



COLLEGE OF ALLIED HEALTH PROFESSIONALS

Government College University, Faisalabad

Faculty of Medical Sciences

Group no. 2

Project Work Name:

Health Scan Laboratory



BS (Hons). Medical Laboratory Technology

Session: 2020-2024 |FALL |MORNING

Semester : 8th

Submitted To : Dr. Imtiaz Mahmood Tahir

In charge / assistant Professor

College of Allied Health Professionals

Government College University, Faisalabad

Email: Imtiazmahmoodtahir@gcuf.edu.pk

Submitted BY:

Group Members:

Roll No.	Names	Roll No.	Names
8413	Muhammad Hashim	8424	Sehar
8415	Muhammad Haris Baig	8441	Kanwal Shahzadi
8416	Samavia	8464	Hina Asim
8423	Maryam Kanwal		

Laboratory Name:

Health Scan Laboratory

Lab Name Abbreviation:

HS-Lab

Our Motto:

Scan Today, Healthy Tomorrow

Lab Logo:



Mission Statement

The mission of Health Scan Laboratory is to provide accurate, reliable, and timely diagnostic testing services that enhance patient care and support healthcare professionals. We are committed to utilizing advanced technology, adhering to the highest standards of quality and safety, and fostering a compassionate environment to ensure the well-being and satisfaction of our patients. Through continuous innovation, education, and collaboration, we aim to be a trusted leader in the medical laboratory industry.

Address: East-Canal Road near Faisal Hospital, Faisalabad.

Location: The lab has a prime location with three road-facing sides:

1. One side faces Canal Road.

2. Another side faces Faisal Hospital.
3. The third side faces the back street.

Google Map Location:



Location Picture:



- **Clinics Near By:** Rasida Eye Trust, Farhad Clinic, F-Dec Center

- **Hospital Near BY:** Faisal Hospital
- **Health Institute Near By:** Faisal Institute of Health
- **Collection Center Near By:** Shifa Lab Collection Center, Test point Laboratory
- **Pharmacies Near By:** There are total **Six** Pharmacies: Farhad Clinic Pharmacy, Akbar Pharmacy, AK Pharmacy, Standard Pharmacy, Green Pharmacy, Dawaa & Dua Pharmacy.
- **Near by Medical Specialists:**

Cardiologists: One that is Dr. Shakeel Ahmad

Orthopedic Surgeons: One that is Dr. Nabeel (FH)

Pediatricians: Four that are Dr. Saima (FC), Dr. Tanzeela, Dr. Muhammad Chudary, Dr. Talat Zahid.

Dermatologists: Two that is: Dr. Umer Farooq (FC), Dr. Farookh

Gynecologists: Two that are: Dr. Fozia Saba (FH), Dr. Ramlah Ayesha (FH)

Neurologists: One that is: Dr. Muhammad Bilal Waheed (FH)

ENT Specialist: One that is: Prof. Dr. Saleem.

Ophthalmologist: Two that are: Dr. Ateeq-ur-Rehman (RET), Dr. Kashif Saleem (FC)

Gastroenterologist and Hepatologist: Three that are: Dr. Prof. Khalid Ameen, Dr. Arif Masood Ray, Dr. Muhammad Adeel Raoof.

Urologist: Three that are: Dr. Muhammad Akram, Dr. Muhammad Arshad Badar, Dr. Muhammad Shiraz.

Endocrinologist: One that is: Dr. Muhammad Sohail Anjam

Rate list: attach below

Laboratory Registration (PHC)

Lab accreditations:

- CAP
- NHS-NEQAS

Sr.	Test Names	Sample	Report Time	Price
A				
1.	A.N.A	3-5cc Clotted Blood Or Serum	Daily	1,000
2.	A.P.T.T.	Sodium Citrate Tube	Daily	500
3.	A/G Ratio	3-5cc Clotted Blood Or Serum	Daily	700
4.	Absolute Eosinophil Count	3cc EDTA Blood	Daily	350
5.	ACTH	3cc EDTA Blood	After 3 days	3,000
6.	AFB C/S		After 7 weeks	1,400
7.	Albumin	3-5cc Clotted Blood Or Serum	Daily	350
8.	Alkaline Phosphate	3-5cc Clotted Blood Or Serum	Daily	350
9.	Alpha Feto Protein	3-5cc Clotted Blood Or Serum	Daily	1,200
10.	Amylase (24 h Urine)	24 h Urine	Daily	1,000
11.	Amylase (Serum)	3-5cc Clotted Blood Or Serum	Daily	1,000
12.	Androgen Level	3-5cc Clotted Blood Or Serum	Daily	2,000
13.	Aldosterone Level	3-5cc Clotted Blood Or Serum	Next Day	3,000
14.	Anti CCP	3-5cc Clotted Blood Or Serum	Daily	4,000
15.	Anti HAV IgG	3-5cc Clotted Blood Or Serum	Daily	2,400
16.	Anti HAV IgM	3-5cc Clotted Blood Or Serum	Daily	2,500
17.	Anti HCV (Screening)	3-5cc Clotted Blood Or Serum	Daily	400
18.	Anti HIV 1& 2 Screening	3-5cc Clotted Blood Or Serum	Daily	450
19.	Anti HIV 1& 2	3-5cc Clotted Blood Or Serum	Daily	2500
B				
20.	Beta HCG	3-5cc Clotted Blood Or Serum	Daily	1750
21.	Bicarbonate	3-5cc Clotted Blood Or Serum	Daily	600
22.	Bilirubin Conjugated	3-5cc Clotted Blood Or Serum	Daily	400
23.	Bilirubin Unconjugated	3-5cc Clotted Blood Or Serum	Daily	400
24.	Bilirubin Total	3-5cc Clotted Blood Or Serum	Daily	400
25.	Bleeding Time		Daily	300
26.	Blood C/E	3cc EDTA Blood	Daily	600
27.	Blood C/E For Dengue (HB, TLC, Platelets Count)	3cc EDTA Blood	Daily	450
28.	Blood C/E with ESR	3cc EDTA Blood	Daily	700
29.	Blood Group	2cc EDTA Blood	Daily	200
30.	Blood For C/S	Blood Culture Vail		2200
31.	BUN	3-5cc Clotted Blood Or Serum	Daily	400
C				

