WISH YOU ALL SUCCESS!

SSLC SCIENCE PRACTICAL PROCEDURE – ZOOLOGY

1. To find out the presence of starch in the given food samples of A and B by using Iodine solution.

Aim: To find out the presence of starch in the given food samples of A and B by using Iodine solution.
Requirements: Test tubes, Iodine solution
Procedure: One ml of given food samples are taken in separate test tubes.
Few drops of Iodine.is added. The colour change is observed and tabulated.
Table:

S. No.	Food Sample	Observation	Result
1	A	Appearance of dark blue colour.	Presence of starch
2	B	No change in colour	Absence of starch

Result: The food sample A contains starch.

2. To find out the rate of heart beat of human being by using stethoscope under normal physical conditions.

Aim: To find out the rate of heart beat of human being by using stethoscope.
Requirements: Stethoscope, stop watch
Procedure: Use the stethoscope and hear lubb and dubb sound which make up a heart beat.
Count the number of heart beat per minute and record.
Table:

Sl. No	Person	Number of heart beat per minute
1	Sunil	73

Inference: Under normal conditions the average human heart beat is found to be 73 per minute.

3. To find out the body temperature by using clinical thermometer and to compare with surrounding temperature

Aim: To find out the body temperature by using clinical thermometer.
Requirements: Clinical thermometer, lab thermometer
Procedure: Find out the room temperature by using lab thermometer.
Keep the mercury bulb of the clinical thermometer at the arm pit in boys or elbow in girls for a minute and record the temperature.
Table:

Sl. No	Test	Body Temperature	Room Temperature	C = F – 32 x 5/9
1	Inside the room	98.7' F	30' C	37.0 'C
	Outside the room	98.7' F	30' C	

Inference: Under normal conditions the body temperature of human beings is 98.7' C or 37.0' C

4. To calculate the Body Mass Index of a person by using the BMI formula and comparing the value with BMI chart.

Aim: To calculate the BMI of a person by using BMI formula.
Requirements: Weighing machine, measuring tape
Procedure: Find out the weight in kg of a person by using weighing machine.
Find out the height in m of the same person by using measuring tape.
Calculate BMI by using the BMI formula, BMI = weight / height x height.
Table:

Sl. No	Weight in kg	Height in meter	BMI = weight / height x height
1	50	1.5	22.22

Inference: The BMI of the person is _____ and so he / she is **normal**.
(BMI = Below 19 lean, 19 – 25 normal, above 25 obese)

SSLC SCIENCE PRACTICAL PROCEDURE - BOTONY

5. To dissect and display the Androecium and Gynoecium of any locality available flowers

Aim: To dissect and display the Androecium and Gynoecium of a given flower.
Requirements: Flower, knife, white paper

Given flower is hibiscus rosa sinensis
Procedure: Separate Androecium and Gynoecium of a given flower and paste in a separate sheet.
Record the observations in the table.
Display:
Androecium: Male reproductive part.
It has two parts, the filament and anther. Pollen grains are inside the anther.
Gynoecium: Female reproductive part. It has three parts, the ovary, style and stigma.
Ovules are seen inside of the ovary.
Table:

Sl. No	Name of the flower	Androecium	Gynoecium
1	Bananna	5	1
2	Hibiscus rosa sinensis	Count less	5
3	Datura metel	5	1

Result: Inferred the Androecium and Gynoecium of a given flower.

6. To classify the fruits: Separate the pericarps and write the edible parts and fill in the tabular column.

Aim: To classify the fruits: Separate the pericarps and write the edible parts.
Given fruit is tomato (berry) / Lemon (Hesperidium).
Procedure: Peel the epicarb. Tabulate the nature of epicarb and edible part.
Table:

Sl. No	Type of fruit	Nature of Pericarb	Edible part
1	Berry (Banana)	Edicarp is thin	The pupls in mesocarp.
2	Hesperidium (Lemon)	Edicarp is thick and leathery.	Juicy hairs in endocarp.

