



Jharkhand State Paramedical Council

RIMS Campus, Bariatu, RANCHI 834009

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Theory Paper II (100 Marks)

Diploma in Medical Laboratory Technician
(DMLT)

Part A (50 Marks)

Pathology

1. Medical terminology in Pathology
2. Responsibilities of laboratory technician
3. Basics of Laboratory Principle and Procedures
4. Basics Knowledge about laboratory safety, laboratory accident and First aid
5. Specimens and method of collection
6. Automation in Pathology, Auto analyzer
7. Interpretation of laboratory finding
8. Laboratory Apparatus
 - (a) Structure of laboratory
 - (i) Glassware
 - (ii) Flasks
 - (iii) Beepers
 - (iv) Bottles
 - (v) Funnels
 - (vi) Cylinders
 - (vii) Tubes
 - (viii) Pipettes
 - (ix) Bunsen Burner
 - (x) Water bath
9. Laboratory Instruments : (A) Care and Maintenance
 - (B) Principle and working Knowledge
 - (i) Microscope
 - (a) Structure of Microscope
 - (b) Principle of Microscope
 - (c) Parts of Microscope adjustment
 - (d) Use of Microscope : Method of use, care, cleaning and Serving of microscope, Magnification, Resolving Power
 - (e) Special application of microscope
 - Phase Contrast illumination
 - Dark ground illumination
 - Fluorescence
 - (ii) Caroni meter
 - (iii) Spectrophotometer
 - (iv) Balance/Weighing Scale
 - (v) Fridge



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10. Solutions

Hematology

- (i) Introduction to Hematology
- (ii) Specimen collection and laboratory preparation in Hematology
- (iii) Routine Hematological Tests
 - (a) Cell counts : WBC/RBS/Platelet counts
 - (b) Staining of Blood film :
 - (c) White cells and abnormal cells
Differential count/ Monocytic Series/ lymphocytic series/Granulocytic series/
leucocytes
 - (d) Red cells series Morphology/Reticulocyte count/ESR/Packed cell volume (PCV)
 - (e) Hemoglobin estimation and Anemic Normal value of hemoglobin/ Estimate

- (iv) Special Hematological Test
- (v) Basic knowledge about blood coagulation/ Blood coagulation disorders
- (vi) Laboratory investigation in bleeding Disorders
- (vii) Preparation of anti coagulation
- (viii) - Constituents and function of blood
- (ix) Plasma

3. Histopathology

- (i) Introduction
- (ii) Materials and equipments
- (iii) Biopsy/ Autopsy
- (iv) Collection, Preservation and labeling of Specimens
- (v) Procedure, grossing methods, Fixatives, Processing, embedding, section cutting, Staining, mounting & examination

5. Cytology

- (i) Introduction
- (ii) Laboratory technique in cytology
- (iii) Procedure to obtain materials for
 - (a) Cytological study FNAC, Imprint Smear, vaginal Smear, Buccal smear and other Smear
 - (b) Preparation of fluid for cytological examination
 - (c) Procedure for staining and Mounting
 - (d) Examination of cytological slide
 - (e) Laboratory techniques in diagnostic exfoliative cytology



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6. Immunoehematology and Blood Banking
 - (i) Principle of immunoehematology
 - (ii) Clinical significance of blood transfusion
 - (iii) Collection and processing of blood for transfusion
 - (iv) Routine laboratory procedure in Blood Bank : ABO, RH blood group system
: Cross matching
 - (v) Blood donation

Part B (50 Marks)

1. Clinical Biochemistry

- (i) Normal and abnormal Biochemical Processes of the body
- (ii) Collection and Processing of Specimen for Biochemical analysis
- (iii) Automation in clinical Biochemistry Laboratory
- (iv) Routine Biochemical Tests
 - (a) Blood sugar
 - (b) Blood urea
 - (c) Serum protein
 - (d) serum Bitirutain
 - (e) Serum Cholesterol and lipid function Test
 - (f) Thyroid Function Test
 - (g) liver function Test

2. **Clinical Pathology**

- (i) Urine analysis
- (ii) Lab examination of miscellaneous body fluids:
Cerebrospinal fluid/ Synovial Fluid/ Pleural fluid/ Pertoneal Fluid / Pericardial Fluid
- (iii) Semen analysis
- (iv) Stool Examination

3. Microbiology

1. Introduction to Diagnostic microbiology and microbiological technique
 - (i) Basic Knowledge of Pathogenic organism, their isolation and identification



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- (ii) Sterilisation
 - (a) Definition
 - (b) Methods – Autoclave, Hot air oven, Tyndallisation, Pasteurisation, Filtration
- (iii) Disinfection and antisepsis
- (iv) Sterilisation of equipment, instrument and Laboratory
- (v) Care and maintenance of equipment
- (vi) Preparation of wire loop
- (vii) Preparation smear
- (viii) Preparation of stains and different staining technique
 - Simple/Grams /Acid fast/Albert's/ Frontana's /Negative Staining
- 2. Bacteriology
 - (i) Basic Knowledge of Bacteria and their classification
 - (ii) Diseases caused by Bacteria
 - (iii) Culture and antibody sensitivity of bacteria
 - (iv) Preparation of different media
 - (v) culture technique and antibody sensitivity testing
- 3. Mycology
 - (i) Basic Knowledge of fungi and their classification
 - (ii) Laboratory diagnosis of Pathogenic and opportunistic fungi
 - (iii) Collection, labeling of pathogenic and opportunistic fungi
 - (iv) Culture
- 4. Virology
 - (i) Basic Knowledge of Pathogenic viruses and their classification
 - (ii) Laboratory diagnostic technique

PRACTICAL : 100 MARKS

VIVA : 100 MARKS





झारखण्ड राज्य पारामेडिकल परिषद

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सभी डिप्लोमा पाठ्यक्रमों का Paper-I, Common रहेगा, जबकी
विषयवार Paper-II का सिलेबस अलग-अलग रहेगा।