32.	C.P.K	3-5cc Clotted Blood Or Serum	Daily	600
33.	CA-125	3-5cc Clotted Blood Or Serum	Daily	3,500
34.	Calcium	3-5cc Clotted Blood Or Serum	Daily	350
35.	Cardiac Enzymes	3-5cc Clotted Blood Or Serum	Daily	1,000
36.	Cholesterol	3-5cc Clotted Blood Or Serum	Daily	350
37.	CK-MB	3-5cc Clotted Blood Or Serum	Daily	500
38.	Clotting Time		Daily	300
39.	Creatinine	3-5cc Clotted Blood Or Serum	Daily	300
40.	CRP	3-5cc Clotted Blood Or Serum	Daily	600
41.	CRP (High Sensitive)	3-5cc Clotted Blood Or Serum	Daily	1,200
42.	CSF For Analysis	CSF	Daily	1450
43.	CSF For C/S	CSF	After 3 Days	4000
D				
44.	Dengue Ns1 Antigen	3-5cc Clotted Blood Or Serum	Daily	1450
45.	Dengue RNA by PCR	3-5cc Clotted Blood Or Serum	After 3 days	5,000
46.	Dengue IgG	3-5cc Clotted Blood Or Serum	Daily	1500
47.	Dengue IgM	3-5cc Clotted Blood Or Serum	Daily	1700
48.	DLC	3cc EDTA Blood	Daily	400
49.	D-Dimer	Sodium Citrate Tube	Daily	1900
E				
50.	Ear swab for C/S	Swab	After 3 days	1700
51.	ESR	3cc EDTA Blood	Daily	200
52.	Electrolyte	3-5cc Clotted Blood Or Serum	Daily	1500
F				
53.	FNAC		After 3 days	3,000
54.	Ferritin	3-5cc Clotted Blood Or Serum	Daily	1050
55.	Fluid for C/S	Fluid	Daily	1700
56.	Free T3	3-5cc Clotted Blood Or Serum	Daily	2200
57.	Free T4	3-5cc Clotted Blood Or Serum	Daily	2200
58.	Free Testosterone	3-5cc Clotted Blood Or Serum	Daily	2500
59.	FSH	3-5cc Clotted Blood Or Serum	Daily	1550
60.	Fungus C/S	All type Specimens		2500
G				
61.	G6 PD Test	3cc EDTA Blood	Daily	1,600
62.	Gamma GT	3-5cc Clotted Blood Or Serum	Daily	700
63.	GCT	3-5cc Clotted Blood Or Serum	Daily	800

64.	Growth Hormone	3-5cc Clotted Blood Or Serum	Daily	2200
65.	GTT	3-5cc Clotted Blood Or Serum	Daily	800
H				
66.	Hb	3cc EDTA Blood	Daily	200
67.	HB Electrophoresis	3cc EDTA Blood	After 7 days	2500
68.	HBA1C	3cc EDTA Blood	Daily	1500
69.	HBsAg Screening	3-5cc Clotted Blood Or Serum	Daily	500
70.	HBV By PCR Quantitation	3-5cc Clotted Blood Or Serum	After 3 days	6,000
71.	HBV Genotyping by PCR	3-5cc Clotted Blood Or Serum		7,000
72.	HCV By PCR Quantitation	3-5cc Clotted Blood Or Serum	After 3 days	6,000
73.	Hct	3cc EDTA Blood	Daily	300
74.	HDV By PCR Quantitation	3-5cc Clotted Blood Or Serum	After 3 days	5,000
75.	Helicobacter Pylori (IgG)	3-5cc Clotted Blood Or Serum	Daily	2,100
76.	Helicobacter Pylori (IgM)	3-5cc Clotted Blood Or Serum	Daily	1,800
I				
77.	ICT- Malaria	3cc EDTA Blood	Daily	800
L				
78.	L.D.H	3-5cc Clotted Blood Or Serum	Daily	600
79.	Lipid Profile	3-5cc Clotted Blood Or Serum	Daily	1,200
80.	Liver Function Test	3-5cc Clotted Blood Or Serum	Daily	1,500
M				
81.	MCH	3cc EDTA Blood	Daily	300
82.	MCV	3cc EDTA Blood	Daily	300
83.	MCHC	3cc EDTA Blood	Daily	300
84.	MTB by PCR	3-5cc Clotted Blood Or Serum	After 3 days	5000
85.	Milk Analysis	Milk	Daily	900
86.	Milk for C/S	Milk	After 3 Days	2,700
N				
87.	Nasal Secretion C/S	Nasal Secretion	After 3 Days	1,700
P				
88.	P.S.A	3-5cc Clotted Blood Or Serum	Daily	2,150
89.	Peripheral Blood Smears	3cc EDTA Blood	Daily	400
90.	PH (Urine)	Urine (Random/Spot)	Daily	200
91.	Prolactin	3-5cc Clotted Blood Or Serum	Daily	1,300
92.	Phosphate	3-5cc Clotted Blood Or Serum	Daily	400
93.	Pleural Fluid for Analysis	Pleural	Daily	1440

94.	Pregnancy Test (urine)	Urine (Random/Spot)	Daily	200
95.	Progesterone	3-5cc Clotted Blood Or Serum	Daily	1600
96.	Protein (Albumin) Urine	Urine (Random/Spot)	Daily	250
97.	PT with INR	Sodium Citrate Tube	Daily	300
98.	Pus for C/S	Pus	Daily	1700
99.	Pus for C/E	Pus	Daily	1700
R				
100.	R.A Factor	3-5cc Clotted Blood Or Serum	Daily	600
101.	Rapid Plasma Reagin	3-5cc Clotted Blood Or Serum	Daily	1250
102.	RBC Morphology	3cc EDTA Blood	Daily	300
103.	Renal Function Test	3-5cc Clotted Blood Or Serum	Daily	1000
104.	Reticulocytes	3cc EDTA Blood	Daily	350
105.	Rubella IgG	3-5cc Clotted Blood Or Serum	Daily	1600
106.	Rubella IgM	3-5cc Clotted Blood Or Serum	Daily	1600
S				
107.	S.G.O.T	3-5cc Clotted Blood Or Serum	Daily	350
108.	Serum Iron	3-5cc Clotted Blood Or Serum	Daily	650
109.	S.G.P.T	3-5cc Clotted Blood Or Serum	Daily	350
110.	Semen Analysis	Semen	Daily	1900
111.	Semen for C/S	Semen	After 3 days	1700
112.	Sputum for C/S	Sputum	After 3 days	1700
113.	Sputum for Gram Stain	Sputum	Daily	600
114.	Stool for C/E	Stool	Daily	450
115.	Stool for Occult Blood	Stool	Daily	300
116.	Stool for C/S	Stool	After 3 days	1700
117.	Syphilis Screening	3-5cc Clotted Blood Or Serum	Daily	400
T				
118.	T.I.B.C	3-5cc Clotted Blood Or Serum	Daily	750
119.	T3	3-5cc Clotted Blood Or Serum	Daily	1000
120.	T4	3-5cc Clotted Blood Or Serum	Daily	1000
121.	TSH	3-5cc Clotted Blood Or Serum	Daily	1250
122.	Testosterone	3cc EDTA Blood	Daily	2000
123.	Throat Swab for C/S	Swab	After 3 days	1700
124.	Thyroid Function Test	3-5cc Clotted Blood Or Serum	Daily	3200
125.	Torch Profile	3-5cc Clotted Blood Or Serum	Daily	7000
126.	Total Protein	3-5cc Clotted Blood Or Serum	Daily	300