Result: The given fruit is identified as tomato (berry) / Lemon (Hesperidium) and separated its percarps and edible parts.

7. To identify the structure of Ovule.

Aim: To identify the structure of Ovule.
Given slide is identified as **L.S of ovule**.
Procedure: Identify the slide and tabulate the inference.
The Ovule contains the ovule.
Each ovule carries within it an embryo sac.
Egg cell or the female gamete lies in embryo sac.
Table:

Sl. No	Observation
1	The ovule has two layers of walls called as integuments.
2	Inner to the integuments, nucleus is present.
3	The embryo sac has egg cell.

Result: The slide was identified and its structured was inferred.

8. To prove the anaerobic respiration (Fermentation).

Aim: To prove the anaerobic respiration (Fermentation)
Materials required: Sugar solution, yeast, test tube.
Procedure: Sugar solution in a test tube is taken. A little quantity of yeast is added.
The tube is placed in a warm place (under sunlight).
The observations and inferences are tabulated.
Table:

Observation	Inference
Effervescence appeared	Alcohol smell inferred.

Result: The alcohol smell indicates that the sugar is converted into alcohol in the fermentation process.

SSLC SCIENCE PRACTICAL PROCEDURE - CHEMISTRY

9. To find the pH of a given solution using pH paper.

Aim: To find the pH of a given solution using pH paper.
Required: Test tubes, test tube hilder, test tube stand, pH paper.
Procedure: 10 ml of given solutions are taken in test tubes. The pH paper is dipped in the test tubes. The colour of pH paper is compared with pH reference.

Table:

Test tube	Colour and pH	Nature of solution
A	Pale red [pH = 3]	Acidic
B	Blue [pH = 9]	Basic

Result:
Given solution (A) is acidic.
Given solution (B) is basic.

10. To identify acids and bases

Aim: To identify the presence of an acid or a base in a given solution.
Required: Test tubes, test tube stand, glass rod, phenolphthalein, methyl orange, litmus paper
Table:

Sl. No	Experiment	Observation	Inference
1	5 ml of test solution was taken in a test tube. Few drops of phenolphthalein were added.	Colourless	Acid
		No pale red	Not basic
2	5 ml of test solution was taken in a test tube. Few drops of methyl orange were added.	Red	Acid
		No yellow	Not basic
3	5 ml of test solution was taken in a test tube. Blue / Red pH paper was dipped into the test tube.	Blue to red	Acid
		Blue is not changed	Not basic

Result: The given solution is acidic.

11. Preparation of true solution, colloidal solution and suspension.

Aim: To prepare true solution, colloidal solution and suspension.
Materials required: Beakers, glass rod, common salt, starch, chalk powder
Procedure: 20 ml of water is taken in three different beakers. They are named as A, B and C. Common salt is added in A. Starch is added in B. Chalk powder is added in C. Three beakers are stirred well. The observations are recoded.

Table:

Beaker	Observation	Inference
A	No settled particles	True solution
B	There is turbidity.	Colloidal solution
C	Settled particles are seen	Suspension

Result:
True solution is in beaker A
Colloidal solution is in beaker B
Suspension is in beaker C

12. To predict whether the reaction is exothermic or endothermic.

Aim: To predict whether the reaction is exothermic or endothermic.
Materials required: Test tubes, test tube stand, water, glass rod, sodium hydroxide (pallets), ammonium chloride

Table:

Sl. No	Experiment	Observation	Inference
1	Water is taken in a test tube. Sodium hydroxide pallets are added to it. The heat change in the test tube is observed.	Test tube is hot.	Exothermic reaction
2	Water is taken in a test tube. Ammonium chloride salt is added to it. The heat change in the test tube is observed.	Test tube is cold.	Endothermic reaction

Result:
1. The reaction that evolves heat is exothermic.
2. The reaction that absorbs heat is endothermic.

