SYLLABUS

COP (CMLT, DMLT & AMLT)
(For candidates admitted from the Academic year 2017 Onwards)

P.G. DEPARTMENT OF ZOOLOGY
JAMAL MOHAMED COLLEGE (AUTONOMOUS)
(Nationally Accredited with ‘A’ Grade by NAAC)
TIRUCHIRAPPALLI- 620 020.
CAREER ORIENTED PROGRAMME (COP)  
P.G. DEPARTMENT OF ZOOLOGY  
JAMAL MOHAMED COLLEGE (AUTONOMOUS)  
(Nationally Accredited with ‘A’ Grade by NAAC)  
TIRUCHIRAPPALLI-620 020.  
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<table>
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<th>Course</th>
<th>Paper Title and code</th>
<th>Hours/Course</th>
<th>Credits</th>
<th>Marks</th>
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PG. Dept. of Zoology, Jamal Mohamed College (Autonomous), Tiruchirappalli-620 020.
CERTIFICATE PROGRAMME: CMLT

CORE-I
HUMAN ANATOMY, PHYSIOLOGY AND IMMUNOLOGY

Course Code: 17ZOCT1          Max Marks : 100
Hours/Week : 150              Internal Marks : 40
Credit : 10                   External Marks : 60

Objective:
To promote an integrated approach to the study of various organs with their
functions and Immune systems in man.

UNIT I            30 hours
HISTOLOGY: Cell, tissue, organs and organ system - Skeletal system -
Osteology
GASTROINTESTINAL SYSTEM: Alimentary canal and its various glands - Function of
liver and liver function tests

UNIT II            30 hours
RESPIRATORY SYSTEM: Trachea, lungs including other air passages -
Functional anatomy of respiratory system, mechanism of breathing and exchange of
gases in the lungs.
MUSCULAR SYSTEM: Structure - Types of muscles in human body - Important
muscles and their group action - Innervation of muscles.

UNIT III           30 hours
IMMUNE SYSTEM: Types of immunity - Innate immunity and its type - Factors
involved in innate immunity - Acquired immunity – Active and passive – Antigen –

UNIT IV            30 hours
LYMPHATIC SYSTEM: Lymph vessels, lymph nodes and lymphoid organs -
Their structure and functions.
EXCRETORY SYSTEM: Structure and function of kidney, ureter, urinary bladder, skin
and its derivatives.
SPECIAL ORGANS: Eye, ear, nose, taste buds and subcutaneous organs – Physiology
of vision, hearing test and olfaction.

UNIT V             30 hours
NERVOUS SYSTEM: Central, peripheral nervous system - Neuron and its
function - Autonomic nervous system
ENDOCRINE SYSTEM: Hormones - Pituitary, thyroid, parathyroid, adrenal glands and
gonads.

PG. Dept. of Zoology, Jamal Mohamed College (Autonomous), Tiruchirappalli-620 020.
Text book:


Books for Reference:


CORE - II
GENERAL LABORATORY PRINCIPLES, BASIC HAEMATOLOGY, BIOCHEMISTRY, MICROBIOLOGY AND PATHOLOGY

Course Code: 17ZOCT2
Max Marks : 100
Hours/Week : 150
Internal Marks : 40
Credit : 10
External Marks : 60

Objective:
To understand the application of laboratory and diagnostic medical instruments and to study different parameters of Human Blood.

UNIT I
30 hours

UNIT II
30 hours

UNIT III
30 hours

UNIT IV
30 hours

UNIT V
30 hours
COMPONENTS OF BLOOD: Total RBC count – Total leucocytes count - Differential count – Haemoglobin estimation, ESR, PCV - Bleeding and clotting time - Platelet count - Coagulation of blood - Importance of blood clotting - Factors involved in blood clotting.
CMLT- DMLT- ADMLT 

/Syllabus - CBCS pattern – 2017-2018 Onwards

Text book:


Books for Reference:


Objective

To develop skill in handling clinical laboratory equipments; and to obtain a holistic knowledge on pathology, biochemistry, microbiology and haematology parameters.

Experiments
1. Identification of RBC, WBC and platelets
2. Hb estimation
3. RBC total count
4. WBC total count
5. WBC differential count
6. ESR estimation
7. PCV estimation
8. Clotting time
9. Bleeding time
10. Hanging drop preparation
11. Inoculation and culture techniques
12. Bacterial colony counting
13. Mantoux test
# CERTIFICATE PROGRAMME: DMLT

## CORE - I

### CLINICAL HAEMATOLOGY AND BIOCHEMISTRY

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**Objective:**
To learn the basic concepts of clinical haematology and chemistry of bio molecules.

**UNIT I**

**FUNCTIONS TESTS:** Liver function test - Renal function test - Thyroid, pancreas gastric analysis (FTM)

**SPECIAL TESTS:** Lipid profile – TGL, HDL, LDL, VLDL.

**UNIT II**

**URINE:** Collection, preservation, routine examinations – Protein – Glucose – Acetone – Bile salts – Bile pigments – Urobilin – Urobilinogen – Microscopical examination of urine

**FAECES:** Microscopical examination – Intestinal parasites – Helminthes, nematodes, cestodes, trematodes and protozoa.

**UNIT III**

**CEREBROSPINAL FLUID:** Composition – CSF cells total and differential count - Estimation of protein, Sugars and chlorides

**SEmen ANALYSIS:** Collection of semen – Microscopic examination – smear, sperm motility and count.

**UNIT IV**

**SPUTUM:** Collection – Microscopical and naked eye inspection – Clinical examination. Examination of sputum – Examination of body fluids.

**UNIT V**

Text book:


Books for Reference:


Course Code: 17ZODM2 Max Marks : 100
Hours/Week : 150 Internal Marks : 40
Credit : 10 External Marks : 60

Objective:
To confirm hygienic methods of living and to learn about the diseases causing microbial agents.