127.	Triglycerides	3-5cc Clotted Blood Or Serum	Daily	350
128.	Troponin I	Heparinized and EDTA Blood		1750
U				
129.	Urea	3-5cc Clotted Blood Or Serum	Daily	400
130.	Uric Acid	3-5cc Clotted Blood Or Serum	Daily	400
131.	Urine C/E	Urine (Random/Spot)	Daily	300
132.	Urine for C/S	Urine (Random/Spot)	After 3 days	1700
133.	Urine Sugar Fasting	Urine (Fasting)	Daily	200
134.	Urine Sugar Random	Urine (Random/Spot)	Daily	200
V				
135.	Vitamin B12	3-5cc Clotted Blood Or Serum	Daily	2000
W				
136.	WBC Count (TLC)	3cc EDTA Blood	Daily	300
137.	WBC's Morphology	3cc EDTA Blood	Daily	400
138.	Wound Swab for C/S	Swab	After 3 days	2000

Laboratory floor plan based on WHO guidelines:

Our total area of the lab is 230 m² or 2475.70 ft² with dimensions 49.76 ft x 49.76 ft.

Reception Area (10m²) or 10ft×11ft (110 ft²)

- Reception desk (2m x 1m)
- Waiting area (4m x 2m)
- Seating for 6-8 people
- Decorative plants and artwork

Biochemistry Section (40m²) or 20ft×22ft (440 ft²)

- Workstation 1 (2m x 1.5m)
- Workstation 2 (2m x 1.5m)
- Equipment area (3m x 2m)
- Storage room (2m x 1m)
- Bench space for instruments (3m x 1m)

Microbiology Section (40m²) or 20ft×22ft (440 ft²)

- Workstation 1 (2m x 1.5m)
- Workstation 2 (2m x 1.5m)
- Equipment area (3m x 2m)

- Storage room (2m x 1m)
- Bench space for instruments (3m x 1m)

Hematology Section (30m²) or 16ft× 20ft (320 ft²)

- Workstation 1 (2m x 1.5m)
- Workstation 2 (2m x 1.5m)
- Equipment area (2m x 1.5m)
- Storage room (1.5m x 1m)

Molecular Biology Section (40m²) or 20ft×22ft (440 ft²)

- Workstation 1 (2m x 1.5m)
- Workstation 2 (2m x 1.5m)
- Equipment area (3m x 2m)
- Storage room (2m x 1m)
- Bench space for instruments (3m x 1m)

Store Room (10m²) or 10ft×11ft (110 ft²)

- Shelving for supplies and reagents
- Storage for equipment and instruments

Corridors (1.5m wide) or 5ft

- Connecting all areas of the laboratory

WHO Guidelines:

- Laboratory size: 250m²
- Reception area: 10m²
- Workstations: 2m x 1.5m
- Equipment area: 3m x 2m
- Storage rooms: 2m x 1m
- Corridors: 1.5m wide
- Ventilation: separate ventilation system for each section
- Lighting: adequate lighting for each section
- Electrical outlets: sufficient outlets for equipment
- Water supply: separate water supply for each section.

Staff:

1- Non-Technical Staff

2- Technical Staff

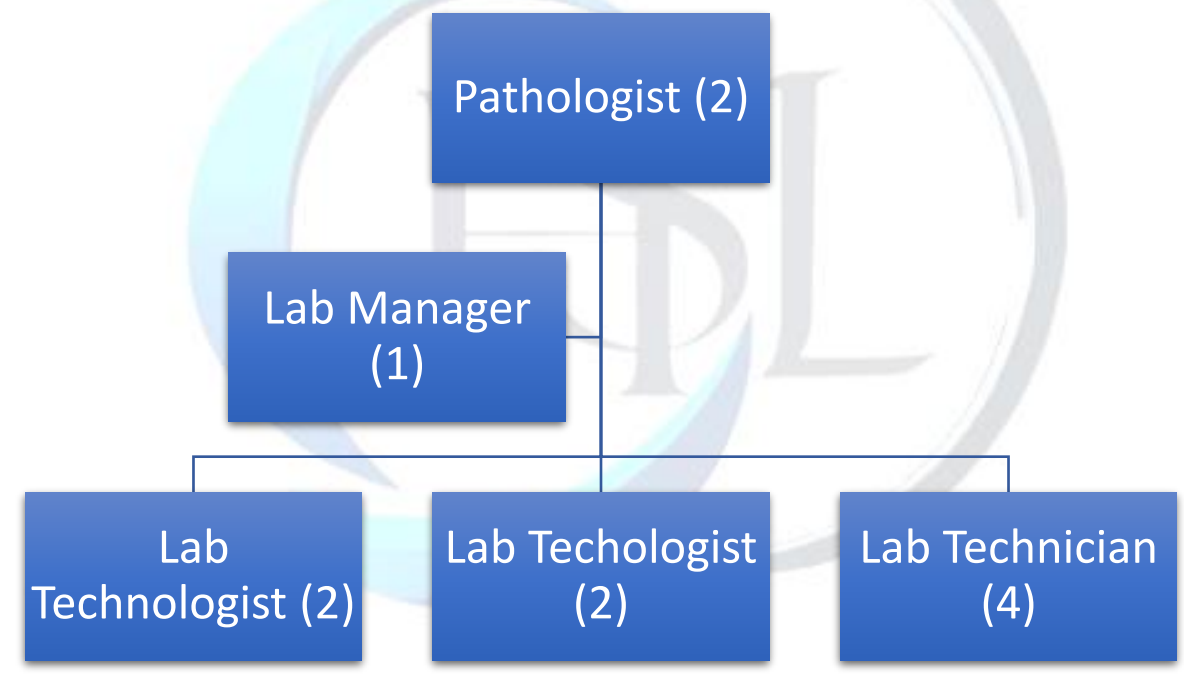
1- Non-Technical Staff:

- **Two** Security Guards
- **One** Sweeper
- **Two** Receptionist
- **One** Marketing Officer

2- Technical Staff:

- **Two** Phlebotomist
- **One** Lab Manager/ QC Incharge
- **Four** Technicians
- **Four** Technologist
- **Two** Pathologist

Organum



Staff Duty Roaster

Designation	Name	Timing
Phlebotomist	Aslam	8am to 3pm
Phlebotomist	Akram	3pm to 11pm
Receptionist	Ahmad	8am to 3pm
Receptionist	Nida	3pm to 11pm
Pathologist (Chemical Pathologist)	Hashim	8am to 3pm
Pathologist (Hematologist)	Hina Asim	3pm to 11pm

Lab Manager/ QC In charge	Kanwal	Full Time
Technicians	Hamza	8am to 3pm
Technologist	Samavia	8am to 3pm
Technicians	Rashid	8am to 3pm
Technologist (Bio+ Heam)	Saher	8am to 3pm
Technicians	Shakeel	3pm to 11pm
Technologist (Microbiologist)	Mariam Kanwal	3pm to 11pm
Technicians	Hassan	3pm to 11pm
Technologist (Molecular)	Haris	3pm to 11pm

Services Offer:

The services offer by our lab are mentioned following in our lab banner.



Health Scan Laboratory
Scan today, Healthy tomorrow

Our Services

- Hematology
- Clinical Chemistry
- Special Chemistry
- Microbiology
- Molecular Diagnostics

Contact us 0300-1234567 www.healthscan.com

Laboratory Sections:

Preanalytical Area:

- Reception Area

The Reception area contain a receptionist or a data entry operator, a computer, Table, chair, Stationary, Patient sitting Area, Chairs / Sofa, water dispenser and PHC registration certificate, Patient Rights, Duty Roaster are displayed at this area.

- **Phlebotomy**

The phlebotomy room has a phlebotomist for sample collection.

This section contain the things include a phlebotomy stool, tourniquets, injections(3cc and 5cc) and Butterflies, vacutainers (Red, Purple, Yellow, pink, Blue, grey) Alcohol swabs, Permanent markers, barcode labelling and scanner, centrifuge, wheel chair for disables, Urine Container, Culture Bottles, Sample Racks, Preservatives, Serum Cups.

Products company Names:

- ✓ Centrifuge : M-800 China
- ✓ Red Top Vacutainer Yellow Top Vacutainer, Blue Top Vacutainer, Purple Top Vacutainer, Pink Top Vacutainer, Grey Top Vacutainer: ImmuneMed, Bolton, Demophorious
- ✓ Butterflies: Demophorious
- ✓ Injections: B.M Injections, Al-Shifa Injections, Zindagi

Product Name	Vendor	Adress	Phone No.
Tourniquets, Alcohol Swabs Injections & Butterflies	Faisal Pharmaceutical Industries	7-8,2nd Floor, S.A. Centre,Chiniot Bazar. Faisalabad	041-2605134
Centrifuge, vacutainers, Urine Container, Culture Bottles, Sample Racks	The Faisalabad Scientific Stores	Asad Tower 606-Main Gate Jinnah Colony, Faisalabad	0300-7623645
Demophorious Vacutainer and Blood Collection system	Main Scientific Corporation (PVT) Ltd.	Jinnah colony Faisalabad.	041-2629674

- **Doffing and Donning Area:**

is present at the entrance of the analytical area contain the PPE and for the removal of gloves, eye protections, etc contain baskets.

- **Wash Room:**

The washroom is located in a corner near the entrance and consists of a double room to avoid odor problems. It also has a washbasin outside

Analytical Area:

The analytical area has Thumb print attendance device for staff and staff Rights are displayed, containing the following things:

- Biochemistry Section
- Serology Section
- Hematology Section
- Special Chemistry
- Microbiology Section
- Staining Section
- PCR Section

▪ Biochemistry:

The biochemistry section contain Biochemistry related reagents and the manual and automated Analyzers.

Reagents:

The reagents involves in the biochemistry section of a lab related to RFT's, LFT's, cardiac enzymes, Lipid profiles, calcium, etc.

Reagent	Company Name	Vendor	Phone No.
Glucose 250ml	Biomedics	Mian & Sons Scientific Trader, Innovative Enterprise,	0301-8183201, 0345-7713778
Sgpt 50ml	Human, Merck	Mian & Sons Scientific Trader, Innovative Enterprise,	0301-8183201, 0345-7713778
Sgot 50ml	Human, Merck	Mian & Sons Scientific Trader, Innovative Enterprise,	0301-8183201, 0345-7713778
Uric Acid 100ml	Human, Merck	Mian & Sons Scientific Trader, Innovative Enterprise,	0301-8183201, 0345-7713778
Bilirubin	Human	Mian & Sons Scientific Trader, Innovative Enterprise,	0301-8183201, 0345-7713778
Cholesterol 100ml	Human	Mian & Sons Scientific Trader, Innovative Enterprise,	0301-8183201, 0345-7713778
Triglyceride 100ml	Human	Mian & Sons Scientific Trader, Innovative Enterprise,	0301-8183201, 0345-7713778
Alkaline 50ml	Human	Mian & Sons Scientific Trader, Innovative Enterprise,	0301-8183201, 0345-7713778

Calcium 200ml	Human, Wiener Lab	Mian & Sons Scientific Trader, Innovative Enterprise,	0301-8183201, 0345-7713778
Albumin 100ml	Human	Mian & Sons Scientific Trader, Innovative Enterprise,	0301-8183201, 0345-7713778
Urea 125 ml	DiaSys	Mian & Sons Scientific Trader, Innovative Enterprise,	0301-8183201, 0345-7713778
Creatinine 125ml	DiaSys	Mian & Sons Scientific Trader, Innovative Enterprise,	0301-8183201, 0345-7713778
Bilirubin 515ml	DiaSys	Mian & Sons Scientific Trader, Innovative Enterprise,	0301-8183201, 0345-7713778
CK-MB 4x2ml	DiaSys	Mian & Sons Scientific Trader, Innovative Enterprise,	0301-8183201, 0345-7713778
CK-NAC 125ml	DiaSys	Mian & Sons Scientific Trader, Innovative Enterprise,	0301-8183201, 0345-7713778
GPT 100ml	DiaSys	Mian & Sons Scientific Trader, Innovative Enterprise,	0301-8183201, 0345-7713778
Tg 100ml	DiaSys	Mian & Sons Scientific Trader, Innovative Enterprise,	0301-8183201, 0345-7713778
Gamma GT 125ml	DiaSys	Mian & Sons Scientific Trader, Innovative Enterprise,	0301-8183201, 0345-7713778

