ZOOLOGY

EX. NO: 1

TO FIND OUT THE PRESENCE OF STARCH IN THE GIVEN FOOD SAMPLES OF A AND B USING IODINE SOLUTION

QUESTION:

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

1. MATERIALS REQUIRED: (1 mark)

Food samples, test tube, iodine solution.

2. PROCEDURE: (1 mark)

- Take 1 ml of food sample A and B in separate test tubes.
- Add one drop of **Iodine solution** in both test tubes.
- Observe the colour change and record.

3. TABLE: (2 mark)

S. No.	Food Sample	Observation	Presence/Absence
1	A	No characteristic change	Absence of starch
2	B	**Dark blue** colour appears	**Presence of starch**

4. RESULT: (1 mark)

The food sample **B** contains starch.

EX. NO: 2

TO FIND OUT THE RATE OF HEART BEAT OF HUMAN BEINGS BY USING STETHOSCOPE UNDER NORMAL PHYSICAL CONDITIONS

QUESTION:

To find out the rate of heart beat of a person by using stethoscope.

1. **MATERIALS REQUIRED:** (1 mark)

Stethoscope, Stop watch.

2. **PROCEDURE:** (1 mark)

- Use the Stethoscope and hear the Lubb and Dubb sound which make up a heart beats.
- Count the number of heart beats per minute and record.

3. **TABLE:** (2 mark)

S. No.	Name of the Person	No of heart beats per minute
1	N. AASHIQ	72
2	J. JAISON	72
3	J. WATSON	72
	Average:	72

4. **INFERENCE:** (1 mark)

Under normal conditions the average human heart beat is found to be **72** per minute.

EX. NO: 3

TO FIND OUT THE BODY TEMPERATURE BY USING CLINICAL THERMOMETER AND TO COMPARE WITH SURROUNDING TEMPERATURE

QUESTION:

To find out the **Body Temperature** of human being using **Clinical Thermometer**.

1. MATERIALS REQUIRED: (1 mark)

Clinical thermometer, Lab thermometer.

2. PROCEDURE: (1 mark)

- Find out the temperature by using lab thermometer.
- Keep the mercury bulb of the clinical thermometer at the arm pit for a minute and record the temperature.

3. TABLE: (2 mark)

S. No.	Test	Body Temperature ^{0}F	Room Temperature ^{0}C	C=F-32 x 5/9
1	Inside the room Outside the room	98.4 F 98.4 F	32 ^{0}C	36.9 ^{0}C

4. INFERENCE: (1 mark)

Under normal conditions the body temperature of human beings is **98.4^{0}F, 36.9^{0}C**

EX. NO: 4

TO CALCULATE THE BODY MASS INDEX OF A PERSON, BY USING THE BMI FORMULA AND COMPARING THE VALUE WITH BMI CHART.

QUESTION:

To calculate the **BMI** of any one of your classmates by using the **BMI** formula.

1. MATERIALS REQUIRED: (1 mark)

Weighing machine, Measuring tape.

2. PROCEDURE: (1 mark)

- Find out the weight of your classmate by using weighing machine.
- Find out the height of the same person by using measuring tape.

$$BMI = \frac{weight\ (kg)}{height\ (m\ )}$$

- Find out the **BMI** and record.

3. TABLE: (2 mark)

S. No.	Persons	Weight (kg)	Height (meter)	Height ($meter^2$)	BMI
1	LOGESH	50	1.5X 1.5	2.25	50/2.25=22.2

3. INFERENCE: (1 mark)

The BMI of my classmate Selvan/~~Selvi~~ **J. LOGESH** is _____ and so he/~~she~~ is **normal/~~obese~~/~~lean~~**.

BOTANY

EX. NO: 5

TO DISSECT AND DISPLAY THEANDROECIUM AND GYNOECIUM OF ANY LOCALLY AVAILABLE FLOWERS

QUESTION:

To dissect and display the **Androecium** and **Gynoecium** of any locally available flowers.

