

Time: Three Hours**Max. Marks: 100****MICROBIOLOGY – PAPER II (RS-4)****Q.P. CODE: 1031****(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**

1. A lady aged 26 years presented with high grade fever with chills, headache since 4 days. On examination she had neck stiffness and Kernig's sign was positive. CSF gram stain showed gram negative diplococci with adjacent flat surfaces.
 - a) Identify the causative agent
 - b) Describe the pathogenesis of this condition
 - c) Describe laboratory diagnosis of this condition
 - d) Suggest methods of prevention
2. An adult man presented with fever, breathlessness, dry cough and loss of smell since 4 days. He had fever, sore throat and running nose in the previous week. RTPCR of nasopharyngeal swab showed presence of N and RdRp genes.
 - a) Identify the causative agent
 - b) Describe laboratory diagnosis of this condition
 - c) Describe methods of prevention
 - d) Suggest appropriate management of common biomedical waste generated while caring for this patient

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

3. Pathogenesis and laboratory diagnosis of Japanese encephalitis
4. Laboratory diagnostic strategy of pulmonary tuberculosis as per National Tuberculosis Elimination Program
5. A lady aged 28 years presented with recurrent multiple painful vesicular lesions of external genitalia. Giemsa-stained smear of the base of the lesions showed multinucleated giant cells with faceted nuclei. Describe pathogenesis and laboratory diagnosis of this condition
6. Pathogenesis and laboratory diagnosis of Leptospirosis
7. Clinical features, complications and laboratory diagnosis of Dengue
8. Pathogenesis and laboratory diagnosis of Hydatid cyst disease
9. Risk factors and prevention of CAUTI
10. Oncogenic viruses

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

11. Describe the reasons for epidemics and pandemics of influenza
12. Diagnosis of neurocysticercosis
13. Morphology of *Corynebacterium diphtheriae*
14. Name common infections caused by *Aspergillus Spp*
15. Significant bacteriuria
16. Laboratory diagnosis of lymphogranuloma venereum
17. Draw a labelled diagram of *Trichomonas vaginalis*
18. Name three organisms causing nongonococcal urethritis
19. Malignant pustule
20. Describe the ethical considerations while testing for HIV

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Multiple Choice Questions

10 x 1 = 10 Marks

- 21 i) All the following are effective in preventing pharyngoconjunctival fever caused by Adenovirus **EXCEPT**
- Effective hand washing
 - 70% ethanol to disinfect environmental surfaces
 - Chlorination of swimming pools and waste water
 - Strict asepsis during eye examinations
- 21 ii) True about tropical pulmonary eosinophilia is
- Microfilariae are not detected in peripheral smear
 - Caused by migrating larvae of *Ascaris lumbricoides*
 - Hyaline septate acutely-branching hyphae are seen in sputum
 - Productive cough with blood-tinged purulent sputum is characteristic
- 21 iii) An immunocompromised individual has dry cough and breathlessness. Gomori's methenamine silver stain of bronchoalveolar lavage showed black structures resembling crushed ping-pong balls. The probable causative agent is
- Pneumocystis jirovecii*
 - Talaromyces marneffei*
 - Histoplasma capsulatum*
 - Blastomyces dermatitidis*
- 21 iv) An adult man has fever and purulent urethral discharge. Gram stain of the discharge showed gram negative diplococci with adjacent concave surfaces. Treatment of choice is
- Ceftriaxone
 - Azithromycin
 - Doxycycline
 - Acyclovir
- 21 v) True about standard tests for syphilis is
- Detect antibodies to treponemal antigens
 - Can not differentiate recent and past infection
 - Positive results irrespective of titers are significant
 - Help in assessing response to treatment
- 22 i) A lady has multiple painless dome-shaped, pink pearly wart-like umbilicated lesions, with a dimple at the center in perigenital area. Most useful test in this case is
- Demonstration of Molluscum bodies in biopsied lesion
 - Leishman stained smear of the lesion to show Guarneri bodies
 - Iodine-stained smear of lesion to demonstrate inclusion bodies
 - Gram stain of lesion to show gram negative bacilli with safety-pin appearance
- 22 ii) Urine wet mount of a man with hematuria showed oval and elongated, non-operculated eggs measuring $150 \times 50 \mu\text{m}$, with a terminal spine. It is suggestive of
- Schistosoma haematobium*
 - Schistosoma mansoni*
 - Schistosoma japonicum*
 - Schistosoma urealyticum*
- 22 iii) True about Kyasanur Forest Disease is
- Endemic in central African countries
 - Transmitted by soft tick
 - Monkeys are amplifier hosts
 - Encephalitis is the characteristic feature
- 22 iv) True about human infection by *Taenia solium* is that
- Man can be definitive or intermediate host
 - Non-bile-stained eggs
 - Scolex is quadrangular without rostellum and hooklets
 - Adult worm has cylindrical body
- 22 v) True about infections caused by zoophilic dermatophytes is
- Commonest organism is *Trichophyton rubrum*
 - Mild symptoms
 - Resolve more quickly
 - Can be grown only by using experimental animals
