

10. RESOURCE REQUIREMENT FOR MEDICAL LABORATORY TECHNOLOGY

10.1 PHYSICAL RESOURCES

10.1.1. SPACE REQUIREMENT

The total space for lecture halls, laboratories may be worked out as per latest AICTE norms

10.1.2 LIST OF EQUIPMENT

Note: All the glass wares to be of Borosil make
The chemicals may be purchased of reputed make.

Sr. No.	Item	Quantity
LIST OF CHEMICALS FOR CHEMISTRY LABORATORY		
1.	Ferrous ammonium sulphate (Analytical reagent)	3 x 500 grams
2.	Oxalic Acid (A.R)	2 x 500 grams
3.	Potassium Permanganate (BDH)	3 x 500 grams
4.	Sodium Hydroxide (BDH)	2 x 500 grams
5.	Sulphuric Acid (AR)	5 litre
6.	Hydrochloric Acid (AR)	5 litre
7.	Sodium carbonate (A.R)	2 x 500 grams
8.	Phenolphthalen (BDH/Merck)	10 grams
9.	Methyl orange (SDH)	10 grams
10.	Ethyl Alcohol	4 x 500 ml
11.	Methyl Alcohol	500 ml
12.	Nitric acid	5 litre
13.	Glacial Acetic Acid (CP)	1 litre
14.	Ammonium sulphate (BDH)	250 grams
15.	Copper sulphate (BDH)	500 grams
16.	Glucose (BDH)	500 grams
17.	Sucrose (BDH)	500 grams
18.	Acetone (BDH)	500 grams
19.	Potassium Hydroxide (BDH)	2 x 500 grams
20.	Iodine	1 x 500 grams
21.	Calcium Chloride (BDH)	500 grams

Sr. No.	Item	Quantity
22.	NaCl	500 gms
23.	Ferric chloride (BDH)	500 grams
24.	Starch pH 7.0	500 grams
25.	Fructose	250 grams.
26.	Gelatin	500 grams.
27.	Benzaldehyde	500 ml
28.	Ether	500 ml
29.	Carbon Tetrachloride	500 ml
30.	Ferrous Bicarbonate	500 grams
31.	Sodium Bicarbonate	500 grams
32.	Albumin	500 grams
33.	Liquid Soap	2
34.	Towel	4
EQUIPMENT AND GLASS WARES FOR CHEMISTRY LABORATORY		
1.	Chemical Balances Physical with Weight (Fractional Weight box)	5
2.	Single Pan Balance (Digital) 1 mg – 500 mg	1
3.	Water still – electrical (stainless steel)	1
4.	Gas plant	1
5.	Bunsen Burners	30
6.	Distillation plant – Flask Capacity : 3 litres	2
7.	Cup board (steel), 25ml	10
8.	Pipette (1 ml, 2 ml, 5 ml, 10 ml)	3 dozen each
9.	Burettes 20 ml	2 dozen
10.	Beaker 250 ml	2 dozen
11.	Weighing Bottles	4 dozen
12.	Funnels 4”	1 dozen
13.	Funnels 2”	2 dozen
14.	Burette stands with clamping system	1 dozen
15.	Measuring cylinder 50 ml, 100ml, 1000ml	1 dozen
16.	Volumetric flasks 250 ml, 100 ml, 500 ml.	1 dozen each
17.	Glazed tiles	2 dozen
18.	Beakers 50 ml, 100ml, 500 ml, 1000 ml	1 dozen each
19.	Dropper (Plastic and Glass – Small and Medium size)	3 dozen each
20.	Conical flask 250 ml , 500 ml	3 dozen
21.	Test tube racks (PVC and Aluminium)	1 dozen each
22.	Test Tubes : 18x150 mm, 100x12mm, 75x10 mm	6 dozen
23.	Reagent Bottles (Glass and Plastic)	4 dozen each
24.	Filter paper (What man)	1 rim (sheets)
25.	Glass rod	20 x 500 gms
26.	Fractional weight box	10

27.	Weight box	10
28	Centrifuge Machine (24 tubes)	2
29.	pH meter – Digital 2 ½ digit (Lab type)	2
30.	Hot air oven 14”x14”x14”	1
31.	Refrigerator 365 ltrs	1
32.	Spatula Steel and Wooden	10
33.	Centrifuge Tubes Borosil C graduation	6 dozen
34.	Wash bottle (polythene)	30
35.	Pipette stand Plastic	10
36.	Glass tube	2 x 500 grams
37.	Wire gauge	2 dozen
38.	Water bath (electric) C thermostat + 0.5° C	2
39.	Bottles (wide and narrow mouth) glass	2 dozen each
40	Amylase kit	As required

REQUIREMENT OF EQUIPMENT FOR ANATOMY AND PHYSIOLOGY LABORATORY

1.	Skelton (Human) Articulated and disarticulated	1 set each
2.	Models of different parts and system of body like heart, kidney,liver, stomach, brain, eye, ear, lungs, etc – different system like cardiovascular system, reproductive system, urinary system, endocrine system, CNS etc.	1 set each
3.	Microscopes Monocular	10
4.	Permanent slides of various tissues	1 each

