

# **A Training Report**

**Submitted to**

**ATMIYA UNIVERSITY**

In partial fulfillment of the requirements for the degree of

**Bachelor of Science in Biotechnology**

By

**Komal Rank**

(2022-2023)

Under the supervision of

**Mr. Ashvin Chaturvedi**

**In Wokhardt Hospital Pathology Lab**



**Department of Biotechnology**

**Atmiya University, Rajkot, Gujarat – 360005**

## **DECLARATION**

I hereby declare that the work incorporated in the present Training report Entitled “The Total Blood Analysis in pathology lab ” is my own work and is original. This Work (in part or in full) has not been submitted to any University for the award of any Degree or a Diploma.

Date:

Student’s signature:

Date: 30<sup>th</sup> September, 2022

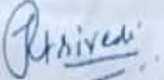
To whom so ever it may concern

This is to certify that **Ms. Komal Rank** student of **Atmiya University, Rajkot** has completed her internship in our **Pathology Department** under the guidance of **Mr. Ashvin Chaturvedi – Deputy Manager**. The period of training was from **29<sup>th</sup> August, 2022 to 29<sup>th</sup> September, 2022**.

During her internship period we found her to be sincere and hardworking.

We wish her all the best for her future.

For **N.M. Virani Wockhardt Hospital,**

  
**Jaydeep Trivedi**  
Human Resources

# **Acknowledgement**

Thanks God, to the merciful and the passionate, for providing us the opportunity to step in the excellent World of science. To be able to step strong and smooth in this way, we have also been supported and Supervised by many people to would like to express our deepest gratitude.

This work was came out during 29 August 2022 to 29 September 2022 at the wakhardt Hospital Pathology Laboratory.

I take this opportunity to thank everyone, who made my training possible. All the people that I have Worked with have contributed to my learning process during this month. I am highly indebted to All the people who have spared their valuable time for my training and help me develop my insight for All the techniques. On the first place I would like to record my gratitude to Mr.Ashvin Chaturvedi – my training guide under Whose supervision, guidance and advice I have completed my training in a successful way.

## **INDEX:**

<b>Sr. No</b>	<b>Content</b>	<b>Page. No</b>
1.	Introduction	6
2.	CBC Test	10
3.	Blood Grouping Test	11
4.	HIV Test	13
5.	Dengue Test	14
6.	Urine PH Test	15
7.	Conclusion	16

# INTRODUCTION:

- A clinical laboratory is a laboratory where tests are done on Clinical specimens in order to get information about the health of a patient as pertaining to the Diagnosis, treatment, and prevention of disease.

- Medical laboratory science is a complex subject enclosing a Number of different disciplines.

- PATHOLOGY is a medical science to study the disease

Through the studies of its causes, its effect together with associated alteration in structure & functions.

- The Functional Components Of The Clinical Laboratory Can be listed as follow:

Clinical pathology

Hematology

Clinical biochemistry

Serology

Blood bank

Histology

## **There are three types lab:**

**1.Hematology:** is study of blood, blood components And disorders it involves studying the anatomy and Physiology of blood cells and other cells that Compressed blood like red blood cells, white blood Cells, platelets and hemoglobin

**2.Histopathology Lab:** it's refers to the microscopic examination of tissue in order to study the manifestation the disease.

### **3.Biochemisty/ Serology Lab:**

The chemical constituent of various body Fluids such as blood, urine and other body Fluid like are analyzed in clinical Biochemistry lab. The biochemistry test Are very useful to determine severity of Disease of many organs. Serology is study of many immune bodies in human blood.

- **Biochemical Analyzer**



**CBC Machine**





**Hematology lab:** Total blood counting

▪ **Biochemistry Lab:**

Specific and non specific disease test

▪ **Histopathology:**

Biopsy of damage tissue

▪ Instrumentation

▪ Centrifuge

▪ CBC

▪ Biochemical analyzer

▪ Different types of blood sample collection tube

There are various methods for the blood analysis In different labs.

## **1.Complete Blood Count (CBC):**

**Principal:** A CBC determines if there are any Increases or decreases in your blood cell Counts.

### **▪ Procedure:**

1. Take blood sample and centrifuge it
2. After that put that tube in the CBC Machine.
3. Then give the command to analyzer
4. It is automatically proceed and give result.

## **2.ESR Test**

**▪ Principal:** The Erythrocyte Sedimentation Rate (ESR): is a Nonspecific assay used to screen for the presence or Absence of active disease.

