336C5B Medical Virology Summary

Course Units

Unit 1: Virus Properties & Classification

• General Properties
• replication and Classification of viruses (Baltimore classification)
• Cultivation of viruses- in animals
• embryonated eggs and tissue culture
• Virus purification assays - collection and transport of clinical specimens for viral infections.

Unit 2: Viral Pathogenesis & Disease Mechanisms

• Viral diseases with reference to symptoms
• pathogenesis
• transmission
• prophylaxis and control – Arboviruses (Flavi virus)
• Picorna viruses (Polio virus and Rhinovirus)
• Hepatitis viruses (HAV, HBV, HCV, HDV, HEV)
• Rabies virus
• Orthomyxoviruses (Influenza virus) and Paramyxoviruses (Mumps and Measles virus)
• Pox viruses (Variola, Vaccinia)
• Herpes viruses (Herpes simplex, Varicella zoster)
• Adeno viruses
• Rota viruses and HIV viruses. Oncogenic viruses (Human Papilloma virus): Introduction
• characteristics of transformed cells
• mechanism of viral oncogenesis and clinical manifestations.

Unit 3: Emerging & Reemerging Viral Infections

• Emerging and reemerging viral infections (SARS, Swine flu, Ebola, Dengue, Chikungunya- and Corona) – causes
• spread and preventive measures. Detection of viruses in clinical specimens – Serological and Molecular diagnosis of virus infections – Antiviral agents
• Interferons and Viral Vaccines
• Immunization schedules.

Unit 4: Intestinal Parasitic Infections

• General introduction to Medical Parasitology
• Classification of medically important parasites. Morphology
• life cycle
• pathogenesis
• clinical features
• laboratory diagnosis
• prevention and treatment of diseases caused by the following organisms: Entameoba histolytica

• flagellates (Giardia lamblia, Leishmania donovani)
• Sporozoa- Plasmodium spp.

Unit 5: Parasitic Diagnosis Techniques

• Introduction to Helminthes
• Platyhelminthes – Taenia – Fasciola – Paragonimus – Schistosoma spp. Nemathelminthes – Ascaris– Ankylostoma – Enterobius – Trichuris – Trichinella – Wuchereria – Dracanculus. Collection
• transport and examination of specimen Laboratory techniques in parasitology - Examination of faeces for ova and cyst by direct wet mount and iodine wet mount
• Concentration methods (Floatation and Sedimentation techniques)
• Examination of blood for parasites. Cultivation of parasites.

Course Outcomes

CO1: Understand the structure and properties of viruses, cultivation methods and diagnosis of viral diseases.

CO2: Knowledge of basic and general concepts of causation of disease by the pathogenic microorganisms and various parameters of assessment of their severity and the methods of diagnosis.

CO3: Insights to treatment options of viral diseases.

CO4: Knowledge about the importance of protozoans in the intestine.

CO5: Knowledge of Nematodes as infectious agent