REQUIREMENT OF GLASS WARE FOR BLOOD BANKING LAB

Sr. No.	Item	Quantity
1.	Glass tubus 4”x12mm/cavity slides	500
2.	Test Tube Racks	10
3.	Dropping Bottles	15
4.	Collection Bags	02
5.	Torniquetes	15
6.	Glass slides	10 Gross
7.	Reagent Bottles 500 ml capacity	10
8.	Reagent Bottles 250 ml capacity	10
9.	Reagent Bottles 100 ml capacity	10
10.	Pasteur Pipettes	20
11.	Conical flask 500 ml	02
12.	Graduated cylinders 1 Lt.	02
13.	Graduated cylinders 500 ml	02
14.	Graduated cylinders 250 ml	02
15.	Graduated cylinders 100 ml	02
16.	Graduated glass pipettes 10 µl, 5 µl, 2 ml	10 each

17.	Auto pipettes fixed volume 1000 µl, 10µl, 20µl, 50µl, 100µl, 500 µl	1 each
18.	Graduated glass pipettes 10 ml capacity	10
19.	Graduated glass pipettes 5ml capacity	10
20.	Graduated glass pipettes 2 ml capacity	10
21.	Graduated glass pipettes 1 ml capacity	10
22.	Petriplates (glass/plastic)	1 gross

List of Reagents

Sr. No.	Item	Quantity
1.	Disodium Hydrogen Phosphate	500 grams
2.	Sodium Dihydrogen phosphate	500 grams
3.	Sodium chloride	500 grams
4.	Sodium citrate	500 grams
5.	Mannitol	100 grams
6.	Glucose	500 grams
7.	Adenine	100 grams
8.	Potassium Dichromate	500 grams.
9.	Sulphuric acid	2.5 lt
10.	Anti A, Anti B, Anti D serum, Anti AB	2 kit each
11.	HIV Kit	01
12.	VDRL Kit/RPR	01
13.	Bovine albumin	10 gms
14.	Coombs serum	5 ml
15.	Hbs Ag	1
16.	HCV	1

CHEMICAL REAGENTS (MICROBIOLOGY)

1	Antibiotic Discs (Commercial Combidiscs) Carbohydrate discs, Oxidase discs	2 packs 2 vials
II Acids		
1.	Acetic acid(Glacial)	500 ml
2.	Conc. Sulphuric acid AR	4 litres
3.	Conc. Nitric Acid AR	1 litre
4.	Conc. Hydrochloric Acid AR	2 litres
III Kits (Commercial)		
1.	Widal Test kit	2 No
2.	RA Test Kit	2 No
3.	VDRL Kit	2 No
4.	ASO Kit	2 No
5.	CRP Kit	2 No.

6.	HbsAg (strips)	As required
7.	HIV Tridot test cards/strips	As required
IV Stains and Reagents		
1.	Gentian violet/Crystal violet	50 grams
2.	Safranin	50 grams
3.	Basic fuchsin	50 grams
4.	Acid fuchsin	10 grams
5.	Malachite green	50 grams
6.	Methylene blue	50 grams
7.	Methyl red	25 grams
8.	Bromothymol blue	25 grams
9.	Bromocresol purple	25 grams
10.	Brilliant green	25 grams
11.	Toluidine blue	25 grams
12.	LCB Stain	125 ml
13.	Eosin	25 grams
14.	Giemsa, Leishman field stain for MP	10 grams each
V. Inorganic Salts		
1.	Sodium Chloride	500 grams
2.	Sodium Hydroxide	500 grams
3.	Sodium sulphate	500 grams
4.	Na-citrate	100 grms.
5.	Disodium Orthohydrogen Phosphate	250 grams
6.	Sodium dihydrogen Phosphate	250 grams
7.	Zinc Sulphate	250 grams
8.	Sodium tauro cholate (60 %)	250 grams
9.	Na ₂ CO ₃	500 grams
10.	NaHCO ₃	500 grams
11.	Na acetate	250 grams
12.	Na- thioglycollate	250 grams
13.	NaNO ₃	250 grams
14.	Resazurin – sodium	25 grams
15.	Potassium dichromate	1 Kg
16.	Potassium Iodide	500 grams
17.	Dipotassium hydrogen phosphate	250 grams
18.	KOH	250 grams
19.	Iodine and KI	500 grams each
20.	Ferric ammonium citrate	500 grams
21.	Ammonia solution	500 grams
22.	Glucose	100 grams
23.	Lactose	100 grams
24.	Mannitol	100 grams
25.	Sucrose	100 grams

