

RAJASTHAN PUBLIC SERVICE COMMISSION, AJMER

SYLLABUS OF COMPETITIVE EXAMINATION FOR THE POST OF ASSISTANT PROFESSOR (Super Speciality) VIROLOGY MEDICAL EDUCATION DEPARTMENT

Unit-I General Virology:

Basics: Taxonomy and classification of medically important viruses, structure, viral replication.

Antiviral agents: list and spectrum of antiviral agents, mechanism of action, mechanism of resistance, methods for antiviral drug resistance testing.

Host and virus interaction: Pathogenesis of viral infection, immune responses to viral infection

Vaccines: Types of vaccines, list of vaccines against viruses, vaccine trials

Quality assurance in Virology: Internal and external quality controls, Audit, accreditation

Unit-II Viral Diagnostic Techniques:

Basic: Electron microscopy, Isolation of viruses, egg inoculation, animal models, tissue culture

Serological: Rapid card tests, ELISA, Chemiluminescence based immunoassay, western blot, Hemagglutination/ Hemagglutination inhibition assay, Complement fixation assays.

Molecular diagnostics: Types of molecular assays, Signal Amplification Methods, Target Amplification Methods, PCR and its types, Real Time PCR, point of care molecular assays, post amplification detection methods, gel electrophoresis

Sequencing techniques: Sanger's sequencing, Next generation Sequencing, Pyrosequencing, Whole genome sequencing

Unit-III Systemic Virology:

DNA viruses: Poxviridae, Herpesviridae, Adenoviridae, Papillomaviridae, Polyomaviridae, Parvoviridae, Hepadnaviridae

RNA viruses: Picornaviridae, Orthomyxoviridae, Paramyxoviridae, Reoviridae, Caliciviridae, Astroviridae, Coronaviridae, Rhabdoviridae, Flaviviridae, Togaviridae, Bunyaviridae, Arenaviridae, Filoviridae, Retroviridae - HIV, HTLV 1&2

Unit-IV Clinical virology:

- Viral infections of the skin - including pediatric exanthems and enanthems
- Viral respiratory infections - rhinitis, pharyngitis, croup, bronchiolitis, pneumonia etc.
- Viral CNS infections - encephalitis, meningitis, acute flaccid paralysis, etc.

- Viral gastroenteritis - viruses causing diarrhoea
- Viral hepatitis – hepatotropic viruses HAV, HBV, HCV, HDV, HEV and non-hepatotropic viruses.
- Viral infections in the immunocompromised – e.g., in transplant recipients
- Congenital viral infections – e.g., due to HCMV, rubella, VZV, HIV etc.
- Sexually transmitted viral infections
- Ocular viral infections
- Oncogenic viral infections
- HIV/AIDS
- Prion diseases

Unit-V Viral epidemiology:

- Viral outbreaks, investigation, prevention and control
- Emerging and re-emerging viruses
- Conventional and molecular epidemiology of viral infections
- Biosafety, containment and biosecurity for viruses (including standard precautions, use for personal protective equipment, hospital infection control and biomedical waste management)
- Vectors of viral diseases and their control

Pattern of Question Papers:

- 1.Objective Type Paper
- 2.Maximum Marks: 150
- 3.Number of Questions: 150
- 4.Duration of Paper: 2.30 Hours
- 5.All Questions carry equal marks
- 6.There will be Negative Marking