13. To measure the radius of the given wire.

Aim: To find the radius of the given wire.
Apparatus required: Screw gauge, a uniform thin wire
Formula: Least count, LC = Pitch / No. of divisions
Diameter of the given wire = PSR + (HSC x LC) ± ZC. Radius of the given wire = d / 2
Procedure: The Least Count [LC] and zero Correction [ZC] are founded.
LC = = $^{1\ mm}$ / $_{100}$ = 0.01 mm. ZC = 0
The given wire is placed between two studs. The head is rotated until the wire is heled firmly. Pitch Scale Reading [PSR] and Head Scale Reading [HSC] are noted. Again they are noted by repeating the experiment. They are tabulated.

Table:

Sl. No	PSR (mm)	HSC	HSC x LC	d = PSR + (HSC X LC) ± ZC mm
1	0	90	0.90	0.90
2	0	90	0.90	0.90
			Mean	1.80 /2 = 0.90

The radius of the given wire = 0.90 / 2 = 0.45 mm.

Result: The radius of the given wire = 0.45 mm.

14. To determine the resistance of the given wire.

Aim: To determine the resistance of the given wire.
Apparatus required: A battery (2V), ammeter (1.5 A), voltmeter (1.5 V) key, rheostat experimental wire (1Ω or 1Ω) and connecting wire
Formula: R = **V / I**
Procedure: The battery eliminator, ammeter, the given wire, rheostat and key are connected in series. The volt meter is connected in parallel across the given wire. The rheostat is adjusted such that a constant current flows through the given wire. "I" is noted from the ammeter. "V" is noted from the voltmeter.

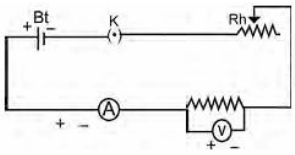


Table:

Trial No	Ammeter reading (I) (ampere)	Voltmeter reading (V) (volt)	R = ^{V} / $_{I}$ ohm
1	0.2	2	10
2	0.4	4	10
		Mean	20 / 2 = 10

Result: The resistance of the given wire is 10 ohms

15. To map the magnetic lines of force when the bar magnet is placed with its north pole facing geographic north.

Aim: To map the magnetic lines of force when the bar magnet is placed with its north pole facing geographic north.
Apparatus required: Drawing board, drawing pins, bar magnet, small magnetic compass needle and paper
Procedure: A sheet of paper is fixed on a drawing board. Using a compass needle, the magnetic meridian is drawn on it. A bar magnet is placed on the magnetic meridian such that its north pole points towards geographic north.

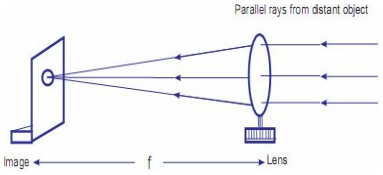
Outline of magnet is drawn and its poles are noted. The magnetic needle is placed near the north pole of the magnet. Its north pole is marked. The magnetic needle is again placed so that the south pole touched the dot mark. Its north pole is marked.

The procedure is repeated. The dots are joined. This curve is a magnetic line of force. In the same way several magnetic lines are drawn.

Result: The magnetic lines of force are mapped when the bar magnet is placed with its north pole facing geographic north. The mapped sheet is attached.

16. To determine the focal length of convex lens by distant object method.

Aim: To determine the focal length of the given convex lens by distant object method.
Apparatus required: The given convex lens, lens stand, white screen and meter scale.



Formula: Focal length (f) = f = $f_1 + f_2 + f_3$ / 3
Procedure: The given convex lens is mounted on the stand. The stand is kept facing a distant object. The white screen is placed behind the convex lens. The screen is adjusted to get a clear, diminished and inverted image of the object. The distance between the convex lens and the screen is measured, the procedure is repeated.

Table:

S. No	Distant object	Distance between the convex lens and the screen (cm)
1	Tree	10
2	Building	10
3	Electric post	10
	Mean	30 / 3 = 10

Result: Focal length of the given convex lens (f) = 10 cm