26.	Hydrogen peroxide	500 ml
VI Culture Media (Commercial)		
1.	TSB/BHA	100 grams
2.	Peptone water	250 grams
3.	PDA (Potato Dextrose Agar)	100 grams
4.	SDA media	100 grams
5.	Citrate media	100 grams
6.	Urea Broth	100 ml
7.	MaConkey media	500 grams
8.	Agar	2 Kg
9.	Nutrient agar	250 grams
10.	Nutrient Broth	100 grams
11.	Glucose broth	250 grams
12.	L J media	6x1 pk
13.	Motility media	1 bottle
14.	XLD	100 grams
15.	CMA media	100 grams
16.	RSA media	100 grams
17.	CLED	500 gms
CONSUMABLE ITEMS (MICROBIOLOGY)		
Note: Commercial available kits and media can be used as per requirement.		
I. MISCELLANEOUS		
1.	Nichrome wire 28/27 swg.	10 metres
2.	Wire gauze	50 pc
3.	Plasticine	2 pkt of 5
4.	Sticking plaster (Leukoplast)	2 – 3 rolls
5.	Gum Paper	2 – 3 rolls
6.	Cotton (Absorbant)	5 – 6 rolls
7.	Cotton (non-absorbant)	5-6 rolls
8.	Filter paper Whatmann-42	6 packets
9.	Coarse filter paper	100 sheets
10.	Tissue paper	20 rolls
11.	Aluminium foils	6 rolls
12.	pH paper (Universal range)	12 pkt
13.	Brown paper	2-3 doz.
14.	Rubber teats	10-15 pcs
15.	Rubber tubing	5 meters
16.	Rubber gloves (disposable)	25x5 boxes
17.	Cleaning brushes (small)	25 pcs
18.	Cleaning brushes (Big)	25 pcs
19.	Plastic wash bottle	12 x 2 boxes
20.	Thread (reel)	2 doz.
21.	Glass marking pencil /Permanent marker	4 dozen/1 dozen
22.	Lighter (Gas)	4 No.

23.	Aluminium rack 4 x 12 holes	10
24.	Loop holders	24
25.	PVC test tubes rack (Assorted size)	20
26.	Pipette Stands	20
27.	Tripod stand	10
28.	Spatula	10
29.	Dessicator	2
30.	Stop watch	2
31.	Perforated Aluminium Basket (Big)	10
32.	Perforated Aluminium Basket (Medium)	10
33.	Perforated Aluminium Basket (Small)	10
34.	Waste Paper basket	5
35.	Slide box (100 slides)	5
36.	Jug with lid	2
37.	Timer	2
II. EQUIPMENT		
1.	Binocular optical microscopes with 100x and 40x and 10x extra objectives	6
2.	Projection microscope	1No.
3.	Microscope with dark field condenser	1
4.	Autoclave (vertical)	2
5.	Hot air oven	1
6.	Water bath	1
7.	Gas Plant (LPG) with mutlibead	1
8.	Vacuum pump	1
9.	Colony counter	1
10.	VDRL Rotator	1
11.	Biological safety cabinet/Laminar air flow	1
12.	Incubator	2
13.	Autopipette 10 µl, 100 µl, 1ml (adjustable)	2 each
14.	pH meter (electronic)	1
15.	Bunsen Burner	12
16.	Chemical balance (electronic/digital)	1
17.	Single Pan balance	1
18.	Membrane filter (metal) /Seitz filter	1
19.	Centrifuge machine (medium)	2
20.	Magnetic stirrer with heater	1
21.	Vortex Mixer	1

III. GLASS WARE/PLASTIC WARE (CONSUMABLE) FOR MICROBIOLOGY LAB.

1.	Beaker 2 litres	5 pcs
2.	Beaker 1 litre	10 pcs
3.	Beaker 500 ml	10 pcs
4.	Beaker 250 ml	12 pcs
5.	Beaker 100 ml	12 pcs
6.	Beaker 50 ml	15 pcs
7.	Conical Flask 3 litres	3 pcs
8.	Conical Flask 1 litre	12 pcs
9.	Conical Flask 500 ml	24 pcs
10.	Conical Flask 250 ml	24 pcs
11.	Conical Flask 100 ml	12 pcs
12.	Conical Flask 50 ml	12 pcs
13.	Measuring Cylinder 1 liter	5 pcs
14.	Measuring Cylinder 500 ml	10 pcs
15.	Measuring Cylinder 250 ml	10 pcs
16.	Measuring Cylinder 100 ml	10 pcs
17.	Measuring Cylinder 50 ml	10 pcs
18.	Measuring Cylinder 10 ml	5 pcs
19.	Graduated pipette 10 ml	20
20.	Graduated pipette 5 ml	20
21.	Graduated pipette 2 ml	20
22.	Graduated pipette 1 ml	20
23.	Test Tubes (6" x ½")	2 gross
24.	Test Tubes (4" x ½")	5 gross
25.	Test Tubes (8" x 1")	2 dozen
26.	Widal tube (75x10mm)	1 gross
27.	Durham's tube	2 gross
28.	Slides (glass)	24 gross
29.	Cover slips (24 mm x 24 mm)	40 pkt
30.	Blood Culture Bottles 100 ml	4 dozen
31.	Reagents bottle with glass stoppers	4 dozen
32.	Reagents bottle with wide mouth	24 pcs
33.	Dropping bottle	4 dozen
34.	Glass tubing	10 kg
35.	Glass rods	10 kg
36.	Glass Funnel (Big)	1 dozen
37.	Glass Funnel (Medium)	1 dozen
38.	Glass Funnel (Small)	1 dozen
39.	Petridishes (Plastic disposable) (HI –MEDIA)	400
40.	Pasteur pipettes	50
41.	Disposable Syringes with needles 5 to 10 ml	2 dozen Each
42.	Centrifuge tubes (graduated) 10 ml	24 pcs

