SCIENCE PRACTICALS

Time Allowed: $2^1/_2$ **Max.Marks:15**

Distribution of Marks:

(i) Experiments:
(Two to be done out of three choices, one taken from each section). 2*4 marks = 8 marks

(ii) Viva based on the experiments: = 4 marks

(iii) Record Books:
(for all sections) = 3 marks

Total = 15 marks

From the given list of practicals in SECTION A, SECTION B and SECTION C, three practicals Having one practical from each section may be given to the students, who can opt for any two in the examination.

SECTION – A (PHYSICS)

1. To measure the length (or breadth) of a rectangular table using a metre scale or 30 cm scale or Tailor's tape.
2. To measure diameter of a pencil using a thread and a metre scale.
3. To measure volume of a given quantity of a liquid using measuring vessels.
4. To study the effect of change in (a) amplitude, (b) length, and (c) suspended mass on the time period of a simple pendulum.
5. To find the C.G. of rectangular lamina (i.e., a sheet of uniform thickness)
6. To verify the law of moments using metre-rod.
7. To determine specific gravity of a solid/liquid using a spring balance.
8. To measure potential difference across the terminals of two or more cells, when connected in (i) series, (ii) parallel.
9. To study the changes in the current in an electric circuit by changing its resistance.
10. To study the changes in temperature of water, initially at room temperature., when a hot solid is dropped into it.
11. To study the laws of reflection using plane strip.
12. To trace the path of a ray of light though a rectangular glass slab and find how the angle of refraction changes with the angle of incidence.
13. To trace the path of a ray of light though a glass prism and to measure the angle of deviation.
14. To study how the size, nature and position of image changes as the object (candle/kerosene lamp) is moved in front of a concave mirror.
15. To study how the size, nature and position of image changes as the object (candle/kerosene lamp) is moved in front of a convex lens.

APPARATUS AND MATERIALS REQUIRED FOR PHYSICS BASED PRACTICALS
Non-Consumable Items

Table,metre –scale, talior' tape, vessels, empty container, beaker and dropper, bob, stand, watch, a nail fixed in the wall, lamina ,plumb line ,knife edge (blade),spring balance, piece of solid,voltmeter, battery, variable resistance,ammeter,key,thermometers,heating arrangement, wire gauge, tripod stand, iron, constant temperature bath, plane mirror strip, drawing board,protractor,rectangular glass slab,scale,glass prism, concave mirror on stand, stand for candle/kerosene lamp, ground glass screen on stand, convex lens on stand, geometry box and calorimeter.

Consumable items

Cylindrical pencil, thread non-stretchable, drawing paper, pencil, connecting wires, 10alpins, drawing sheet, rubber, 4drawing pins to fix the drawing sheet on the drawing board, a small weight to fix the pins on the sheet of the board, candle/small kerosene lamp.

Section-B (Chemistry)

1. Cutting and bending a glass tube and boring a cork.
2. To set up an apparatus for preparing, collecting and passing lighter than air heavier than air.
3. To differentiate between a covalent and an ioninc compound on the basis of their properties.
4. To classify the given cloth samples on the basis of their properties.
5. To differentiate between a chemical and physical change in an ongoing process.
6. To study reactions of carbon, sulphur and phosphorous with metals (Mg, Al, Cu) and acids.

APPARATUS AND MATERIALS REQUIRED FOR CHEMESTRY BASED PRACTICALS
Non-Consumable Items

Small triangular file, asbestos sheet, cork borer set, thistle funnel, bent tube, plastic tube, stand, six test tubes with test tube stand, glass rod, test tube holder, beakers, key, sample pieces of cotton, wool, silk, nylon, polyester, acrylic (orlon). Pair of tongs.

Consumable Items

Glass tube, gas burner/spirit lamp, boiling tube, plasticine or wax, beaker shelf, gas jar with lids, chemicals for the preparation of gases lighter than air and heavier than air, burner, two carbon electrodes with conducting wire, dry cell, galvanometer /torch bulb , urea , wax, cane sugar, silica, sodium chloride, potassium chloride, sodium sulphate or any other covalent/ionic compounds, candle, hot plate, acetone, alcohol, benzene, carbon tetrachioride, chloroform, phenol, match-box, glass slide, china dish, glass rod, samples of C.P.S, Mg, Al, Cu, Mineral acids, like HCl, H_2SO_4, HNO_3

SECTION – C (BIOLOGY)

1. To study osmosis though a semi permeable membrane by thistle funnel method.
2. To show the process of osmosis in raisins.
3. To show the process of osmosis though potato/carrot.
4. To study anaerobic respiration using soaked seeds.
5. To study photosynthesis using an aquatic plant by counting liberation of air bubbles per minute.
6. To prepare a amount of the cells of the epidermal layer of onion (stained) and observe it under a microscope.
7. To study different types of plant and animal tissues with the help of permanent slides.
8. To test a leaf for starch to find out the end product of photo-synthesis.
9. To perform the test for starch and fat.

APPARATUS AND MATERIALS REQUIRED FOR BIOLOGY BASED PRACTICALS
Non-Consumable Items

Beaker, glass rod, retort stand, dropper, thread, large cork borer, forceps, thread aquatic plant, compound microscope, slides, mounted needle, tripod stand, gauge, ceramic tile, scalpel/knife.

Consumable Items

One thistle funnel, cellophane paper/parchment paper, common salt, sugar, water, Petri dish, raisins, test tube, though, potato, mercury, soaked germinating seeds of pea/gram, KOH pellets, matchbox, coverslips, onion, iodine solution, ethanol (Alcohol), potted plant, a small cube of butter.