1. IDENTIFICATION: (1 mark)

The flower given for dissection is identified as **Hibiscus/ Datura metal**

2. DISSECT AND DISPLAY OF GIVEN FLOWER: (1 mark)

Dissect and display the Androecium and Gynoecium and given flower on white sheet and label the parts

Androecium:	Gynoecium
1. Anther	**1**. Ovary
2. Filament	**2.** Style
	3. Stigma

3. PROCEDURE : (1 mark)

- The given has been identified and the flower dissected and displayed on white sheet.
- The parts of the given flower is labled.

3. TABLE: (2 mark)

S. No.	Name of the flower	No. of stemen	No. of stigma
1	Hibiscus rosasininsis	Infinity	5
2	Datura metal	5	1

EX. NO: 6

TO CLASSIFY THE FRUITS.SEPARATE THE PERICARPS AND WRITE THE EDIBLE PARTS

QUESTION:

To classify the fruits.Separate the **Pericarps** and write the Edible parts.

1. IDENTIFICATION : (1 mark)

The given fruits name is Tomato **(Berry)** or lemon **(Hesperidium)**

2. PROCEDURE: (2 mark)

The given fruit is sliced and separate the epicarp, mesocarp and endocarp.

TOMATO:

- It is differentiate into epicarp and mesocarp.
- The mesocarp and endocarp is fused together.
- The edible part is mesocarp.

3. TABLE: (2 mark)

S. No.	Type of Fruit	Nature of Pericarp	Edible Part
1	**Berry:**Tomato or Banana	Soft	Fleshy Mesocarp
2	**Hesperidium:** Lemon or orange	Hard	Juicy Hair
3	**Drupe:** mango	Hard	Mesocarp

4. INFERENCE:

The given fruits has been classified and labeled the edible parts.

EX. NO: 7

IDENTIFY THE STRUCTURE OF OVULE

QUESTION:

The given slide kept for identification is **L.S. of ovule**.

1. IDENTIFICATION: (1 mark)

The given slide consists of the structure of **L.S. of ovule.**

2. PROCEDURE: (1 mark)

The slide is kept in compound microscope and it is viewed and I have seen the structure of L.S. Ovule with components like Nucellus, Egg, Integuments and Funicle.

3. TABLE: (2 mark)

S. NO.	OBSERVATION (EXPLANATION)
1	The ovule has **2 layers** of wall called as **Integuments.**
2	Inner to the integuments, **Nucellus** is present.
3	The embryo sac has **Egg**, **Polar nuclei** and **Antipodal** cells.
4	The ovule is small structure present in the ovary.
5	The ovule is converted into seeds.

4. RESULT: (1 mark)

The given slide has been **identified** and explained.

EX. NO: 8

TO PROVE THE ANAEROBIC RESPIRATION (FERMENTATION)

QUESTION:

To prove the **Anaerobic Respiration** (Fermentation).

1. MATERIALS REQUIRED: (1 mark)

Test Tube, Sugar Solution, Yeast.

2. PROCEDURE: (1 mark)

- Sugar solution is taken in a test tube.
- A little quantity of yeast is added.
- The tube is placed in a warm place.
- Record the observation and Inference.

3. OBSERVATION AND INFERENCE: (2 mark)

Observation	Inference
Appearance of **Effervescence**.	Smell of alcohol.

4. RESULT: (1 mark)

The **Alcohol Smell** indicates that the sugar is converted into alcohol by **fermentation**.

CHEMISTRY

EX. NO: 9

TO FIND OUT THE P^H OF A GIVEN SOLUTION USING P^H PAPER

QUESTION:

To find out the P^H of the given solution using P^H paper..

1. PROCEDURE: (1 mark)

- Take about 10ml of the given samples in different test tubes and label them as A, B, C, D.
- Dip the P^H paper into the test tubes.
- Compare the colour of P^H paper with the colour chart of P^H reference.
- Note the approximate value of P^H.

2. TABLE: (2 mark)

Test tubes	Sample	P^H Paper		Nature of solution
		Colour produced	Approximate P^H	Acidic/Basic/Natural
A	Dil. Hcl	Red	1	Acidic
B	Dil. NaOH	Violet	13	Basic

3. RESULT: (2 mark)

The tube A contains **Acid.**

The tube B contains **Basic.**

EX. NO: 10

TO IDENTIFY ACIDS AND BASES

QUESTION:

To identify the presence of an **Acid or a Base** in a given sample.

1. MATERIALS REQUIRED: (1 mark)

Test tubes, Test tube stand, Glass rod, Litmus paper (both red and blue), Acids, Bases, Phenolphthalein, Methyl orange solution.

2. TABLE: (3 mark)

S. No.	Experiment	Observation (Colour change)	Inference (Acid/Base)
1	Take 5ml of the test solution in a test tube, add phenolphthalein in drops to this content.	**Pink** colour appears No colour appears	Presence of **Base** Presence of **Acid**
2	Take 5ml of the test solution in a test tube and add methyl orange in drops.	**Yellow** colour appears **Pink** colour appears	Presence of **Base** Presence of **Acid**
3	Take 10ml of the test solution in a test tube and dip **red** or **blue** litmus paper into the test tube.	**Red** turns into **Blue litmus** paper **Blue** turns into **Red litmus** paper	Presence of **Base** Presence of **Acid**

3. RESULT: (1 mark)

The given sample contains **Acid/ Base**.

EX. NO: 11

PREPARATION OF TRUE SOLUTION, COLLOIDAL SOLUTION AND SUSPENSION

QUESTION:

To prepare true solution, Colloidal solution and Suspension.

1. PROCEDURE: (1 mark)

- Take 20ml of water in three different beakers and label them as A, B, C.
- Add common salt in A, starch in B, and chalk power in C.
- Stir the contents of three different beakers gently.
- Record your observations.

2. TABLE: (2 mark)

Beakers	Observation	Inference
A	Particles **don't settle down**	**True** Solution
B	Particles **don't settle down** but it **forms turbid solution**	**Colloidal** Solution
C	Particles settle down to form **Sediment**	**Suspension**

3. RESULT: (2 mark)

1. True solution is in beaker **A**.
2. Colloidal solution is in beaker **B**.
3. Suspension is in beaker **C.**

EX. NO: 12

TO PREDICT WHETHER THE REACTION IS EXOTHERMIC OR ENDOTHERMIC

QUESTION:

To predict whether a reaction is **Exothermic** or **Endothermic** using the given chemicals.

1. MATERIALS REQUIRED: (1 mark)

Test tubes, Test tube stand, Water, Glass rod, Sodium hydroxide (pellets), Ammonium chloride etc.

2. TABLE: (3 mark)

S. No.	Experiment	Observation (Hot/Cold)	Inference (Exo./Endo.)
1	Take water in a test tube. Add sodium hydroxide pellets one by stirring. Touch the test tube and not the observation.	Heat is **evolved** Becomes Hot	**Exothermic**
2	Take water in a test tube. Add ammonium chloride salt and stir well. Touch the test tube and note the observation.	Heat is **absorbed**	**Endothermic**

3. RESULT: (1 mark)

In **Exothermic** reaction heat is **evolved**.
In **Endothermic** reaction heat is **absorbed**.

EX. NO: 13

SCREW GAUGE – MEASURING SMALL DIMENSIONS OF THE OBJECT

QUESTION:

To find out the **Radius** of the given wire.

1. APPARATUS REQUIRED:

Screw gauge, a uniform thin metal wire.

2. FORMULA: (1 mark)

Radius of the wire r = d/2 d – Diameter of the wire

3. PROCEDURE: (2 mark)

- Find the least count, zero error and zero correction of the Screw Gauge.
- Place the wire between 2 studs and it is held firmly.
- Take the pitch scale reading **(PSR)** and head scale coincides **(HSC)** and tabulate the readings.

4. TABLE: (1 mark)

L.C = 0.01 mm **Z.E** = -3 **Z.C** = +0.03

S. No.	P.S.R (mm)	H.S.C	H.S.C X L.C	Total reading P.S.R +(H.S.C X L.C)±Z.C (mm)
1	0	77	0.77	0.80

The radius of given wire **r = d/2** = 0.80/2

r=0.40 mm

5. RESULT: (1 mark)

The radius of the given wire= **0.40**mm.

EX. NO: 14

RESISTANCE OF THE WIRE

QUESTION:

To determine the **Resistance** of the given **wire**.

APPARATUS REQUIRED:

A Battery, Ammeter, Voltmeter, Key, Rheostat, Experimental wire and Connecting wires.

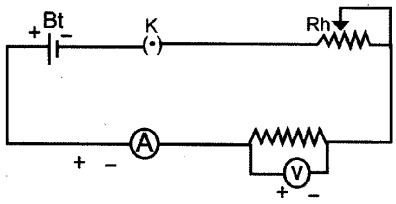
1. FORMULA: (1 mark)

$$\textit{Resistance of the wire } R = \frac{V}{I}$$

V - Potential difference, I –Current

2. CIRCUIT DIAGRAM: (1/2 mark)

Bt – battery, K – Key, Rh - rheostat
A – Ammeter, v – voltmeter.



3. PROCEDURE: (1/2 mark)

- The circuit is connected.
- The potential difference **'V'** is noted for given current **'I'** by adjusting the rheostat.
- The experiment is repeated for different values of the current.
- The **average values** of $\frac{V}{I}$ gives the **resistance** of the wire R.

4. TABULATION: (2 mark)

Trial No.	Ammeter reading I(ampere)	Voltmeter reading V (volt)	Resistance R = V/I(ohm)
1	0.1	1	10
2	0.2	2	10

Mean R = 10 ohm

5. RESULT: (1 mark)

Resistance of the given **wire R** = **10 ohm**.

EX. NO: 15

MAPPING OF MAGNETIC FIELD

QUESTION

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

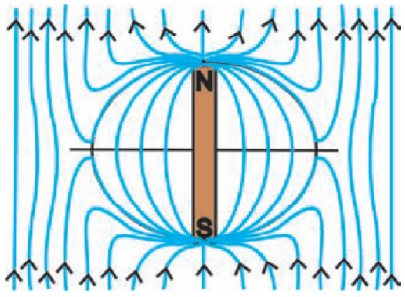
1. APPARATUS REQUIRED:

Drawing board, Drawing pins, Bar magnet, Small magnetic compass needle and White sheet.

2. PROCEDURE: (1 mark)

- A Sheet of paper is fixed on a drawing board.
- Using a compass needle, the magnetic meridian is drawn it.
- A bar magnet is placed on the magnetic meridian.
- The north and south poles of the compass are marked by pencil dots.
- The process is repeated and the dots are joined as a smooth curve.

3. MAP: (1+2 mark)



4. RESULT: (1 mark)

The magnetic meridian and magnetic lines of force are **mapped**.

The mapped sheet is attached.

EX. NO: 16

FOCAL LENGTH OF CONVEX LENS

QUESTION:

To determine the **Focal length** of **convex lens** by **distant object** method.

1. APPARATUS REQUIRED:

The given convex lens, Lens stand, White screen and Meter scale.

2. FORMULA: (1 mark)

$$Focal\ length\ f = (f_1+f_2+f_3)/3$$

f_1, f_2, f_3–focal length measured by focusing different distant objects.

3. PROCEDURE: (Distance Object Method) (1 mark)

- The convex lens is mounted on the stand and is kept facing a distant object.
- The white screen is placed behind the convex lens and its position is adjusted.
- The distance between the convex lens and the screen is measured.
- This gives the focal length of the convex lens.

4. TABLE: (2 mark)

S. No.	Distant object	Distance between the convex and screen (cm)
1	Tree	f_1 11
2	Building	f_2 11
3	Electric pole	f_3 11

Mean f = 11 cm.

5. RESULT: (1 mark)

Focal length of the given **convex lens f** = 11 cm.