43.	Perspex trays	5 pcs
44.	Capillaries	1 pkt
45.	Cavity slides/VDRL	4-6 pcs
46.	Discarding jars for slides	5 pcs.
47.	Sharp containers (needle cutter)	2
48.	Pipette tips (disposable) small and large	2 pkts each
IV. TEACHING AIDS		
1.	Charts – related to Microbiology	LS
2.	Slides – (i) AV Aids (OHP) (ii) AV Aids Slide Projector	1 1
3.	Slides - Permanent Slide/ Preserved specimen - Tapeworm - Round worm - Hook worm - Giardia - E. histolytica - Malarial parasite	LS

REQUIREMENT OF EQUIPMENTS FOR HAEMATOLOGY LABORATORY		
1.	Centrifuge Machine (Remi)	2
2.	Microscope Monocular	10
3.	Microscope Binocular	6
4.	Hot air Oven (Tem. Range 0-200° C)18” x 18” x18”	1
5.	Incubator (medium size)	1
6.	Digital or Electronic Balance (Single pan)	1
7.	Refrigerator	1
8.	Sahli’s Haemoglobino meter	20
9.	Haemoglobin Pipette 20 ml	10
10.	Water Bath 12”x10”x10”, Temp 0°C-100° C	2
11.	Colorimeter (Digital) or Photo electric colorimeter	5
12.	Improved Neubauer counting chamber	10
13.	Automatic pipette (20 µl, 50 µl and 100 µl)	5 each
14.	Fuchs Rosenthal Counting Chamber	1
15.	Micro centrifuge machine	01
16.	Sphygnomanometer (BP apparatus)	10
17.	Disposable Micro blood (Lancets)	100
18.	Table Lamp	2
19.	Vortex Mixer	1
20.	Gas cylinder with stove and regulator	1 set
21.	Stop watch	5
22.	Hot plate	2

REQUIREMENT OF GLASS WARE (ANNUAL) FOR HAEMATOLOGY LABORATORY		
1.	Nicrome Wire for cleaning haemetology pipettes	250 gms
2.	Dropper (Plastic and glass)	20 Nos. each
3.	Bottles 8 litres capacity	20 Nos.
4.	Test tube 4"x3"/2" capacity (specially meant for spectro-photo meter_	10 Dozen
5.	WBC pipette-German	24 Nos.
6.	Bottles 1 doz capacity screw	10 Nos.
7.	Cover slip 0.1 mm thick (for neubeaur counting chamber)	6 dozen
8.	RBC pipette	20 Nos.
9.	Pasteur pipette with long beaks (Glass)	3 dozen
10.	Microslides glass slides 3" x 1"	60 gross
11.	Glass funnel/Plastic Funnel, 4" diameter	5 Nos.
12.	Test Tube 4" x 1/3" size 1	5 Nos.
13.	Pipettes 10 ml capacity graduated	10 dozen
14.	Pipettes 5 ml capacity graduated	15 Nos.
15.	Pipettes 1 ml capacity	15 Nos.
16.	Wintrobe's tube and stands	15 Nos.
17.	Westergren Tubes and stands	1 dozen
18.	Pasteur Pipette with long beak	3 dozen
19.	Syringe 5 ml capacity disposable	1 box
20.	Syringe 2 ml capacity disposable	1 box
21.	Tiles (perspex sheet)	10 Nos.
22.	Needles Disposable 23, 22,21G	3 dozen
23.	Micro Auto pipettes fixed vol. 10 micro litre	2 Nos.
24.	Micro Auto pipettes fixed vol. 20 micro litre	4 Nos.
25.	Micro Auto pipettes fixed vol. 50 micro litre	4 Nos.
26.	Micro Auto pipettes fixed vol. 100 micro litre	4 Nos.
27.	Micro Auto pipettes fixed vol. 1000 micro litre	2 Nos.
28.	Sample Collection bottles 5 ml capacity (Plastic) disposable and screw cap	500
29.	Empty glass vials 5 ml capacity c rubber bung	1000 Nos.
30.	Glass tubes 75 mm x 10 mm	200 Nos.
31.	Thermometer for wall	2 Nos.
32.	Plastic Beakers 2 litres capacity	6 Nos.
33.	Plastic beakers 1 litre capacity	6 Nos.
34.	Pipette stand	2 Nos.
35.	Test tube rack of 40 tubes	6 Nos.
36.	Plastic stain rack	4 Nos.
37.	Conical test tube graduated to 5 ml	1 dozen
38.	Measuring cylinder 100 ml capacity	5 Nos.
39.	Measuring cylinder 250 ml capacity	3 Nos.
40.	Beaker 50 ml capacity	6 Nos.
41.	Glass rod (solid)	100 grams.

