

31. Microbiology

B.Sc. Microbiology-II

Total Mark: 100

Appendix 'A'

(Outlines of Tests)

Paper-A: Microbiology (Written) : 70 Marks

Paper-B: Practical : 30 Marks

For Colleges B.Sc. (General)

Questions paper will include 40 percent objective and 60 percent subjective. To keep the standard of education in case of subjective part question will have 2-3 parts.

Appendix 'B'

(Syllabi and Courses of Reading)

Paper-A: Microbiology

70 Marks

(A) Immunology

1. Introduction, development and scope of immunology.
2. Classification and types of immunity, (specific and non-specific).
3. Cells and tissues of immune systems.
4. The antigens: definition, Parameters, specificity, antigenic determinance and valence. Modulation of the antigen for the preventive and therapeutic purposes.
5. Immunoglobulins: structure, chemical nature, classification, physicochemical properties and antibody specificity.
6. Antigen-antibody reaction: precipitation reaction, zone phenomenon, lattice theory methods and application of immunodiffusion Test and immunoelectrophoresis, Agglutination reaction: methods and application.
7. General properties, activation and complement fixation test.
8. Hypersensitivity : types, mechanism of anaphylaxis and delayed type of Hypersensitivity.

(B) Medical Microbiology:

1. Basic concept of epidemiology.
2. Microbial virulence: factors responsible.
3. Study of etiology, pathogenesis, symptomatology, immunology, Lab. diagnosis treatment, epidemiology, prevention and control of the following diseases:

1. Bacterial Diseases:

- a) Infections caused by staphylococci and streptococci (sore throat)
- b) Infections of Staphylococci: carbuncle, acne, furuncle and scalded skin syndrome.
- c) Typhoid
- d) Bacillary dysentery
- e) Cholera
- f) Diphtheria
- g) Tetanus
- h) Tuberculosis
- i) Sexually transmitted diseases (STD: gonorrhoea)

2. Viral diseases:

- a) Influenza
- b) Poliomyelitis
- c) Rabies
- d) Hepatitis
- e) AIDS

3. Fungal Diseases:

- a) Dermatomycosis: including Tinea unguum, Tinea corporis and Tinea corporis and Tinea capitis

4. Protozoa Diseases:

- a) Dysentery : amoebiasis and giardiasis
- b) Malaria

Paper-B: Practical

30 Marks

- 1. Pure culture study of (on the basis of morphological, cultural and biochemical characteristics) E. Coli, Salmonella sp, Shigella sp, Staphylococcus aureus, S.fecalis, and S. epidermidis and S.fecalis. Corynebacterium,

2. Microscopic study of Leishmania, Entamoeba, Plasmodium and Giardia,,
3. Total blood count (Erythrocyte and WB count).
4. Differential leukocyt count
5. Blood grouping (ABO & Rh)
6. Estimation of hemoglobin
7. ESR
8. Antibacterial activity of serum
9. Agglutination Test (Widal Test)
10. Precipitation test
11. Urine analysis (physical chemical and microbiological)

Recommended Books:

1. J.G. Holt N.R. Krieg, P.H.A., Sneath, J.T. Staley and S.T. Williams. Bergey's Manual of Determinative Bacteriology, Ninth edition, Williams and Wilkins, 1994,
2. Batizing, Barry L.. Microbiology; An introduction, Brook/Cole Canda Thomson Cearning, 2002.
3. Jauquelyn G. Black., Microbiology, 5th Edition, Wilegand Sons Inc. 2003.
4. Johnson., Microbiology and Immunology, 4th Ed. Lifhin Cott William & Wilpis, 2002.
5. M. Gilligan., Micro array Data; Case in Medical Microbiology and infections, ASM press Washington D. C, 2003.
6. Robbert A. Pollack, Laboratory Exercise in Microbiology, John Wiley and Sons Inc, 2003.