

**TABLE OF SPECIFICATION FOR NUMS ADMISSION TEST  
FOR FSC MLT STUDENTS (2022)**

<b>Subject</b>	<b>No of Questions</b>
Hematology & Blood Banking	15
Chemical Pathology & Clinical Pathology	15
Microbiology & Serology	10
Elementary Anatomy & Micro Techniques	10

**Syllabus for MLT Students**

**Course Title: HAEMATOLOGY& BLOOD BANKING**

<b>SER</b>	<b>Topic / Area</b>
1.	Composition and Function of Blood
2.	Collection of Blood
3.	Anticoagulants
4.	Hematopoiesis
5.	White Blood Cells
6.	Total Leucocytes Count (T.L.C)/ Leucocytosis/ Leucopenia
7.	Differential Leucocyte Count (DLC)
8.	Platelets Count/Thrombocytosis/ Thrombocytopenia
9.	Development of Red Blood Cells
10.	Normal Values of RBCs
11.	Poly cythemia
12.	Abnormalities of RBCs
13.	Malarial Parasites (MP)
14.	Haemoglobin
15.	Absolute Values

16.	Anaemia/ Classification of Anaemia
17.	Laboratory Diagnosis of Anaemia
18.	Erythrocytes Sedimentation Rate (ESR)/Packed Cell Volume (PCV) or Haematocrit
19.	Preparation of Blood Smears
20.	Staining of Blood Smears or Blood Film
21.	Blood Coagulation Factors
22.	Blood Clotting Time
23.	Prothrombin Time (PT)
24.	Activated Partial Thromboplastin Time (APTT)
25.	Bleeding Time
26.	Bone Marrow
27.	Acute Myeloblastic Leukaemia (AML/ALL)
28.	Chronic Leukaemia (CML/CLL)
29.	Blood Banking
30.	Selection of Blood Donor
31.	Blood Grouping, ABO and RH
32.	ABO Grouping Techniques
33.	Coombs Test of Anti globulin Test
34.	Major Cross Match
35.	Blood Transfusion Reaction

**Course Title:                   CHEMICAL PATHOLOGY & CLINICAL PATHOLOGY**

<b>SER</b>	<b>TOPIC / AREA</b>
1.	Units of measurement
2.	Basic laboratory equipment <ul style="list-style-type: none"> <li>• Spectrophotometers</li> <li>• Flame Photometer/ Electrolytes analyzer</li> <li>• Water bath</li> <li>• Laboratory Centrifuge</li> <li>• Balance</li> <li>• PH Meter</li> <li>• Mixers</li> </ul>

	<ul style="list-style-type: none"> <li>• Incubators</li> </ul>
3.	Urine examination
4.	Examination of faeces
5.	Examination of cerebrospinal fluid (CSF)
6.	Plasma glucose estimation
7.	<b>Routine liver function tests</b> <ul style="list-style-type: none"> <li>• Serum bilirubin</li> <li>• Serum alanine aminotransferase (ALT)</li> <li>• Serum alanine phosphatase (ALP)</li> <li>• Serum total protein &amp; albumin</li> </ul>
8.	<b>Renal function tests</b> <ul style="list-style-type: none"> <li>• Serum creatinine</li> <li>• Creatinine clearance</li> <li>• Urea</li> <li>• Uric Acid</li> </ul>
9.	<b>Plasma electrolytes</b> <ul style="list-style-type: none"> <li>• Plasma sodium</li> <li>• Plasma potassium</li> <li>• Plasma bicarbonate</li> <li>• Plasma Calcium</li> </ul>
10.	<b>Cardiac Markers</b> <ul style="list-style-type: none"> <li>• Cardiac Enzymes</li> <li>• Cardiac Troponins (c Tn)</li> </ul>

**Course Title:                    MICROBIOLOGY & SEROLOGY**

<b>SER</b>	<b>TOPIC / AREA</b>
1.	Bacterial Cell Structure
2.	Classification of Bacteria
3.	Gram-Positive Cocci
4.	Gram-Negative Cocci
5.	Gram-Positive Bacilli
6.	Gram-Negative Bacilli
7.	Spirochetes and Serology of Syphilis
8.	Mycobacteria

9.	Collection of Samples
10.	Methods of Sterilization
11.	Microscope
12.	Procedures for Examining Clinical Specimens
13.	Staining Procedures used in Bacteriology
14.	Preparation of Culture Media
15.	Biochemical Tests for Identifying Bacteria
16.	Testing the Sensitivity of Anti-microbials
17.	Basic Virology
18.	Amoebiasis
19.	Giardia Lamblia
20.	Leishmania
21.	Plasmodium
22.	Common Viral Diseases ( Measles, Rabies, Polio and Hepatitis)
23.	<b>Protozoa</b> <ul style="list-style-type: none"> <li>• Entamoeba histolytica</li> <li>• Trichomonas</li> <li>• Leishmania tropica</li> </ul>
24.	<b>Sporozoa</b> <ul style="list-style-type: none"> <li>• Plasmodium vivax</li> <li>• Plasmodium ovale</li> <li>• Plasmodium malariae</li> <li>• Plasodium falciparum</li> </ul>
25.	<b>Helminths</b> <ul style="list-style-type: none"> <li>• Ascaris lumbricoides</li> <li>• Ancylostoma duodenale</li> <li>• Enterobius vermicularis</li> </ul>
26.	Detection of Occult Blood in Faeces

**Course Title: ELECTIVE ANATOMY & MICRO TECHNIQUES**

SER	TOPIC / AREA
1.	<b>Introduction</b> <ul style="list-style-type: none"> <li>• Anatomy</li> <li>• Histology</li> <li>• Histopathology</li> <li>• Micro technique</li> </ul>

2.	<p><b>Tissues</b></p> <ul style="list-style-type: none"> <li>• Epithelial</li> <li>• Muscle</li> <li>• Nervous</li> <li>• Connective</li> </ul>
3.	<p><b>Basic Knowledge of Human Body System</b></p> <ul style="list-style-type: none"> <li>• Cardio Vascular System</li> <li>• Digestive System (G.I.T)</li> <li>• Nervous System</li> <li>• Respiratory System</li> <li>• Urinary System</li> <li>• Reproductive System</li> <li>• Endocrine System</li> </ul>
4.	<p><b>Microtechnique (Basic Knowledge)</b></p> <ul style="list-style-type: none"> <li>• Histopathology Samples</li> <li>• Biopsy</li> <li>• Cytology/ Cytopathology</li> <li>• Fixation of Tissue</li> <li>• Tissue Processing</li> <li>• Embedding of Tissue</li> <li>• Tissue Sectioning</li> <li>• Parts of Microtoma</li> <li>• Frozen Sections</li> <li>• Cryostate</li> <li>• Classification of stains</li> <li>• Hematoxylin and Eosin Staining</li> </ul>