### **▪ Procedure:**

- Take Clean dry centrifuge tube
- Add 0.5ml Sodium citrate.
- Add 2ml of blood sample into the tube

And mix it.

- Fill the westergren tube up to '0' mark.
- Pull the tube in vertical position on the stand

### **3. Blood Grouping (By slide method):**

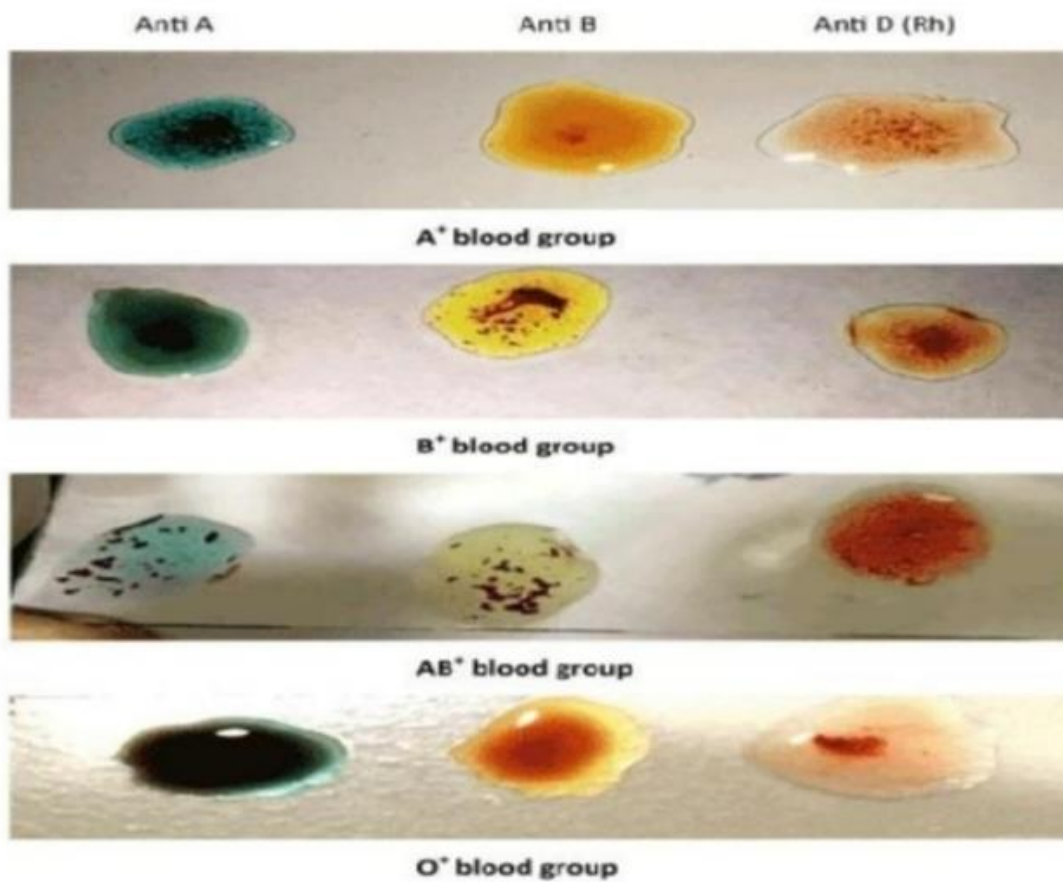
#### **▪ Principal:**

▪ The test to determine your blood group is called ABO Typing. Your blood sample is mixed with antibodies Against type A and B blood. Then, the sample is Checked to see whether or not the blood cells stick Together. If blood cells stick together, it means the Blood reacted with one of the antibodies.

#### **▪ Procedure:**

1. Place 1drop of anti-A and 1drop of Anti-B and 1drop of Rh reagent separately on labeled slide.
2. Add 1drop of blood sample in anti-A&B and Rh factor And then mix it well.
3. Put the slide at room temperature after 2min. observed the result.

