

16. INVESTIGATIVE BIO-TECHNOLOGY

Scheme :

Paper—I Theory	3 Hrs. Duration	40 Mark
		Min. Pass Marks 1
Paper—II Field Work and Practical Experience	40 Marks	Min. Pass Marks 1
Practical	120 Marks	Min. Pass Marks 42
8 Hrs. Duration in two days.		

Paper—I Parasitology, Systemic Pathology & Laboratory
Management
Section - A

PARASITOLOGY :

1. Identification and outline of life cycle relevant to laboratory diagnosis of the following:

- (i) Giardia (ii) E.H. & Other Intestinal amoebae

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|-------------------|---------------------|
| (iii) Trichomonas | (iv) Plasmodia |
| (v) Laisamania | (vi) Tenia |
| (vii) Trichiariis | (viii) Anchylostoma |
| (ix) Ascaris | (x) Oxyris |
| (xi) Guinea Worm | (xii) Filaria. |

Section - B**ELEMENTARY TOXICOLOGY :**

1. Introduction to Toxicology (history)
2. Classification of Poisons.
3. Fatal dose and fatal period of Chemical poisons.
4. Detection of Metallic Poisons.
5. Detection of Toxic anions.
6. Detection of Volatile Poisons.
7. Detection of Insecticides (Organo Phosphorus, Organo Chloro and Carbomates).
8. Detection of Plant Poisons (Alkalosidal and Glycosital)
9. Detection of Habit forming Toxic Drugs.
10. Screening test for common poisons. (Literatrue and books on Toxicology).

Section - C**LABORATORY MANAGEMENT :**

1. Design and lay out of the analytical laboratory.
 2. Receipt of material and record-keeping.
 3. Laboratory administration.
 4. Prevention of laboratory accidents and laboratory infection.
 5. Care of laboratory animals.
 6. Collection and preservation of the material.
 - Water
 - Food ingredients
 - Prepared food
 - Milk and cold drinks
 - Fruit, Cane juice and the cream
 - Stool
 - Sewage
 - Blood and other materials connection with problems of health diseases and pollutants.
 7. Transportation of these materials.
 8. Presentation of the data including basic statistical methods.
- Work for 60 days in any laboratory connected with Biochemical Microbiological, Serological, Hematological and Pathological analysis recognised by the University.

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Paper—II : Field Work and Practical Experience

Paper - I Theory	3 Hrs. Duration	40 Marks
		Min. Pass Marks 15
Paper-II Field work and Practical Experience	40 Marks 3 Hrs. Duration	Min. Pass Marks 15
Practical	120 Marks	Min. Pass Marks 42
8 Hrs. Duration in two days.		

The students will be required to work for atleast 50 hours in any Laboratory connected with above. A project will be submitted during practical examination to be examined by a board of examiners for practical consisting of at least one external examiners.

PRACTICAL

(75×3 periods) Max. Marks 120 Min. Pass Marks 42
8 Hrs. Duration in two days.

Unit - I : Microbiology

1. Skin scripting and their digestion for demonstration.
2. Fungi and preparation of wet mounts of exulacs for rungal examination.
3. Preparation and stains used for identification of fungi.
4. Demonstration of bacteriology of water, milk and food.

Unit-II : Protozoology

1. Collection of steel of demonstration of Protozoa parasite.
2. Warm slide technique for trophozoties and wet mounts for Protozoa.
3. Demonstration of cysts of E.G.-M. coli, Giardia etc.
4. Staining and examination of Blood for M.P.
5. Demonstration of trichomonas in vaginal smears.

Unit-III : Helminthology

1. Demonstration of adults worm.
2. Examination of Blood for microfilaria.
3. Collection and preservation of stool for helminthic intestine.
4. Demonstration of various Helminthic ova.
5. Examination of water for cyclops.

Unit-IV : Biochemistry

1. Estimation of total and direct bilirubin for liver function test.
2. Chemical analysis for drinking water.

Unit-V : Serology

1. V.D.R.L. Qualitative and quantitative.
2. Wasserman reaction (WR)
3. Rosawallter Test and Rehumatoid Factor (R.F.)
4. Cold Aggulutmatation and Paul Bunnal Test.

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5. C.R.P. (C. reactive Proteins)
6. Pregnancy Test.

Unit-VI : Hematology

1. Revision of a staining of blood film and bonemarrow smears.
2. Bleeding time, clotting time, Platelet count.
3. Prothombin Time (P.T.)

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