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MANIPAL ACADEMY OF HIGHER EDUCATION
MD (MICROBIOLOGY) DEGREE EXAMINATION – APRIL 2022

PAPER I

Friday, April 01, 2022

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

1. Classify the categories of biomedical waste. Discuss the steps involved in management of biomedical waste.
(15 marks)
2. Describe the activation and biologic functions of complement.
(15 marks)
3. **Write Short Notes on:**
 - 3A. Bacterial spore
 - 3B. Cold sterilization
 - 3C. Quality control in antibiotic sensitivity testing
 - 3D. Bacterial Conjugation
 - 3E. Compare and contrast primary and secondary immune response
 - 3F. Hypersensitivity pneumonitis
 - 3G. Cell wall deficient bacteria
 - 3H. Principle and applications of IgM Capture ELISA
 - 3I. Immuno modulators
 - 3J. Contributions of Louis Pasteur

(7 marks × 10 = 70 marks)



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PAPER II

Saturday, April 02, 2022

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

1. Define and classify Pyrexia of Unknown Origin. Describe the pathogenesis and laboratory diagnosis of enteric fever.

(15 marks)

2. Describe the pathogenesis and laboratory diagnosis of pulmonary tuberculosis.

(15 marks)

3. **Write short notes on:**
 - 3A. Coagulase negative Staphylococcus.
 - 3B. Prophylaxis of tetanus.
 - 3C. *Bacillus cereus*
 - 3D. Laboratory diagnosis of Urinary tract infections.
 - 3E. Scrub Typhus
 - 3F. Gonococcal urethritis
 - 3G. *Hemophilus influenzae* type b
 - 3H. Laboratory diagnosis of cholera
 - 3I. Laboratory diagnosis of diphtheria
 - 3J. Spectrum of infections by non-sporing anaerobes

(7 marks × 10 = 70 marks)



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PAPER III

Monday, April 04, 2022

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Draw diagrams wherever necessary.**

1. Discuss the pathogenesis and laboratory diagnosis of Kala Azar.

(15 marks)

2. Enumerate the arboviral infections prevalent in India. Describe the pathogenesis and laboratory diagnosis of Dengue viral infection.

(15 marks)

3. **Write short notes on:**

3A. Antifungal susceptibility testing

3B. Laboratory diagnosis of infections caused by *Histoplasma capsulatum*

3C. Hepatitis E virus INFECTION

3D. Laboratory diagnosis and management of *Ancylostoma duodenale* infection

3E. Cytopathic effects seen in virus infected cell lines

3F. Cysticercosis

3G. Non-neural vaccines against Rabies virus

3H. Candidiasis

3I. Extraintestinal amoebiasis

3J. Complications due to Varicella Zoster Virus infection

(7 marks × 10 = 70 marks)



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PAPER IV

Tuesday, April 05, 2022

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

1. Define and enumerate the causes of PUO. Discuss the various Blood culture techniques in the investigation of PUO.

(15 marks)

2. Discuss waterborne Protozoal diseases.

(15 marks)

3. **Write Short Notes on:**

3A. Zygomycosis

3B. Newer vaccines

3C. *Stenotrophomonas maltophilia*

3D. Blotting techniques in laboratory diagnosis

3E. Human Papilloma virus

3F. Cytokines

3G. *Penicillium marneffi*

3H. TRIC agents

3I. HLA Typing

3J. Staphylococcal Toxic shock syndrome

(7 marks × 10 = 70 marks)