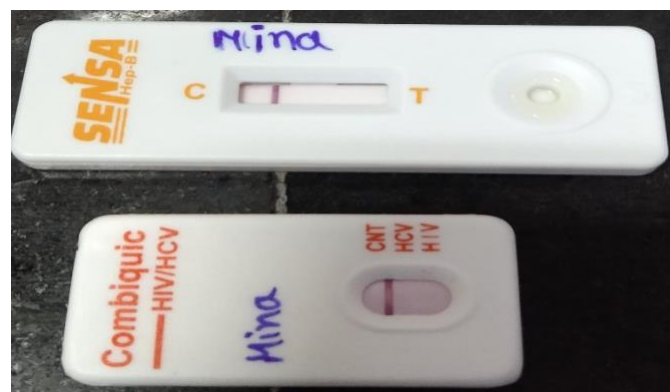
■ **ABO Blood Grouping Result:**



**4. HIV Test:** The HIV TRI-DOT test is a visual, rapid, sensitive and Accurate immunoassay for the differential detection of HIV-1 & HIV-2 antibodies (IgG) in human serum or plasma using HIV-1 & HIV-2 Antigens immobilized on an immunofiltration membrane.

▪ Procedure:

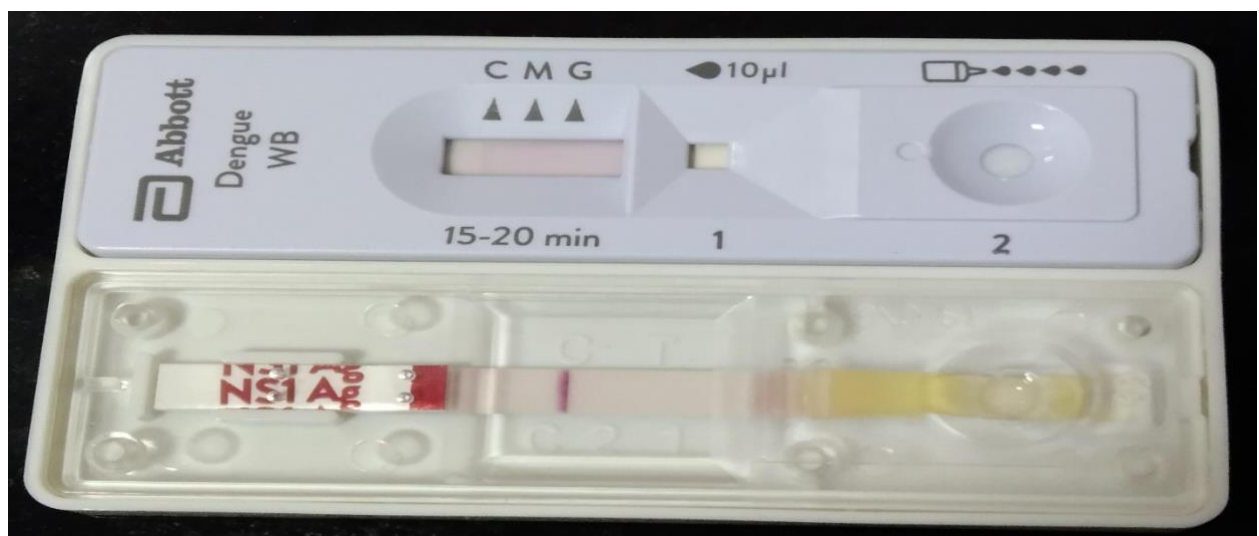
- 1. Add 3 drops of Buffer Solution to the center of the Device.
- 2. Hold the dropper vertically and add 1 drop of patient's Sample 50µl (serum or plasma) using the sample dropper Provided (use a separate sample dropper for each Specimen to be tested).
- 3. Add 5 drops of Buffer Solution.
- 4. Add 2 drops of Protein-A Conjugate directly from the Conjugate vial.
- 5. Add 5 drops of Buffer Solution and read result.



**5. Diagnose Dengue card test:** is a rapid solid Phase Immuno-chromatographic test for the Qualitative differential detection of IgM and IgG antibodies to dengue virus in Human Serum /Plasma.

▪ **Procedure:**

1. Take blood sample and centrifuge it for Separation of serum
2. Transferr sample to the specimen well of the Cassette, then add 1 drop of buffer and start The timer.
2. Read the results at 10 minutes once the colored line have appeared



**7.Urine pH level Test:** It's used to detect And manage a wide range of disorders, Such as urinary tract infections, kidney Disease and diabetes. A urinalysis Involves checking the appearance, Concentration and content of urine.

▪ **Procedure:**

1. Take the urine sample and deep the pH Paper in sample that sample tube.
2. After 5min.observed the colour changes.





## **Conclusion:**

- In Hematology lab I have learned how to Operate this machine and which test Conduct in these machine are RBC, WBC And platelet
- In Biochemistry lab is to fully automated Machine which gives the result of Creatinine, Glucose, Cholesterol etc...
- In Histopathology lab Section cutting of various tissue which are damaged or infected.