Write short Notes on:

1. Discuss the significance of isolation of a saprobe from an infection in an immuno compromised patient. Describe in brief the macroscopic and microscopic morphology of the following saprobe:
   a. Penicillium spp
   b. Aspergillus fumigatus
   c. Fusarium
   d. Curvularia
2. Describe the appropriate specimen collection, staining methods and culture techniques used for identification of fungi in a mycology laboratory.
3. What are dimorphic fungi and their role in mycoses? Describe the characteristic microscopic morphology of the following at 37°C and 22°C:
   a. Blastomyces dermatidis
   b. Histoplasma capsulatum
   c. Sporothrix schenckii
   d. Penicillium marneffii
4. Enumerate the various yeast and yeast like fungi. Discuss their identification and importance in human infections.
5. Define nutritionally variant streptococci along with example. Enumerate the various infections caused by them and their laboratory diagnosis.
6. Enumerate the various Corynebacterium species other than C. diphtheriae and discuss their clinical significance and identification methods.
7. List the genus and species of the organisms included in the acronym ‘HACEK’, the main diseases caused by them and their identification feature.
8. Discuss the pathogenesis and laboratory diagnosis of the various E. coli causing diarrhea.
9. List the various non sporing anaerobes commonly involved in human infections along with their pathogenesis and laboratory diagnosis.
10. Discuss the clinical significance, identification and newer methods of detecting of the various Non tuberculous mycobacteriums in clinical microbiology.
Write short Notes on:

1. Write on the parasitic infections occurring in an AIDS patient.
2. Write about free living amoeba.
3. Write on the etiopathogenesis and laboratory diagnosis of neurocysticercosis.
4. Write the laboratory diagnosis of Kala-Azar with special reference to newer tests.
5. Write on malaria vaccines.
6. Write about the newer approach for detection and identification of Influenza virus.
8. Discuss the newer techniques used to detect and genotype hepatitis C virus.
9. Classify arbovirus and discuss the immunopathogenesis of dengue.
10. Write down the etiology, pathogenesis and diagnosis of severe acute respiratory syndrome.
Write short Notes on:

1. What are the bacteriological indicators of water pollution? Describe the tests done for coliform bacteria and E coli.
2. Define epidemic? Enumerate the steps in the investigation and control of outbreaks.
3. Write the principle, technique and application of real time PCR.
4. Discuss probiotics.
5. Enumerate the opportunistic infections associated with HIV infection. Briefly outline the laboratory tests used for the diagnosis of HIV infections.
6. Write briefly on plasma sterilization and its application.
7. Enumerate the agents of bioterrorism? What are key features of the agents to be potentially used as bioterrorism weapons? What the roles of sentinel laboratory in bioterrorism.
8. Discuss biosafety in the microbiological laboratory.
9. Write briefly on tests used to determine the efficiency of a disinfectant.
10. Discuss extended spectrum beta lactamases.
Write short Notes on:

1. Discuss the different filtration techniques used in neurobiology.
2. Discuss the structure, functions and types of bacterial fimbriae. Describe briefly the role of fimbrial antigens as vaccine candidates.
3. Enumerate the different types of microscopes used in microbiology along with their principles of working. Discuss electron microscope and confocal microscopy in details.
4. Enumerate the different laboratory acquired infections in a microbiology laboratory. Discuss routes of infection and the hazardous procedures leading to them.
5. Discuss the various methods of preservation of microbial cultures.
6. Define immunological tolerance and autoimmunity. Discuss establishment and maintenance of tolerance and autoimmunity.
7. Discuss the various methods used in characterizing strains involved in an outbreak. Write in brief the principle with one example of bacteria for which it can be used.
8. What are super antigens? Describe their role in immunity. Name at least four such antigens.
9. Discuss the role of normal microbial flora in health and disease.
10. Enumerate the various techniques used in amplifying target nucleic acid. Write the principle of each test.
Write short notes on:

1. Chlamydia pneumoniae
2. Yersinia enterocolitica
3. Vancomycin resistant enterococci (VRE)
4. Human Ehrlichiosis
5. Reverse phage typing of Staphylococcus aureus
6. Bartonellosis
7. Clinical importance of non-albicans candida
8. Nocardiosis
9. Penicillium marneffii
10. Chromoblastomycosis
Write short notes on:

1. Recent advances in the laboratory diagnosis of kala-azar
2. Neurocysticercosis
3. Visceral larva migrans
4. Babesiosis
5. Bird flu
6. Prions in relation to human infections
7. Hepatitis G virus
8. Viral conjunctivitis
9. Ebola virus
10. Antiviral susceptibility testing
Write short notes on:

1. Amp c beta lactamases
2. Biosafety cabinets
3. Inertization
4. Current status of rota virus vaccines
5. Hospital hygiene
6. Newer macrolides
7. Enzyme enhanced immunoassay
8. Miniature identification systems
9. Use of DNA probes
10. Virulence marker plasmids
Write short notes on:

1. Regulation of gene expression in bacteria
2. Adhesion molecules
3. Flow cytometry in microbiology
4. Probiotics
5. Role of cytokines in health and disease
6. Microbial factors contributing to virulence
7. Principle and applications of Bioluminescence
8. Continuous flow cultures
9. Oncogenes
10. Outer membrane proteins (OMP)
Write short notes on:

1. Determinants of pathogenicity in S. Aureus
2. Medically important non diphtheria corynebacteria
3. Immunity in leprosy.
4. Non venereal treponemal infection.
5. Bacterial vaginosis.
6. Virulence factors of yersinia pestis.
7. Laboratory diagnosis of C. Trachomatis
8. Rhinosporidiosis
10. Mitynosis Versicolor
Write short notes on:

1. Bacteriophage and its role in microbiology.
2. Laboratory diagnosis and strategies to prevent and control Avian Influenza Virus in humans in India.
3. Hepatitis C virus infection: diagnosis and prevention strategy.
4. Opportunistic viral infections in AIDS patients
5. Chikungunya and its re-emergence.
6. Name parasites transmitted by sexual contact and briefly describe lifecycle, pathogenicity and laboratory diagnosis of one.
8. Malarial Vaccines.
9. Larva migrans.
10. Occult Filariasis.
Write short notes on:

1. Hepatitis C viral infection – diagnosis and prevention strategy.
2. Biofilm
3. Molecular methods used for the diagnosis of hospital acquired infection.
4. Ligase chain reaction.
5. Recent methods in diagnosis of Cryptococcal meningitis.
6. Role of microbiologist in plague epidemic.
10. Automation in clinical bacteriology.
Write short notes on:

1. Sterilization controls.
3. Vancomycin resistant enterococci.
4. Transposons
5. Role of normal microbial flora in health and disease.
6. Immunoelectron microscopy.
7. Adjuvants.
8. Apoptosis.
9. Antigen presenting cells.