A. Microbiology

1. Bacteriology

1.1 General knowledge about Bacteriology

1.2 Morphology of Bacteria (size, shape)

1.3 Differentiation of bacteria (cocci, bacilli)

1.4 Sample collection (pus, urine, throat swab, sputum, blood)

1.5 Principle of Gram's stain, microscopic identification of Gram +ve and Gram -ve bacteria.

1.6 Staining- Use of different dye and its principle, method of preparation.

1.7 Mycobacteria- M. tuberculosis/M.leprae, sample collection, staining and recording result.

1.8 Preparation of sputum smear

1.9 Safety precaution and proper disposal of infected materials.

1.10 Culture media-General introduction to different type of culture media.

1.11 General introduction to sterilization- by dry heat, moist heat,

1.12 Cultural technique of blood, urine, sputum, throat swab.

1.13 Use of disinfectants-preparation of disinfectant solution.

2. Parasitology

2.1 Introduction to parasitology,

2.2 Terms used in parasitology,

2.3 Classification of parasites

2.4 Helminthic parasites(Ascaris lumbricoides, Ancylostoma duodenale, Necatar Americans, Trichiuris trichiura, Strongyloides stercoralis, Enteribius vermicularis, Taenia solium, Taenia saginata, Hymenolepis nana, life cycle, mode of transmission, laboratory diagnosis, prevention and control measures.

2.5 Protozoal parasites (Giardia lamblia, Entamoeba histolytica, Entamoeba coli, Balatidum coli, Trichomonas vaginalis, Trichomonas hominis) - life cycle, mode of

transmission, laboratory diagnosis, prevention and control measures.

2.6 Dysentery (amoebic and bacillary dysentery).

2.7 Difference between of Entamoeba coli & Entamoeba histolytica

2.8 Laboratory procedure:

2.8.1 Collection of sample.

2.8.2 Preparation of reagents: normal saline solution, Iodine solution, 33% Zinc sulphate sol'n.

2.8.3 Stool examination- routine and concentration method, interpretation of results.

2.8.4 Occult blood test. 2.8.5 Disposal of waste materials

B. Haematology

1 Composition of blood, plasma, serum and whole blood.

2 Collection of blood sample - finger prick, vein puncture, ear lobe prick.

3 Anticoagulants, types of anticoagulants, preparation of Anticoagulantvials.

4 Use of instruments - Sahli's haemoglobinometer, haemocytometers, diluting pipettes, Neubaur counting chamber, ESR tubes, importance of bulk dilution, preparation of blood diluting fluid.

5 Preparation of thin and thick blood smears.

6 Total WBC, RBC and platelet count.

7 Sources of error in blood count.

8 Differential WBC count.

9 ESR estimation (Wintrobe and Westergren method).

10 Haemoglobin estimation, preparation of standard curve.

11 Preparation of Drabkin's Solution.

12 Use of Sahli Haemoglobinometer

13 Preparation of N/10 HCL.

14 Performance of-BT,CT,

15 Staining procedure - Preparation and use of Wright's stain and its principle.

16 Blood parasites - Malaria, filaria,

17 erform blood grouping

18 Sources of errors in above haematological tests.

19 Quality control in haematology.

C. Biochemistry

1 Basic chemistry- matter, substance, atom and molecules element,compound.

2 Solution- Preparation of normal sol'n,

3 Cleaning of glass-wares

4 Instrument: Colorimeter,, Centrifuge, Balance, Refrigerator

5 Law of colorimetry-Beer's and Lambert's law

6 Collection of specimen for biochemical tests

7 Estimation of B.glucose preparation of std. curve interpretation of results, source of errors.

8 Estimation of Blood Urea, interpretation of result, source of errors.

9 Preparation of reagents for Glucose, Urea,

10 Estimation of S.amylase, and calculation of results.

11 CSF-Glucose, Protein, Cell count, Gram's stain, AFB stain

D. Miscellaneous

1. Urinalysis

1.1 Importance of urine analysis

1.2 Collection of specimen

1.3 Preservation of urine for routine & culture purpose.

1.4 Examination of urinary deposit

1.5 Urine albumin test by heat and acetic acid, SSA method & strip.

1.6 Urinary glucose test by Benedict's & strip methods.

1.7 Preparation of Benedict's reagents.

2. Semen analysis

2.1 Volume

2.2 Motility

2.3 Sperm count

3. Instrumentation

3.1 Microscope- use of microscope, parts of microscope, handling of microscope.

3.2 Use of incubators, hot air oven, water bath, refrigerator, chemical balance, Colori meter.

3.3 Basic knowledge of glass-wares (test tube, flask, measuring cylinder).

4. Immunology

4.1 Perform VDR L and HIV tests.

4.2 Definition of precipitation, agglutination, flocculation.

5. Quality control in following tests

5.1 Gram's stain, AFB microscopy

5.2 TC, DC, Hb, ESR

5.3 Blood sugar, Blood urea

6. Basic knowledge of Anatomy and Physiology

6.1 Digestive system - pancreatic amylase, ptylin

6.2 Urinary system - kidney, bladder, ureter