42.	Prespex sheet	100 grams.
43.	Glass marking pencil	5 dozen.
44.	Slide Staining Rack	6 Nos.
REQUIREMENT OF MATERIALS FOR HAEMATOLOGY LABORATORY REAGENTS/RAW		
1.	Hydrochloric- Acid	2.5 litre
2.	Acetone	2.5 litre
3.	Cotton absorbant	30 rolls
4.	Drabkin's solution	25 litre
5.	Acetic acid	2.5 litre
6.	Gentian violet	5 grams.
7.	Tri sodium citrate	500 grams.
8.	Forceps	2 Nos.
9.	Scissors	2 pairs
10.	Microscope lamp	15 Nos.
11.	Methylene blue	5 grams.
12.	Potassium Dichromate	500 grams.
13.	Sulphuric acid	2.5 litre.
14.	Amonium Oxalate	500 grams.
15.	Formaldehyde	1 litre
16.	Sodium chloride (Analar)	500 grams.
17.	Glass beads	500 grams.
18.	Whatman Filter Paper No. 1	2 Packets
19.	Capillary tubes – plain	2 Packets
20.	Capillary tubes – heparinised	1 Gross
21.	Plasticine	6 Packets
22.	Leishman stain powder/Gimsa Stain Power	100 grams
23.	Liquid Paraffin	500 ml
24.	Xylene	1 litre
25.	Methyl alcohol (acetone Free)	10 litre
26.	EDTA (Dipotassium Salt)	100 grams
27.	Potassium Hypochlorite solution	10 litre
28.	Brilliant Cresyl Blue	25 gram
29.	Spirit Lamp	10
30.	Tourniquets	2 dozen
31.	Eosin Y	25 gram
32.	Sodium Metabisulphate	25 gram
33.	Petroleum Jelly	100 gram
34.	Tissue Thermoplastin with ISI	25 ml
35.	Light Kaolin	100 ml
36.	Calcium Chloride (anhydrous)	500 gram
37.	Cephalin	100 ml
38.	Amonium Sulphate	500 g
39.	NaoH	500 g
40.	Bone Marrow Aspiration Needle	1

RAW MATERIAL FOR BIOCHEMISTRY LABORATORY		
1.	Sodium Chloride	500 grams.
2.	Starch (soluble)	250 grams
3.	Picric Acid	250 grams
4.	Creatinine	10 grams
5.	Potassium Permagnate	250 grams
6.	Ammonium oxalate	250 grams
7.	Potassium Chloride	250 grams
8.	Oxalic acid	250 grams
9.	Trichloroacetic acid	500 grams
10.	L-Ascorbic acid	10 grams
11.	Monopotassium dihydrogen phosphate	250 grams
12.	Choloroform	1 litre
13.	Pepsin	10 gram
14.	Benzidine	100 grams
15.	Hydrogen Peroxide	500 ml
16.	Silver Nitrate	25 grams
17.	Potassium bicarbonate	100 grams
18.	Sodium B Glycero phosphate	100 grams
19.	Dipotassium monohydrogen phosphate	250 grams
20.	2:4 dinitrophenyldrazine	100 grams
21.	L-Ketoglutaric acid	5 gram
22.	Sodium pyruvate	25 gram
23.	DL-Aspartic acid	100 gram
24.	DL Alanine	100 gram
25.	Sodium citrate	500 gram
26.	Sulphur powder	100 gram
27.	Iodine (solid)	100 gram
28.	Ethylene Glycol	500 gram
29.	Sodium nitroprusside	100 gram
30.	Nitric Acid (conc)	1 litre
31.	Rectified Spirit (alcohol)	8.5 litre
32.	Acetone	2 litre
33.	Potassium iodide	100 gram
34.	Pheny hydrazine hydrochloride	100 gram
35.	Bromophenol blue	25 gram
36.	Ammonia	3.5 litre
37.	BCG	5 gram
38.	Ammonium sulphate	1000 gram
39.	Cholestrol (AR)	100 gram
40.	Glacial acetic acid	2 litre
41.	Cresol Pathalein complexone	1 gram
42.	Ethyl alcohol	500 litre
43.	Saponin	1 bottle

44.	Glycerin	100 ml
45.	Tris Buffer	1 litre
46.	Silica	100 gram
47.	Carbon tetrachloride	500 ml
48.	Toluene	500 ml
49.	Benzene	500 ml
50.	Phenol	250 gram
51.	Diphenyl carbazone	5 gram
52.	Mercuric nitrate	100 gram
53.	Ethylene diamine dihydrochloride	100 gram
54.	Isobutanol	500 ml
55.	Sodium hydroxide	1 Kg
56.	Potassium Hydroxide	250 gram
57.	Methylene chloride	500 ml
58.	Xylene	500 ml
59.	Rubber Gloves	10 pairs
60.	Laboratory Aprons	2 No.
61.	Match Box	2 dozen
62.	Liquid detergent	10 litre
63.	Enamel tray (big)	6 No.
64.	Gum Paper	2 big rolls
65.	Filterpaper (Whatman No. 1) round small	10 packets
66.	Whatman No. 1 Chromatographic Paper)	5 sheets
67.	pH paper BDH pH paps 0 – 14 different range	2 No. each
68.	Trough (Plastic) 10 – 15 litres	4 No.
69.	Permanent glass marker	6 No

