

Time: Three Hours**Max. Marks: 100****MICROBIOLOGY – PAPER I (RS-4)****Q.P. CODE: 1030****(QP contains two pages)**Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary**LONG ESSAYS****2 x 10 = 20 Marks**

- Three members of a family who attended a gathering in a village complained of passing loose stools about 6 to 10 times per day. On examination all of them had signs of dehydration and stool samples collected appears like rice water
 - Name the most probable causative bacterial agent
 - Describe pathogenesis of this condition
 - Describe laboratory diagnosis of this condition
 - Outline the measures to manage this outbreak
- A commercial sex worker presents with intermittent fever, diarrhea and weight loss since two months. On examination she has oral thrush and enlarged lymph nodes in neck and axilla. Laboratory Investigation revealed that, serum was positive for P24 Antigen and her CD4 Count is less than 200 /mm
 - Diagnose the most probable clinical condition and identify the causative agent of this clinical condition
 - Describe pathogenesis of this clinical condition
 - Describe laboratory diagnosis of the underlying primary disease
 - Outline the medicolegal and ethical requirements that need to be met during laboratory diagnosis of this condition

SHORT ESSAYS**8 x 5 = 40 Marks**

- Bacterial conjugation and its implications
- ELISA – Principles, types and applications
- Delayed type hypersensitivity
- An Intravenous drug abuser develops fever with chills, myalgia, cardiac murmur. Methicillin Resistant Staphylococci aureus was isolated from Blood culture. Describe pathogenesis and laboratory diagnosis of this condition
- Laboratory diagnosis of lymphatic filariasis
- Pathogenesis and laboratory diagnosis of Hepatitis E infection.
- Superficial mycosis
- A middle-aged man presents with hypopigmented patches on his both forearms. On examination the lesions were non-scaly and had reduced sensations. Describe laboratory diagnosis of this condition

SHORT ANSWERS**10 x 3 = 30 Marks**

- Hot air oven – Principle and application
- Name three differences between exotoxin and endotoxin
- Major Histocompatibility Complex
- Differentiate primary and secondary immune response
- Name the major criteria of modified Jone's criteria
- Draw a labelled diagram of the diagnostic form of visceral leishmaniasis found in bone marrow smears
- Name three bacterial causes of food poisoning
- Laboratory diagnosis of amoebic liver abscess
- Etiopathogenesis of Actinomycosis
- Name common infections caused by nonsporing anaerobes

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Multiple Choice Questions

10 x 1 = 10 Marks

- 21 i) Spores are formed in _____ phase of bacterial growth curve
- Lag
 - Log
 - Stationary
 - Decline
- 21 ii) Bacterium having polypeptide capsule is
- Neisseria meningitidis*
 - Bacillus anthracis*
 - Haemophilus influenzae*
 - Klebsiella pneumoniae*
- 21 iii) Commonest cause of septic arthritis is
- Staphylococcus aureus*
 - Coagulase negative *Staphylococcus Spp*
 - Streptococcus pneumoniae*
 - Escherichia coli*
- 21 iv) Molecular mimicry as a mechanism of autoimmune response is seen in
- Rheumatic fever
 - Rheumatoid arthritis
 - Systemic lupus erythematosus
 - Myasthenia gravis
- 21 v) **NOT** a correct combination is
- Autograft – skin grafted to burn area
 - Allograft – graft from genetically non-identical member of the same species
 - Isograft – graft from heterozygous twin
 - Xenograft – graft from different species
- 22 i) A bridge between innate and acquired immunity is
- Complement components
 - Neutrophils
 - T lymphocytes
 - Natural killer cells
- 22 ii) All of the following are dimorphic fungi **EXCEPT**
- Histoplasma capsulatum*
 - Blastomyces dermatitidis*
 - Cryptococcus neoformans*
 - Sporothrix schenckii*
- 22 iii) Germ Tube test is positive in which of the following organisms
- C. albicans*
 - C. tropicalis*
 - C. parapsilosis*
 - C. auris*
- 22 iv) A child aged 6 years vomited a white worm with cylindrical body measuring 20 cm. Parents gave history of passing similar worm in feces a few months ago. Stool examination showed many brown ova. Probable organism is
- Necator americanus*
 - Trichuris trichiura*
 - Taenia saginata*
 - Ascaris lumbricoides*
- 22 v) True about *Strongyloides stercoralis* is
- It can complete the life cycle independent of any host
 - Infection is acquired by ingestion of embryonated ova
 - Diagnosis is done by demonstrating ova in stool sample
 - Commonly produces Loeffler syndrome