Biochemistry Analyzer:

1. Manual:

Product	Company	Vendor	Contact Number
Microlab 300	Merck	Asad Medical Complex (AMC) Raja road Akbarabad Faisalabad.	041-2646322
Chem-5, Chem-7	Erba Mannheim	Main Scientific Corporation (Pvt) Ltd	041-2629674
Techno 786	Techno	Citiscientific, Innovative Enterprise	0300 8266750, 0345-7713778
Colorimeter 3in1	Biorays	Biorays main Akbarabad, Faisalabad	
E-Lab	BIOELAB	Innovative Enterprise	0345-7713778

2. Automation:

Product	Company	Vendor
XL-200	Erba Mannheim	Main Scientific Corporation Pvt Ltd
XL- 180	Erba Mannheim	Main Scientific Corporation Pvt Ltd.
Biossays 240 Plus	Snibe	
Selectra ProM	Merck	Asad Medical Complex

Product	Company	Vendor	Contact Number
Adjustors (10-100uL) (100-1000uL)			
Dragon Lab	Dragon Lab	Faisalabad Scientific jinnah colony	0300-7623645
Biorays	Biorays	Biorays main Akbarabad, Faisalabad	+923227777639
Nichiryo	Nichiryo – Japan	Main Scientific Corporation Pvt Ltd	041-2629674
HumaPette Smart Line	Human Diagnostics	Human Diagnostics sheikupura road Faisalabad	+923057087807
Adjustor stand			
HumaPette Linear Stand	Human Diagnostics	Human Diagnostics sheikupura road Faisalabad	+923057087807
HumaPette Premium Line	Human Diagnostics	Human Diagnostics sheikupura road Faisalabad	+923057087807
Centrifuge			
800 Electronic Centrifuge	Biorays	Biorays main Akbarabad, Faisalabad	+923227777639
Human (HuMax 4K)	Human Diagnostics	Asad Medical Complex	041-2646322
Water bath			
LKTC-L Controller	China	Mian & Sons Scientific Trader	041-2629674
Water bath stainless-steel (28 hole)	Biorays	Biorays main Akbarabad, Faisalabad	+923227777639
Glass Tubes, plastic tubes, tips (yellow+Blue)			
Glass Tubes, plastic tubes, tips (yellow+Blue)	ImmuneMed, BolTon	Main Scientific Corporation Pvt Ltd	041-2629674
Dry Incubator			

HumaCube	Human Diagnostics	Lyallpur Scientific Store	0321-8668034
Distilled water			
Distilled water 5L	Madeline	Innovative Enterprise	0345-7713778

1. Others:

Other than the instruments the things required are:

- Biohazard bench bin, Fridge

▪ Hematology:

Product	Company	Vendor
CBC Analyzer		
Swelab Alpha Standard Plus (Part: 3)	Martaindow	Mian & Sons Scientific Trader, Innovative Enterprise
Swelab Alpha Standard Plus (Part: 3)	Medonic	Mian & Sons Scientific Trader, Innovative Enterprise
Sysmex KX-21 (3parts);	Sysmex	Innovative Enterprise
H360 (3parts), H560 (5 parts);	Erba Mannheim	Main Scientific Corporation Pvt LTD
H30 (3 parts), H50(5parts), H60s (5parts)	EDAN	Main Scientific Corporation Pvt LTD
Roller mixer		
Roller mixer	Biorays	Biorays main Akbarabad, Faisalabad
HumaRoll	Human Diagnostic	Human Diagnostics sheikupura road Faisalabad
HBA1C Meter		
A1c EZ 2.0 (POCT), A1cCheck Express (Analyzer)	BioHermes	Main Scientific Corporation Pvt Ltd

Product	Company	Vendor
Giemsa Stain	Merck, Biorays	Innovative Enterprise
Leishman stain	Merck, Biorays	Innovative Enterprise
Hemoglobin Reagent	Atlas Medical- germnay,	Innovative Enterprise

ESR N-10 Solution	Biorays	Biorays main Akbarabad, Faisalabad
EDTA solution 500ml	BD Biosciences	Innovative Enterprise
WBC Turk's fluid 500ml	Atlas Medical	Innovative Enterprise
Red cells Hayem's Solution	Biorays	Biorays main Akbarabad, Faisalabad.
Ethanol 2ml	Unicol Limited	Innovative Enterprise
Group set	Diagast	Innovative Enterprise
Group set	Biomedical	Main Scientific Corporation Pvt Ltd.
Group set	Atlas Medical	Main & Sons scientific
D-dimer	Human, DiaSys, BioMed	Innovative Enterprise
PT, APTT	Wiener Lab, BioMed	Innovative Enterprise, Main Scientific Corporation Ltd.

▪ Serology Section:

Product	Company	Vendor
Immunochromatography kits		
HBsAg, HCV, HIV, Syphilis,	Basecheck, Healgen, Abbott	Main & son's Scientific Store
Malarial Parasite, Urine pregnancy Tests	Basecheck, Healgen, Abbott	Main & son's Scientific Store
Card Tests		
ANA, RA Factor, CRP	spectrum, BioMed	Main Scientific Corporation Ltd
ANA, RA Factor, CRP	Human Diagnostics	Innovative Enterprise

▪ Special Chemistry section:

The special Chemistry section involve the testing of Vitamins and Trace Elements, autoantibodies, special proteins, Tumors makers, hormones level.