REQUIREMENT OF CHEMICALS IN BIOCHEMISTRY LABORATORY

1.	Ammonium molybdate	250 gram
2.	Calcium carbonate	100 gram
3.	Sodium tungstate	500 gram
4.	Sodium sulphate	250 gram
5.	Copper sulphate	500 gram
6.	Sodium carbonate	500 gram
7.	Sodium bicarbonate	500 gram
8.	Sodium potassium tartrate	500 gram
9.	Molybdic acid	300 gram
10.	Orthophosphoric acid	1 litre
11.	D-Glucose (AR)	100 gram
12.	Benzoic acid	100 gram
13.	Uric acid	5 gram
14.	Lithium carbonate	100 gram
15.	Formaldehyde	500 ml
16.	Lithium sulphate monohydrate	250 gram

17.	Bovine serum Albumin solid	10 gram
18.	Succinic acid	100 gram
19.	Di-sodium hydrogenphosphate	250 gram
20.	Ferric chloride	250 gram
21.	Urea	500 gram
22.	Diacetyl monoxime	100 gram
23.	Thiosemicarbazide	25 gram
24.	Phenyl mercuric acetate	25 gram
25.	Cobalt sulphate	250 gram
26.	Sulphanilic acid	100 gram
27.	Sodium nitrite	100 gram
28.	Methanol	1 litre
29.	Bilirubin	1 hgm
30.	Topfer's reagent	200 ml
31.	p-Dimethylaminobenzaldehyde	100 gram
32.	Calcium chloride	100 gram
33.	Sodium fluoride	250 gram
34.	Potassium oxalate	750 gram
35.	Lipid profile kit	1 pkt
36.	Heparin	5 vials
37.	Uristix (strip for urine analysis) Single test	2 pkt
38.	Uristix (strip for urine analysis) Multi tests	1 pkt
39.	Kits for all biochemistry Test available in the market	1 kit each
40.	Dinitrosalicylic acid	100 gm
41.	Ninhydrin	100 gm
42.	Propanol	500 ml
43.	Butanol	500 ml

MISCELLANEOUS ITEMS

1	Cotton (absorbent)	5x550 gm
2.	Tissue Paper	5 packets
3.	Weight Box	2 No.
4.	Fractional weight	2 No.
5.	Savlon Bottle	1 big size
6.	Lifebuoy soap	2
7.	Filter Papers	1 rim
8.	Towel	2
8.	Sodium Hypochlorite (Disinfectant)	5 Ltr.

REQUIREMENT OF EQUIPMENT (BIOCHEMISTRY)

1.	Centrifuge	3
2.	Photoelectric colorimeter	3
3.	Water bath electric (Boiling water)	1
4.	Constant Temperature Water bath, with thermostatic control	1

5.	Incubator 37° C	1
6.	Hot air oven	1
7.	Flame photometer	1
8.	Horizontal inverted v type electrophoretic apparatus	1
9.	Complete equipment for the thin layer chromatography	1
10.	Provision of LPG	2 Cylinders
11.	Hair drier	1
12.	Glass plates	2
13.	Sprayer	5
14.	Bell jar	5
15.	Vacuum dessicator	1
16.	Balance l analytical	1
17.	Balance electrical open pan	1
18.	Stop Watch	1
19.	Urinometer	3
20.	Tripod stand (metal)	5
21.	Test Tube Holder	3 dozen
22.	Separating funnel	2
23.	Distillation plant	2
24.	TLC plate	10
25.	Refrigerator (300 litre)	1
26.	Autopipette adjustable upto 0.5 ml	2 dozen
27.	Auto pipette adjustable upto 5.0 ml	2 dozen
28.	Pipette controller serological	2 dozen
29.	Syringe sterilizer	1
30.	Stools (Wooden, Revolving)	30
31.	Wire gauze	10
32.	Racks (wooden)	4
33.	Cabinet for pipettes	4
34.	Examination Table (Wooden)	1
35.	Pipette stand	10
36.	Test Tube stand (PVC)	3 dozen.
37.	Cleaning Brushes (big)	24 No
38.	Cleaning Brushes (small)	24 No
39.	Wash bottles (polythene)	2 dozen
40.	Spatula	1 No
41.	Analyser for Biochemistry	1 No
42.	pH meter	1 No.
43.	Glucometer	1 No.
GLASS WARES ANNUAL REQUIREMENT (BIOCHEMISTRY LABORATORY)		
1.	Blood collecting bottles	1 gross
2.	Syringe (10 ml) disposable	4 dozen
3.	Syringe (5 ml) disposable	4 dozen
4.	Needle (No. 19 – 20 – 21 and 22)	1 dozen each
5.	Centrifuge tube (5 ml glass)	1 gross

6.	Centrifuge tube stoppered 15 ml	2 dozen
7.	Pipette (10 ml) serological blow out	4 dozen
8.	Pipette (5 ml) serological blow out	4 dozen
9.	Pipette (2 ml) serological blow out	5 dozen
10.	Pipette (0.1 ml) serological blow out	6 dozen.
11.	Pipette (0.2 ml) serological blow out	6 dozen.
12.	Beaker 250 ml	2 dozen
13.	Beaker 100 ml	1 dozen
14.	Measuring cylinder 1 litre	4 No.
15.	Measuring cylinder 500 ml	4 No.
16.	Measuring cylinder 100 ml	4 No.
17.	Measuring Cylinder 250 ml	4
18.	Volumetric Flask 500 ml	1 dozen
19.	Volumetric Flask 100 ml	1 dozen
20.	Volumetric Flask 250 ml	1 dozen
21.	Conical flask 100 ml	1 dozen
22.	Pasteur pipettes	2 dozen.
23.	Test Tube (big 6" x 3/4")	2 gross
24.	Reagent bottles wide mouth	4 dozen.
25.	Reagent bottles 100 ml	3 dozen.
26.	Reagent bottles 250 ml	3 dozen.
27.	Reagent bottles 500 ml	2 dozen.
28.	Reagent bottles brown coloured 500 ml	1 dozen.
29.	China dish	30 No
30.	Copper mug	4 No
31.	Centrifuge tube (polythene)	4 No
32.	Glass slides	1 gross
33.	Glass rod	4 ounces
34.	Funnel (medium)	2 dozen.
35.	Rubber bulbs for pipettes 1 and 2 ml	50 No each
36.	Rubber bulbs for pipettes 5 ml	50 No
37.	Rubber bulbs for pipettes 10 ml	50 No
38.	Glass tube and blowing	2 Kg

REQUIREMENT OF EQUIPMENT FOR HISTOPATHOLOGY AND CYTOLOGY LABORATORY

1.	Hot air oven	2 Nos.
2.	Moulds (Leuckart's) assorted & base steel moulds	15 pairs & 15 pieces
3.	Incubators for paraffin wax (37 – 100° C)	1 No.
4.	Diamond Pencils	15
5.	Automatic Tissue Processor with accessories	1 No.
6.	Microtome knives/disposable Microtome blades	15 each
7.	Plastic embedding rings	100 nos.
8.	Scalpels	1 dozen
9.	Dissecting needles	2 dozen
10.	Rotary microtomes	2 Nos.
11.	Tissue floatation bath	2 Nos.
12.	Hones (Belgium and plate glass)	15 Nos.
13.	Automatic knife sharpner	1 No.
14.	Strop horse (leather)	15 Nos.
15.	Binocular Microscopes (with 4x,10x, 40x and 100x)	6 Nos.
16.	Refrigerator (280 Lit)	3 Nos
17.	Slide warmer (upto 100 C) (Cu-plate) rectangular	1 No.
18.	Bone cutter (hand saw stainless steel)	2 Nos.
19.	Centrifuge (12 tubes) – Remi; Max speed: 5000 rpm-6000 rpm	4 Nos.
20.	Magnetic stirrer	1
21.	Cryostat	1
22.	Paraffin Wax Dispensor Capacity - 5 litres	1
23.	Thermometer (0 to 110 C)	15 Nos.
24.	Electronic Balance	1 each
25.	Timer	15 Nos.
26.	Hot plates	5 Nos.
27.	Bunsen burners	15 Nos.
28.	Test Tube Racks Metal/Plastic	15 Nos.
29.	Slide Cabinets (Steel) 10 draws Cap. 1000 slides	1 No.
30.	Slide Boxes; Wooden for 100 slides each	15 Nos.
31.	Wax Block Cabinets/Card board boxes for storage	1 No./50 boxes
32.	Scissor (assorted)	30
33.	Forceps (blunt)_	30
34.	Forceps (9", 6") pointed)	15
35.	Forceps (toothed)	15
36.	Tissue capsules (small and medium) or cassettes	1 dozen each
37.	Enamel tray with and without lids (assorted) variable sizes	10 Nos.
38.	Camel hair brushes	30 Nos.
39.	Microscopic bulbs 6V, 20 watt	15 Nos.
40.	Wooden slide stands	15 Nos.

41.	Disposable gloves	4 Packets
42.	Distillation plant	1 No.
43.	Staining stainless steel rack cap 15-25 slides	10 Nos.
44.	Stand for pipettes	15
45.	Dissecting Knives	2 Nos.
46.	Franzen's Handle	1 No.
REQUIREMENT OF CHEMICALS AND REAGENTS FOR HISTOPATHOLOGY LABORATORY		
1.	37 – 40% Formaldehyde	30 litre
2.	Acetone	10 litre
3.	Toluene	10 litre
4.	Chloroform	5 litre
5.	methyl alcohol, Ethyl alcohol	10 litre each
6.	Xylene	18 litre
7.	Paraffin Wax (58°-60° MP)	30 Kg
8.	Liquid paraffin	2 litre
9.	Magnesium Sulphate	500 grams
10.	Abrasive Powder (coarse, medium, line)	600 grams each
11.	DPX	1 litre
12.	Haematoxylin Powder	25 gram
13.	Ferric chloride	100 gram
14.	Hydrochloric Acid (HCl)	20 litre
15.	Picric acid	500 grams.
16.	Potassium iodide	100 grams.
17.	Iodine crystals	100 grams.
18.	Phosphotungtic acid	25 grams.
19.	Potassium Permanganete	500 grams.
20.	Oxalic Acid	500 grams.
21.	Potassium Ferrocyanide	100 grams.
22.	Silver Nitrate	25 grams.
23.	Eosin Y (Water Soluble)	50 grams
24.	Potassium aluminium sulphate	2 Kg.
25.	Mercuric oxide	25 grams.
26.	Ammonia Solution	500 ml.
27.	Glycerine	4 litre
28.	Sodium iodate	25 grams.
29.	Periodic acid	25 grams
30.	Basic fuchsin BDH (Gurr)	100 grams
31.	Sodium metabisulphite/ potassium metabisulphite	100 grams each
32.	Charcoal (activated)	500 grams
33.	Giemsa Powder	25 grams
34.	Lightgreen (SF Yellosis)	25 grams.
35.	Sulphuric Acid	2 litre
36.	Ferric ammonium sulphate	500 grams.
37.	Sodium Hydroxide	500 grams.