UNIT - I 30 hours
STAINING AND STAINING PROCEDURE: Types, Gram staining - Acid fast staining - Antimicrobial agents, drug resistance, drug sensitivity test - Bacteriology of water, milk and food.

UNIT - II 30 hours
INVASION OF PATHOGENS: Symptoms - Diseases and Diagnosis in Human - Common cold, Cholera, Typhoid, Malaria, Elephantiasis, Jaundice, Flu, Measles, Hepatitis B.

UNIT - III 30 hours
SEXUALLY TRANSMITTED DISEASES: HIV, Syphilis, Gonorrhea, Chancroid or Soft sore, Donovanosis, Genital candidasis - Antibiotic sensitivity test - Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC).

UNIT - IV 30 hours
VIROLOGY: Introduction - Morphology - General properties - Common viral diseases - Viral vaccines and antisera.
MYCOLOGY: General properties - Mycotoxins - Common fungal diseases

UNIT - V 30 hours
PARASITOLOGY: Diagnostic parasitological techniques - Entamoeba - Trypanosoma - Plasmodium - Ascaris - Tape worm - Schistosoma - Wuchereia.

Books for Reference:


CORE - III
CLINICAL HAEMATOLOGY, BIOCHEMISTRY, MICROBIOLOGY AND PATHOLOGY PRACTICALS

Course Code: 17ZODM3P          Max Marks : 100
Hours/Week : 150            Internal Marks : 40
Credit : 10            External Marks : 60

Objective:
To obtain operational knowledge on basic laboratory instrumentation and to develop skill on biochemical estimation procedures.

Experiments


2. Estimation of blood sugar
3. Glucose tolerance test
4. Estimation of urea in blood
5. Estimation of serum cholesterol
6. Estimation of serum creatinine
7. Estimation of albumin in serum
8. Estimation of Total protein in serum
9. Estimation of serum acid phosphatase
10. Estimation of serum amylase
11. Urine analysis (normal constituents)
12. Urine analysis (abnormal constituents)
13. Urea clearance test
14. Estimation of bilirubin
15. Sperm motility and sperm count
16. Haemagglutination-Demonstration
17. Examination of stool
18. Examination of sputum
19. Examination of Body fluids
20. Pregnancy test
21. Serum analysis-sugar, cholesterol, SGOT, SGPT, triglycerides, bilirubin, creatinine, urea, uric acid, total protein, albumin and globulin estimation.
22. Urine analysis-pH, sugar ketone bodies, albumin, bile and bile salts, bile pigments, sulpha drugs, occult blood, urobilinogen and sugars.
23. Microscopical examination of urine-cells, cast, crystals, Alkaline, urine, miscellaneous objects.
24. Preparation of Histopathological specimens.
25. Testing sensitivity of bacteria to antibiotics.
26. Assessing minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) to antibiotics.
27. Microbiology-streak plate method, simple staining, Gram staining, Acid fast Bacilli staining of fungi, flagella and capsula-Motility test-biochemical, indole, unheated serum test, widal test and formal gel test.
28. Serology-VDRL Slide flocculation test and Widal test.

EXAMINATION OF PREPARED PARASITOLOGICAL SLIDES
COP – ADVANCED DIPLOMA IN MEDICAL LAB TECHNOLOGY

CORE – I
COMMUNICABLE AND NON-COMMUNICABLE DISEASES

Course Code: 17ZOAD1                                      Max Marks : 100
Hours/Week : 150                                          Internal Marks : 40
Credit : 10                                               External Marks : 60

Objective
To promote basic knowledge on the epidemiology and prevention of infectious
and non-infectious diseases.

EPIDEMIOLOGY OF COMMUNICABLE DISEASES:

UNIT- I                                               30 hours
Respiratory infections: Small pox – Chicken pox – Measles – Rubella – Mumps
– Influenza – Diphtheria - Whooping cough – Meningitis – SARS – TB.

UNIT- II                                              30 hours
Intestinal Infections: Poliomyelitis – Hepatitis – Diarrheal diseases – Cholera –
Typhoid – Food poisoning – Amoebiasis – Ascariasis – Hookworm infection – Dengue –
Malaria – Filariasis.

UNIT- III                                            30 hours
Bacterial & Rick zoonoses; Chikungunya; Leptospirosis – Plaque – Typhus. Parasitic
Zoonoses: Taeniasis – Leishmaniasis.


EPIDEMIOLOGY OF NON-COMMUNICABLE DISEASES:

UNIT- IV                                              30 hours
Problems, Risk factors and prevention of Cardiovascular diseases: Coronary
Heart Diseases; Hypertension – Stroke – Rheumatic Heart diseases.

UNIT - V                                              30 hours
Problem, Risk factors and prevention of Cancer: Diabetes – Obesity – Blindness
- Accidents and Injuries.
Text book


Books for Reference:


CORE – II
HEALTH CARE AND ADVANCED TECHNIQUES

Course Code: 17ZOAD2          Max Marks : 100
Hours/Week : 150             Internal Marks : 40
Credit : 10                 External Marks : 60

Objective
To provide an understanding of human healthcare and to develop basic knowledge in paramedical sciences

UNIT - I         30 hours

UNIT - II        30 hours

UNIT - III       30 hours
Solid wastes and Health hazards – Safe disposal of water and health – Hospital waste management - Sanitary health measures.

UNIT - IV        30 hours
Health situation in India – Health problems – Primary health care in India – PHC – National health programmes in India – Health care system.

UNIT V           30 hours
Techniques in paramedical sciences – National Health programmes – National nutrition programmes - Basic minimum services programme – International Health Organizations: WHO – UNICEF etc.,
Text book


Books for Reference:


