CLASS: XI

SUBJECT: PHYSICS (PHYS)

COURSE CODE: PRACTICAL

FULL MARKS: 30   **CONTACT HOURS: 50 HOURS (30+ 20)**

PRACTICAL WORKS + VIVA (16+4) = 20 MARKS

Given below is a list of required experiments.

In each experiment students are expected to record their observations in tabular form with unit at the column head.

Students should plot an appropriate graph where required, work out the necessary calculation and arrive at the result.

SECTION: A

No. OF EXPT.	TOPICS
1	To measure diameter of a small spherical / diameter and length of a cylindrical body using slide calipers, hence calculate its volume with proper formula
2	To measure the internal diameter and depth of a beaker using slide calipers and hence find its volume.
3	To measure diameter of a given thin wire using screw gauge
4	To determine the volume of an irregular but uniform thickness lamina using screw gauge and graph paper.
5	To determine the radius of curvature of a given spherical surface by a spherometer.
6	Consider equilibrium of three concurrent coplanar forces. To verify the parallelogram Law of forces and to determine weight of a body.
7	To study the force of limiting friction for a wooden block placed on horizontal plane surface and to study is relationship with normal reaction. To determine the coefficient of friction.
8	To study the downward force acting along the inclined plane on a roller due to gravitational pull of earth and to study its relationship with angle of inclination(θ) by plotting graph between force and $\sin\theta$.

SECTION: B

No. OF EXPT.	TOPICS
1	To study the acceleration due to gravity by measuring variation in time period (T) with effective length (L) of a simple pendulum, plot graphs of L - T and L - T^2. Determine the effective length of second pendulum from L - T^2 graph
2	To study the force constant of a spring and to study variation in time period of oscillation with mass (m) of a body suspended by a spring. To find the spring constant by plotting a graph of m – T^2
3	To study the force constant of a helical spring by plotting graph between load and extension.
4	To study the variation in volume with pressure for a sample of air at constant temperature by plotting graphs between P – (1 / V) and between P - V
5	To study the fall in temperature of a body (like hot water) with time, by plotting a cooling curve.

6	To study the surface tension of water by capillary rise method.
7	To study the coefficient of viscosity of a given viscous liquid by measuring the terminal velocity of given spherical body.
8	To study the speed of sound of in air at room temperature using resonance column apparatus by two resonance positions.
9	To study the frequency of a tuning fork using resonance column apparatus is by two resonance positions, where the data of the speed of sound in air medium at room temperature will be supplied
10	To study the relationship between frequency and length of a given wire under constant tension using sonometer

The students have to do one practical each from section A and section B in the examination.

PROJECT WORK (MARKS – 7)

All candidates will be required to do one project involving physics related topic/topics of their theory syllabus under the guidance of the Physics teacher.

Candidate should take under any one of the following types of projects:

1) Theoretical project

2) Working model

Candidates are to prepare a technical report formally written including title, abstract, some theoretical discussion, experiment set up, observations with tables of data collected, graph / chart (if any), analysis and discussion of result, deduction, conclusion etc. The report should be kept simple but neat and elegant.

No extra credit shall be given for typewritten material or decorative cover etc.

Suggested heading of project file for theory based project

Title of the project
Introduction
Contains
Analysis / material aid (graph, Data, Structure, diagram etc)
Conclusions/ comments

Suggested heading of project file for model based projects

Title of the project
Model construction
Principle used, concise project report
Conclusion / comments

PRACTICAL FILE – (MARKS – 3)

Teachers are required to access the students on the basis of Physics practical file maintained by them during the academic year. Generally students are not expected to write the procedure of the experiments. The students will write the working formula, draw the figure or circuit diagram, collection of data in proper tabular form, results and few ideas of precautions associated with the experiments.

PRACTICAL MARKS SCHEME

EXPERIMENT						SUB TOTAL (16)	VIVA (4)	L.N.B (3)	PROJECT (7)	TOTAL (30)
No. 1(2+5+1=8)			No. 2 (2+5+1=8)							
THEORY	RECORD	RESULT	THEORY	RECORD	RESULT					