38.	Sodium Bicarbonate	500 grams.
39.	Sodium Chloride	2 kg.
40.	Sodium thiosulphate	500 grams
41.	Methyl violet	25 grams
42.	Crystal violet	25 grams
43.	Methylene blue	25 grams
44.	Formic acid	2 litre
45.	Sodium citrate	500 grams
46.	Nitric Acid	10 litre
47.	Orange G – 6	5 grams
48.	Ether Solvent	500 ml
49.	Sudan black, III and IV	25 grams each
50.	Isopropyl alcohol	30 litre
51.	Acetic acid, glacial	1 litre
52.	Phenol	500 grams
53.	Celloidin	5 gram
54.	May Grunwald stain	25 grams
55.	Starch adhesive	100 grams
56.	Calcium carbonate	500 grams
57.	Potassium dichromate	500 grams
58.	Mercuric chloride	100 grams
59.	Ammonium aluminium sulphate	500 grams
60.	Aluminium chloride, anhydrous	100 grams
61.	Potassium Chloride	500 grams
62.	Potassium carbonate	500 grams
63.	Sodium acetate	500 grams
64.	Sodium Bicarbonate, sodium chloride	500 grams each
65.	Ferric oxide AR	500 grams
66.	Aluminium Oxide AR	500 grams
67.	Oil Red O	25 grams
68.	Aluminium sulphate	500 grams
69.	Dettol	500 ml
70.	Rankleen	5 litre
71.	Eosin – azure (EA) 36 or 50	100 grams
72.	Copper Sulphate anhydrous	500 grams
73.	Thymol	100 gram
74.	Cotton (absorbant)	2 rolls
75.	Gauge piece (cloth)	30 meter
76.	Whatman filter paper No. 1	20 packets
GLASSWARES AND LAB WARES REQUIRED FOR HISTOPATHOLOGY LABORATORY		
1.	Staining jar (rectangular) with lids 30 slides, 10 slides	4 dozen each
2.	Coplin jars with lids 10 slides 75 x 25 mm	2 dozen
3.	Slides (Micro)- 75 x 25mm/76mm x 26 mm	50 boxes
4.	Cover lips (22 x 22mm, 22 x 50 mm)	100 Pkts

5.	Test tubes 6 x 2/3"	4 Nos.
6.	Cylinder - 1 litre, 500 ml, 250 ml, 100 ml, 50 ml	4 Nos. each
7.	Flask Conical (1 litre, 500 ml, 250 ml, 100 ml)	6 Nos, each
8.	Beakers (1 litre, 500 ml, 250 ml, 100 ml)	6 Nos. each
9.	Dropper with rubber teats (Pasteur pipettes)	12 Nos.
10.	Pipettes (10 ml, 5 ml, 2ml, 1 ml, 0.1 ml)	2 dozen each
11.	Glass funnels (3", 4", 6")	6 Nos. each
12.	Specimen Jars (small and large size) (Assorted Sizes)	1 dozen each
13.	Wide mouth bottles	1 dozen
14.	Specimen bottles with bakelite lid	2 dozen
15.	Reagent bottle – white/brown	2 dozen each
16.	Dropping bottles (medium)	2 dozen
17.	Museum jar 12" x 6" x 3", 9"x6"x3", 10"x4"x2" with lids	12 dozen
18.	Wash bottle	12 Nos.
19.	Petri dishes Plastic (Transparent)	12 Nos.
20.	Disposable plastic droppers	200 Nos

Note: Any addition should be made as and when required. While ordering commercial reagents keep in mind the individual requirements as these are standardized, quick & reliable for Lab testing.

10.1.3 Furniture Requirement

Norms and standards laid down by AICTE be followed for working out furniture requirement for this course.

10.2 Human Resources

Weekly work schedule, annual work schedule, student teacher ratio for various group and class size, staffing pattern, work load norms, qualifications, experience and job description of teaching staff workshop staff and other administrative and supporting staff be worked out as per norms and standards laid down by the AICTE. The website www.aicte.ernet.in may be referred for downloading current norms and standards pertaining to technician courses.