Product	Company	Vendor
CLIA		
Accre 6	TiSENC	Main Scientific Corporation (Pvt) Ltd
HumaCLIA 150	Human Diagnostics	Human Diagnostics sheikupura road Faisalabad
MAGLUIMI 600, MAGLUIMI X3	Snibe	

Elisa		
COMBIWASH	Human Diagnostics	Human Diagnostics sheikupura road Faisalabad
HumaReader Single plus	Human Diagnostics	Human Diagnostics sheikupura road Faisalabad
Automation		
Elisys Duo, Elisys Quattro	Human Diagnostics	Human Diagnostics sheikupura road Faisalabad
Immunofluorescence		
Getein1100	Getein Biotech, Inc	Main Scientific Corporation Pvt ltd

▪ **Microbiology Section:**

Product	Company	Vendor	Product
Binocular Microscope			
Carl Zeiss	Carl Zeiss	Lyallpur scientific store	0321- 8668034
HumaScope LightLED, HumaScope ClassicLED	Human Diagnostics	Human Diagnostics Faisalabad	+923057087807
Fluorescence microscope			
HumaScope FluoLED	Human Diagnostics	Human Diagnostics Faisalabad	+923057087807
Incubator			
HumaTherm	Human Diagnostics	Human Diagnostics Faisalabad	+923057087807
Urine strips			
Combur-Test®	Roche Diagnostics	Innovative Enterprise	0345-7713778
SD- Uro Color	Abbott	Innovative Enterprise	0345-7713778
U10	UriMed	Main Scientific Corporation Ltd	041-2629674
Stains			
Gemsa, Gram stain, Ziehl-Neelsen (ZN) stain	Merck	Asad Medical Complex	041-2646322
Gemsa, Gram stain, Ziehl-Neelsen (ZN) stain	Biorays	Biorays Main Akbarabad Faisalabad	+923227777639
Urine strip Analyzer			

Opetilte Urine Analyzer, Instest Urine Analyzer	Acro BioTech Inc.	Popular international Pvt ltd.	(041) 8710913
Staining Stand			
Biorays	Biorays	Biorays Main Akbarabad Faisalabad	+923227777639
Agar Powder			
Merck	Merck	Asad Medical Complex	041-2646322
Petri Dishes			
Disposable Petri Dishes	Biorays	Biorays Main Akbarabad Faisalabad	+923227777639

▪ Molecular Section

Product	Company	Vendor
Centrifuge		
HuMax Micro	Human Diagnostics	Human Diagnostics sheikupura road Faisalabad
PCR Instruments		
HumaLoop T, HumaLoop M, HumaTurb C + A (Real Time)	Human Diagnostics	Human Diagnostics sheikupura road Faisalabad
Montania 4896 Real-Time PCR	Anatolia geneworks	Popular international Pvt ltd
Promotor 960 Real-Time PCR System	Acon	Popular international Pvt Ltd
Molecision S6	Snibe	

1. PCR Reagent:

Reagent	Company	Vendor
LAMP Assays	Human Diagnostics	Human.Diagnostics Faisalabad
Anatolia Bosphore Nucleic acid Extraction kits	Anatolia geneworks	Popular international Pvt Ltd.
Promoter Nucleic Acid Extraction Kits	Acon	Popular international Pvt ltd

Promoter HLA-B27 PCR Test Kit	Acon	Popular international Pvt ltd
Promoter TB PCR Test Kit	Acon	Popular international Pvt ltd
Promoter HCV Quantitative PCR Test Kit	Acon	Popular international Pvt ltd
Promoter HBV Quantitative PCR Test Kit	Acon	Popular international Pvt ltd
Promoter SARS-CoV-2 RT-PCR Test Kit	Acon	Popular international Pvt ltd

2. Filter blue tips & yellow tips:

Company: Bolton

Vendor: Main Scientific Corporation Pvt Ltd.

Departments working protocols according to WHO

▪ Phlebotomy:

Preparation:

1. Hand Hygiene: Perform hand hygiene before and after patient contact.
2. Equipment Preparation: Ensure all necessary equipment are prepared and within reach.
3. Patient Identification: Verify the patient's identity

Patient Positioning:

1. Comfort: Ensure the patient is comfortable and in a stable position, either sitting or lying down.
2. Arm Position: Position the patient's arm extended to form a straight line from shoulder to wrist.

Venipuncture Site Selection:

1. Inspection: Inspect both arms for a suitable vein, typically the median cubital vein.
2. Tourniquet Application: Apply the tourniquet 3-4 inches above the selected puncture site to make the vein more prominent.

Aseptic Technique:

1. Skin Disinfection: Clean the puncture site with an alcohol swab, moving in concentric circles from the center outwards. Allow the area to dry completely.

Venipuncture:

1. Needle Selection: Choose the appropriate size of the needle for the patient.
2. Insertion: Insert the needle bevel up at a 15-30 degree angle into the vein..

Post-Procedure:

1. Needle Removal: Remove the needle gently once the required amount of blood has collected.
2. Pressure Application: Apply pressure to the puncture site with a clean cotton ball.
3. Needle Disposal: Dispose of the needle and any sharps in a puncture-resistant sharps container.
4. Labeling: Label all blood collection tubes.

Follow-Up:

1. Check Patient: Ensure the patient feels well and has no adverse reactions.
2. Documentation: Record the procedure, including any difficulties encountered and the condition of the patient.

Infection Control:

1. Decontamination: Clean and disinfect the area and any equipment used during the procedure.
2. Personal Protective Equipment: Use and properly dispose of gloves and any other PPE as per standard infection control practices.

▪ Biochemistry:

1. **Purpose:** Clearly define the SOP's objectives and the procedures it covers, specifying who is responsible for its implementation.
2. **Responsibilities:** Assign roles and ensure all personnel are adequately trained
3. **Laboratory Safety:**
 - **Biosafety and Biosecurity:** Use appropriate containment facilities and personal protective equipment (PPE).
 - **Chemical Safety:** Maintain an inventory with safety data sheets, and ensure proper storage, labeling, handling, and disposal of chemicals.
4. **Sample Handling and Processing:**
 - **Sample Collection:** Use standardized methods to avoid contamination.
 - **Sample Storage:** Define conditions for storage to maintain sample integrity, and implement inventory tracking.
5. **Equipment and Instruments:**

- **Maintenance and Calibration:** Schedule regular maintenance and calibration, and keep detailed records.
- **Operation Procedures:** Provide detailed instructions for using each piece of equipment, including troubleshooting steps.

6. Quality Control:

- Implement routine checks using control samples and standards. Participate in external proficiency testing programs to validate results.

7. Documentation and Record Keeping:

- **Documentation:** Explain all steps clearly, instructions and safety measures.
- **Record Keeping:** Maintain detailed and secure records of experiments, results, quality control data, and maintenance activities.

8. Waste Management:

- **Hazardous Waste Disposal:** Follow regulations for disposing of hazardous biological and chemical waste safely.

9. Training:

Provide comprehensive training for all staff, including practical demonstrations and competency assessments.

▪ Hematology:

1. **Sample Collection and Handling:** Detail procedures for collecting blood samples, including proper labeling, transportation, and storage to maintain sample integrity.
2. **Quality Control:** Establish protocols for internal quality control measures, such as regular calibration of equipment and monitoring of reagent quality.
3. **Instrument Operation:** Provide instructions for operating and maintaining hematology analyzers, including daily startup procedures, routine maintenance, and troubleshooting guidelines.
4. **Analytical Procedures:** Outline step-by-step instructions for performing hematological tests, including CBC (Complete Blood Count), WBC (White Blood Cell) differentials, RBC (Red Blood Cell) indices, and platelet counts.

