

# RAJASTHAN PUBLIC SERVICE COMMISSION, AJMER

## SYLLABUS FOR SCREENING TEST FOR THE POST OF SENIOR DEMONSTRATOR – MICROBIOLOGY MEDICAL EDUCATION DEPARTMENT

### Unit-I - General Microbiology :

- History of Microbiology.
- Microscopy and Morphology of bacteria.
- Physiology of bacteria.
- Sterilization and Disinfection.
- Culture Media.
- Culture Methods.
- Laboratory Identification of Bacteria.
- Bacterial Taxonomy.
- Bacterial Genetics- Methods of Gene Transfer.  
PCR: Basic Steps and procedure.
- Microbial Infection.

### Unit-II – Immunology :

- Immunity.
- Antigen.
- Antibodies.
- Antigen, Antibody Reactions.
- Complement System.
- Structure & Function Immune system.
- Immune Response: Primary and Secondary, Immune regulation, Hybridoma and Monoclonal antibody.
- Immunodeficiency Diseases.
- Hypersensitivity.
- Autoimmunity.
- Immunology of Transplantation & Malignancy.
- Immunohaematology.

### Unit-III - Systemic Bacteriology :

- Microbial characters, Epidemiology, Pathogenicity & Pathogenesis, Clinical features & lab diagnosis including prevention and control measures of diseases caused by :
  - Gram positive & Gram negative bacteria including Anaerobes.
  - Mycobacterium tuberculosis, NTM and leprae.
  - Treponema, Borrelia, Leptospira.
  - Mycoplasma and Ureaplasma.
  - Actinomycetes.
  - Miscellaneous bacteria.
  - Rickettsia, orientia, Ehrlichia and Coxiella.
  - Chlamydia and Chlamydozoa.

### Unit-IV- Medical Virology :

- Basic Virology :
  - General characteristics, morphology, genetics, replication & classification of viruses.
  - Viral infections, virus hostcell interaction.
  - Lab diagnosis of viral diseases.
  - Interferons & antiviral agents.

- Systemic Virology :
  - Oncogenic Viruses.
  - Bacteriophages.
  - DNA viruses: Pox, Herpes, Adeno.
  - RNA Viruses: Picorna, Orthomyxo, , Paramyxo, Rubella, Arbo, Rhabdo, Corona viruses, Retroviruses.
  - Hepatitis.
  - Miscellaneous: Viruses, Arena, Reo, Filo viruses, slow viruses and Prions & Conventional viruses. Viruses causing Gastroenteritis.

**Unit-V- Medical Mycology :**

- General Characters of fungi & Principles of fungal diseases.
- Mycoses;
  - Superficial, Cutaneous, sub cutaneous.
  - Systemic.
  - Opportunistic.
- Basic Laboratory diagnosis of mycoses and antifungal sensitivity.

**Unit-VI - Medical Parasitology :**

- General characters & Basic principles of host parasite relationships & interactions.
- Human Medical protozoology including phylum Apicomplexa.
- Human medical helminthology.
- Diagnostic methods in parasitic infections, Including immunodiagnosis.

**Unit-VII - Applied Microbiology & Clinical Microbiology :**

- Normal Microbial Flora.
- Nosocomial infection and hospital infection control policy.
- Bacteriology of water, milk and air.
- Hospital waste management.
- Emerging & reemerging Infections.
- Immuno prophylaxis.
- Automation and recent diagnostic methods in microbiology.
- Vehicles and Vectors of infectious agents.
- Cases and Clinical Correlations.
- Antimicrobial Therapy and resistance.
- Microbiology of organ transplant.
- Infection in critical care.
- Zoonotic Infection.
- Bioterrorism.
- Lab diagnosis of various clinical syndroms.
- Epidemiology and investigation of various outbreaks and managements.

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Note :- Pattern of Question Paper

1. Objective type paper
2. Maximum Marks :180
3. Number of Questions :180
4. Duration of Paper : Three Hours
5. All questions carry equal marks.
6. There will be Negative marking

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