinction)
- Speed: uniform and non-uniform motion
- Graphical representation (distance-time graph – qualitative)
- Simple numerical problems on speed

Learning Objectives (LOs)

- Explain motion with real-life examples
- Classify different types of motion
- Differentiate between distance and displacement (conceptual level)
- Define speed and solve basic numerical problems
- Interpret simple distance-time graphs
- Relate motion concepts to everyday observations

HALF YEARLY ASSESSMENT

1. Physical Quantities and Measurement *(Revision + Application)*

Concepts

- Advanced usage of measurement tools
- Derived quantities (area, volume, density – basic introduction)
- Unit conversions

Learning Objectives (LOs)

- Apply measurement concepts to solve practical problems
- Perform unit conversions accurately
- Calculate simple derived quantities

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2. Motion *(Revision + Extended)*

Concepts

- Speed calculation in different situations
- Graph interpretation (uniform vs non-uniform motion)
- Real-life motion scenarios

Learning Objectives (LOs)

- Solve numerical problems involving speed
- Interpret motion graphs critically
- Analyze motion in real-life contexts

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3. Energy

Concepts

- Definition and forms of energy
- Kinetic and potential energy
- Interconversion of energy
- Conservation of energy (basic idea)
- Sources of energy (renewable & non-renewable)

Learning Objectives (LOs)

- Define energy and identify its various forms
- Differentiate between kinetic and potential energy
- Explain energy transformations with examples
- State the law of conservation of energy
- Classify energy sources and evaluate their usage

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4. Light Energy

Concepts

- Nature of light , speed of light
- Sources of light: luminous and non-luminous objects
- Rectilinear propagation of light
- Shadows: formation and types
- Reflection of light - regular and irregular
- Laws of reflection on a plane mirror (point source), <i, <r,normals
- Properties of the image formed by reflection on the plane mirror
- Use of plane mirrors
- Primary and secondary colours
- Reflection and absorption of light

Learning Objectives (LOs)

- Distinguish between luminous and non-luminous objects
- Explain how light travels
- Describe shadow formation and factors affecting it
- Understand basic reflection concepts
- Apply light concepts to explain everyday phenomena

MID TERM 2

3. Energy *(Revision + Reinforcement & Application)*

Concepts

- Work and energy relationship (qualitative)
- Energy efficiency and conservation
- Everyday applications of energy transformation

Learning Objectives (LOs)

- Relate work done to energy changes
- Analyze energy usage in daily life
- Develop awareness about energy conservation practices

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5. Heat

Concepts

- Heat and temperature (difference)
- Measurement of temperature (thermometers)
- Modes of heat transfer: conduction, convection, radiation
- Expansion of solids, liquids, gases
- Effects of heat

Learning Objectives (LOs)

- Differentiate between heat and temperature
- Use thermometers correctly
- Explain modes of heat transfer with examples
- Describe expansion due to heat
- Apply heat concepts to daily life situations

FINAL TERM ASSESSMENT

4. Light Energy *(Revision + Extended)*

Concepts

- Laws of reflection
- Plane mirror: image formation
- Characteristics of images
- Multiple reflections (basic idea)

Learning Objectives (LOs)

- State and apply laws of reflection
- Describe image formation in a plane mirror
- Identify characteristics of images
- Solve simple ray-based problems

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5. Heat *(Application)*

Concepts

- Heat as energy
- Units of heat, temperature
- Effects of heat and applications
- Practical applications of heat transfer(conduction, convection and radiation)
- Heat management in daily life
- Insulators and conductors
- Thermos flask

Learning Objectives (LOs)

- Analyze real-life applications of heat transfer
- Identify materials based on heat conduction properties
- Suggest methods to reduce heat loss/gain

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6. Sound

Concepts

- Production of sound (sources)
- Vibrations and sound waves (basic idea) longitudinal waves and its graphical representation (Displacement - Time)
- Propagation of sound
- Reflection, echo, absorption of sound.
- Speed of sound (vs light)
- Characteristics: pitch, loudness,quality (frequency, time period, wavelength, amplitude, timbre)
- Noise and its effects

Learning Objectives (LOs)

- Explain how sound is produced
- Relate vibrations to sound generation
- Differentiate between pitch and loudness
- Identify harmful effects of noise
- Suggest noise control measures

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7. Electricity and Magnetism

Concepts

- Electricity (basic idea)
- Sources of electricity
- Flow of electric current, idea of resistance
- Electric current and simple circuits with its components
- Conductors and insulators
- Magnets: properties and uses
- Laws of magnetism
- Electromagnetism, use of electromagnets
- Magnetic field (basic idea) and poles

Learning Objectives (LOs)

- Understand basic electrical concepts and safety
- Construct simple circuits
- Differentiate between conductors and insulators
- Describe properties of magnets
- Identify applications of magnetism in daily life

Pedagogical Alignment with NEP 2020

- Competency-based learning (concept → application → analysis)
- Experiential learning through activities and experiments
- Integration with real-life contexts
- Emphasis on observation, measurement, and reasoning skills
- Encouragement of inquiry-based learning

80 Marks QP format:
Compulsory 40 marks
Q1. MCQ - 15 marks (Knowledge, Application, Analysis, Interpretation, Evaluation)
Q2. Fill in the blanks 6 marks + 4 marks of Skill/Application Questions
Q3. Short questions 2x6 + 3 marks (Knowledge, Application, Analysis, Interpretation, Skill, Evaluation)

Any four out of six questions to be answered- 40 Marks
Q4 to Q9
3+3+4 or 5+5 or 4+4+2 mark distributed questions. The type of questions involved - Knowledge, Application, Analysis, Interpretation,Skill, Evaluation.

Application, Interpretation, Analysis and Skill based questions will be used to reduce the habit of rote learning.