5. **Safety Precautions:** Define safety protocols to ensure the protection of laboratory personnel from potential hazards, including exposure to bloodborne pathogens and chemical reagents.
6. **Data Management:** Specify procedures for recording and documenting test results accurately, including data entry, review, and storage in compliance with data protection regulations.
7. **Reporting and Interpretation:** Provide guidelines for interpreting test results and reporting abnormalities, including reference ranges and clinical significance.

Continuing Education and Training: Establish ongoing training programs to ensure that laboratory staff are competent in performing hematological tests and are updated on new techniques and procedures.

8. **External Quality Assurance:** Implement procedures for participating in external proficiency testing programs to assess the laboratory's performance and ensure accuracy and reliability of test results.
9. **Documentation and Record Keeping:** Emphasize the importance of maintaining detailed records of all laboratory procedures, including SOP revisions, instrument maintenance logs, and quality control records.

▪ **Molecular Section**

1. Sample Preparation:

- Perform sample preparation in designated areas to avoid cross-contamination.
- Use sterile tools and reagents, and change gloves frequently.

PCR and Amplification:

- Conduct PCR setup in a clean, designated area separate from where DNA is analyzed.
- Use aerosol-resistant pipette tips and change them between each sample.

Electrophoresis and Detection:

- Handle gels and buffers with care to avoid exposure to hazardous chemicals (e.g., ethidium bromide).
- Use proper disposal methods for gels and buffers according to safety guidelines

Sequencing and Analysis:

- Follow protocols for sequencing reactions, ensuring accurate pipetting and mixing.
- Use bioinformatics tools as recommended and ensure data integrity and security.

2. Equipment and Instrumentation

Calibration and Maintenance:

- Regularly calibrate and maintain equipment (e.g., thermal cyclers, centrifuges) according to manufacturer instructions.
- Keep records of all maintenance and calibration activities.

Decontamination:

- Clean work surfaces and equipment before and after use with appropriate disinfectants.
- Autoclave reusable materials and dispose of single-use items in designated waste containers.

3. Quality Control and Documentation

Standard Operating Procedures (SOPs):

- Develop and follow detailed SOPs for all laboratory procedures.
- Regularly review and update SOPs as needed.

Record-Keeping:

- Maintain detailed records of all experiments, including protocols, results, and any deviations from standard procedures.
- Document all incidents, accidents, and corrective actions taken.

▪ Microbiology:

Standard Operating Procedures (SOPs) for a Microbiology Lab are essential to ensure quality, safety, and consistency in laboratory operations. Here are some general SOPs for a Microbiology Lab

1. Laboratory Safety:

- Wear personal protective equipment (PPE) like lab coats, gloves, and face masks.
- Handle microorganisms in a biosafety cabinet or laminar flow hood.
- Decontaminate work surfaces and equipment regularly.

2. Sample Handling:

- Label samples correctly and store them in designated areas.
- Handle samples in a way that prevents contamination and mix-ups.
- Follow proper protocols for sample processing, storage, and disposal.

3. Microorganism Handling:

- Handle microorganisms in a biosafety cabinet or laminar flow hood.
- Use appropriate techniques for inoculation, incubation, and subculturing.
- Follow proper protocols for microorganism identification, storage, and disposal.

4. Doors:

- All the doors of respective areas of the laboratory should keep in closed condition

5. Cleaning:

- Cleaning of the laboratory should be done before work starts and at the end of the day. Laboratory area or equipment should not clean while work is going on in that area.

6. Equipment Maintenance:

- Regularly clean, disinfect, and maintain equipment.
- Calibrate equipment according to manufacturer's instructions.
- Keep equipment in good working order to ensure accurate results.

7. Quality Control:

- Participate in proficiency testing programs.
- Use quality control samples to ensure accuracy and precision.
- Follow established protocols for quality control and quality assurance.

8. Record Keeping:

- Accurately record all laboratory results and data.
- Maintain detailed records of sample processing, testing, and storage.
- Follow established protocols for record keeping and data management.

9. Sterilization and Disinfection:

- Follow established protocols for sterilization and disinfection.
- Use appropriate methods for sterilization and disinfection of equipment and supplies.
- All sterilized materials should be stored in cool, dry place under laminar units or under the area having terminal HEPA filters.
- Before starting and after completion of microbiological work, wash and sanitize the hands up to forearm with medicated soap and disinfectant solution.
- The used disposable caps mask and gloves should be autoclaved in the autoclavable bag and then dispose of.

8. Waste Disposal:

- Follow established protocols for disposal of biohazardous waste.
- Dispose of waste in designated containers and areas.

9. Personnel Training:

- Provide regular training and updates for laboratory personnel.
- Ensure personnel understand and follow established SOPs.

Laboratory Fire Exit Plan

1. Laboratory Layout

- **Main Gate:** Entrance through the reception area.
- **Analytical Area:** Contains the following sections:
 - ❖ Biochemistry Section
 - ❖ Hematology Section
 - ❖ Molecular Section
 - ❖ Microbiology Section

Corridor: Runs between the sections with an exit door at the back.

2. Escape Routes

- **Primary Exit Route:**
 - ❖ Proceed from any section to the main corridor.
 - ❖ Move towards the reception area.
 - ❖ Exit through the main gate.
 - ❖ Gather at the outdoor assembly point in the designated safe area (parking lot/front yard).
- **Secondary Exit Route:**
 - ❖ Proceed from any section to the main corridor.
 - ❖ Move towards the back exit door.

- ❖ Exit through the back exit door.
- ❖ Gather at the outdoor assembly point in the designated safe area (parking lot/back yard).

3. Emergency Equipment Locations

- Fire Extinguishers: Positioned on the wall at strategic points within the main corridor and near each section.
- Smoke Detectors: Installed in the reception area, main corridor, and each section.
- Emergency Lighting: Installed along the main corridor and near both exit doors.
- Fire Alarms: Located near the main gate and the back exit door.

4. Assembly Points

- Primary Assembly Point: Front yard/parking lot near the main gate.
- Secondary Assembly Point: Back yard/parking lot near the back exit door.

5. Signage and Maps

- Exit Signs: Illuminated signs installed above the main gate and the back exit door.
- Route Maps: Posted near the main gate, back exit door, and in common areas within each section.

7. Personnel Training

- **Training Sessions:**
 - ❖ Conduct training sessions to educate all staff on the fire exit plan and emergency procedures.
- **Role Assignments:**
 - ❖ Assign roles such as fire wardens for each section to ensure everyone evacuates safely.

Waste Management Plan

1. Waste Segregation

➤ White Baskets:

Type: Non-hazardous simple waste.

Contents: Paper, plastic, general office waste, and other non-hazardous materials.

➤ Yellow Baskets:

Type: Chemical and hazardous waste.

Contents: Chemical residues, used reagents, contaminated lab materials, and other hazardous chemicals.

➤ Red Baskets:

Type: Needles and glass, bloody hazardous sharp wastes.

Contents: Used needles, glass slides, bloody gloves, and other sharp, biohazardous items.

2. Waste Collection Procedures

➤ Daily Collection:

Ensure that waste from all baskets is collected daily from each section: Biochemistry, Hematology, Molecular, and Microbiology.

Designate specific times for waste collection to maintain consistency and prevent overflow.

➤ **Safety Measures:**

Use appropriate personal protective equipment (PPE) such as gloves, masks, and lab coats during waste collection.

Handle all waste, especially from the Yellow and Red baskets, with care to avoid spills and injuries.

3. Waste Storage and Handling

➤ **White Waste Storage:**

Store in a designated non-hazardous waste area within the lab.

Ensure that storage areas are clean and well-ventilated.

➤ **Yellow Waste Storage:**

Store in a designated hazardous waste storage area with proper labeling.

Use secure, leak-proof containers to prevent spills and contamination.

➤ **Red Waste Storage:**

Store in a designated biohazardous waste area with proper biohazard labeling.

Use puncture-resistant containers for sharps to prevent injuries and contamination.

4. Waste Disposal Procedures

➤ **Collection by:** US Incineration Company

➤ **MOU Details:**

Company: US Incineration Company

Plan Address: Chak # 250 Bardayky Near Abbas Pur Faisalabad

Contact: 0300-7131862

Collection Schedule:

Coordinate with US Incineration Company to establish a regular pickup schedule.

Ensure that waste is collected promptly to avoid buildup and potential hazards.

Transport Safety:

Ensure that waste is securely packed and labeled before handing over to the company's staff.

Verify that the waste van is appropriately equipped for safe transport of hazardous materials.

5. Documentation and Record-Keeping

➤ **Waste Log:**

Maintain a detailed log of all waste collected, including types, quantities, and dates.

Keep records of the waste handed over to US Incineration Company, including transport dates and receipt acknowledgments.

6. Training and Awareness

➤ **Staff Training:**

Conduct regular training sessions for all lab personnel on proper waste segregation, handling, and disposal procedures.

Emphasize the importance of using PPE and following safety protocols.

➤ **Signage and Instructions:**

Display clear signage near waste disposal areas to guide staff on proper waste segregation.

Provide written instructions and protocols as part of the training materials.

7. Emergency Procedures

➤ Spill Management:

Have spill kits readily available in each section.

Train staff on the proper use of spill kits and immediate steps to take in case of a spill.

➤ Injury Response:

Have first aid kits available and ensure staff are trained in basic first aid procedures.

In case of needlestick injuries or exposure to hazardous waste, follow the lab's emergency response plan, including seeking medical attention immediately.

Budget

Staff Budget:

Designation	Per Person	Total Payment
Non-Technical Staff		
Security Guards (M + E)	16,000	32,000
Marketing Officer	30,000	30,000
Sweeper	5,000	5,000
Receptionist (M+E)	20,000	40,000
Technical Staff		
Phlebotomist (M+E)	20,000	40,000
Lab Manager/ QC incharge	50,000	50,000
Pathologist (Chemical Pathologist) (M)	60,000	60,000
Pathologist (Hematologist) (E)	60,000	60,000
Technician (Hematology) (M+E)	27,000	54,000
Technician (Microbiology) (M+E)	27,000	54,000
Technician (Biochemistry) (M+E)	27,000	54,000
Technologist (Molecular) (M+E)	35,000	70,000
Technologist (Microbiologist) (M+E)	35,000	70,000
Grand Total		619,000

Laboratory Sections Budget

Product	Per Item Price	Total
Reception		
Table	35,000	35,000
Chairs	10,000	30,000
Computer core i3 (2)	10,000	20,000
Waiting Area		
Sitting bench 3 Seated (3)	38,500	1,15,000
Water Dispenser Hair	41,000	41,000
Phlebotomy		
Sample Collection Equipment	5,000	5,000
Red Top Vacutainers	9	900
Yellow Top Vacutainers	14	1,400

Grey Top Vacutainers	11	1,100
Purple Top Vacutainers	9	900
Blue Top Vacutainers	9	900
Biochemistry		
Micro lab 300 Merck	4,50,000	4,50,000
Glass Tubes	650 per 100pics	1,300
Blue + Yellow Tips	300 per 1000pic + 320 per 500pics	12,040
Reagents	75,000	75,000
Distilled Water Madeline	250	1000
Adjustor Dragon Lab	6,000	18,000
Biorays Water bath stainless steel	16,500	16,500
Hematology		
Swelab Alpha Standard Plus Martaindow	5,00,000	5,00,000
Biorays Roller Mixer	21,500	21,500
A1c EZ 2.0 BioHermes	45,000	45,000
Stains Biorays	13,000	13,000
Group Set Diagast	2,300	2,300
Ict-Kits Healgon	20,000	20,000
Special Chemistry		
MAGLUIMI 600 Snibe	2,600,000	2,600,000
Microbiology		
Binocular Carl Zeiss Microscope	261,000	261,000
SD-Uro Color Abbott	1,200	1,200
Stains Biorays	15,000	15,000
Staining Stand Biorays	500	500
Agar Powder Merck	16,000	80,000
Disposable Petri Dishes	15	15000
Molecular Section		
HuMaX Micro Centrifuge	950,000	950,000
Montania 4896 Real-Time PCR Anatolia	3000000	3000000
Reagent Anatolia Bosphore	400000	400000
BEC404XD SterilGARD, Class II BSL	533,000	533,000
Grand Total		9,261,740

Other Expenses

LIMS for Lab: 70,000

PHC Registration : 80,000

Grand Total= 150,000

Total Expenses

Budget Name	Amount
Staff Budget	619,000
Lab Sections Budget	9,261,740
Other Expenses	150,000
Chash in Hand	1,000,000
Rent	100,000
Grand Total	11,130,740