Question Paper

Exam Date & Time: 24-Feb-2025 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND PROFESSIONAL YEAR MBBS DEGREE EXAMINATION - FEBRUARY 2025
SUBJECT: MI 201TH-P2 - MICROBIOLOGY - PAPER II
(CBME SCHEME - REPEATERS)

Marks: 100 **Duration: 180 mins.**

Answer all the questions. Section Duration: 20 mins

Answer all the questions.

1. A 32 years male presented with erythematous, maculopopular rash throughout his body, including the palms and soles. He had history of multiple sex partners. On examination mucous patches were noticed in oropharynx. The VDRL test was reactive one in 160.

1A)	What is the etiological agent causing this disease?	(1)
1B)	Describe the pathogenesis of the disease.	(4)
1C)	What are the advantages and disadvantages of the VDRL test?	(3)
1D)	Discuss the confirmatory tests of this disease.	(2)

2. A 35-year-old person presented with history of fever for last 2 week and vomiting for 4 days. He is also passing less urine for last 2 days. On examination chest is clear but abdominal examination revealed mild hepatomegaly. Liver enzymes and blood urea were raised. Tests for malaria, typhoid fever and scrub typhus are negative. Dark field microscopy of urine showed actively motile, tightly coiled spiral forms 10-15µm long.

2A)	What is your diagnosis and name the etiological agent?	(2)
2B)	Describe the pathogenesis of disease.	(4)
2C)	Write the laboratory diagnosis of this disease.	(4)

3. **Short Answer Questions:**

3A)	Diarrheagenic *E.coli*.	(4)
3B)	Enumerate 4 bacteria causing food poisoning and the food associated with each.	(4)
3C)	Compare the laboratory parameters of bacterial dysentery and amoebic dysentery.	(4)
3D)	Describe the course of seromarkers in relation to clinical stages of Hepatitis B virus infection.	(4)
3E)	Pathogenesis of Hydatid cyst.	(4)
3F)	Laboratory diagnosis of halophilic vibrios.	(4)
3G)	Discuss the lab diagnosis of Non-gonococcal urethritis.	(4)

3H)	Describe the Post-exposure prophylaxis of Rabies according to the categories of exposure.	(4)
3I)	Describe pathogenesis of clostridial gas gangrene and myonecrosis.	(4)
3J)	Plan a laboratory investigation for viral exanthemas due to measles virus.	(4)
3K)	Differentiate lepromatous from tuberculoid type of Leprosy.	(4)
3L)	Discuss the laboratory diagnosis of Mycetoma.	(4)
3M)	Primary Amoebic Encephalitis.	(4)
3N)	Describe the laboratory diagnosis of Dengue fever.	(4)
3O)	Plan the laboratory workup for a suspected case of Aseptic meningitis.	(4)

-----End-----

Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND MBBS DEGREE EXAMINATION – FEBRUARY 2025

SUBJECT: MICROBIOLOGY – PAPER II (ESSAY)

(OLD REGULATION - 2018-19 & PRIOR BATCH)

Monday, February 24, 2025

Time: 10:20 – 13:00 Hrs. Maximum Marks: 80

✍ **Answer ALL the questions.**

1. A 42-year-old man presents with fever, anorexia, nausea, vomiting & yellowish discoloration of eyes. He complains of right sided abdominal discomfort. He gives history of receiving emergency blood transfusions at a remote village following a traffic accident 2 months back. Blood examination revealed elevated leucocyte count & neutrophil counts of 90%. Liver function test revealed elevated bilirubin levels & transaminases. On performing serological tests, he was found to be positive for HBsAg and IgM Anti HBc antibodies.

1A. What is the most probable diagnosis?
1B. Describe the pathogenesis of this infection.
1C. Discuss the laboratory diagnosis of this infection.
1D. How do you prevent this infection?

(1+3+3+3 = 10 marks)

2. Discuss pathogenesis and laboratory diagnosis, treatment and prevention of Lymphatic filariasis.

(4+3+3 = 10 marks)

3. **Write Short notes on:**

3A. Infections caused by Adenovirus.
3B. Cryptosporidiosis.
3C. Draw a labelled diagram of Trophozoite and cyst of *Giardia lamblia.*
3D. Life cycle of *Ancylostoma duodenale.*
3E. Morphological classification of fungi with examples.
3F. Enumerate Four viruses causing Viral Haemorrhagic fever.
3G. Pathogenesis of Ascariasis.
3H. Enumerate 4 subcutaneous fungal infections and their etiological agents.
3I. Complications of Falciparum malaria.
3J. Antigenic variation in Influenza virus.
3K. Laboratory diagnosis of HIV infection.
3L. Name four parasites causing anaemia.
3M. Laboratory diagnosis of Dermatophytosis.
3N. Infections caused by Candida spp.
3O. MMR vaccine.

(4 marks × 15 = 60 marks)

Question Paper

Exam Date & Time: 21-Feb-2025 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND PROFESSIONAL YEAR MBBS DEGREE EXAMINATION - FEBRUARY 2025
SUBJECT: MICROBIOLOGY - PAPER I
(CBME BATCH - REPEATERS)

Marks: 100 **Duration: 180 mins.**

Section Duration: 20 mins

Answer all the questions.

Essay questions:

1)	List the antigen-antibody reactions. Discuss ELISA in detail with its principle and applications in Clinical Microbiology. (2+2+6 = 10 marks)	(10)

2. A 4-year-old girl came to the OPD with complaints of sore throat and difficulty in swallowing. On examination the pharyngeal mucosa is inflamed. The case was diagnosed as pharyngitis. Culture of the throat swab revealed beta hemolytic pin point colonies of bacteria in 5% Sheep blood agar, which is sensitive to bacitracin.

2A)	What is the most likely etiological agent?	(1)
2B)	Describe the virulence factors, clinical manifestations and complications of etiological agent in relation to the above mentioned infection.	(6)
2C)	Discuss the laboratory diagnosis of this condition.	(3)

3. **Short notes:**

3A)	*Corynebacterium diphtheriae* causes the disease diphtheria by producing diphtheria toxin. The gene encoding the toxin is integrated into bacterial genome by which process? Explain.	(4)
3B)	Hanging drop of rice water stool shows actively motile bacilli with darting motility. a) Name the appendage responsible for the motility in bacteria. b) Discuss the properties and demonstration of this appendage. (1+3 = 4 marks)	(4)
3C)	Discuss the working principle and uses of Autoclave in health care settings.	(4)
3D)	Illustrate the differences between Gram positive and Gram negative cell wall with a neat labelled diagram.	(4)
3E)	List 4 common disinfectants with their recommended concentration and uses in hospitals.	(4)
3F)	Compare and contrast Mutational and transferable drug resistance with example.	(4)
3G)	A 45 Year-old male was stung by a wasp as he was putting on his shirt. Patient complained of	(4)

	chest pain, shortness of breath and soon collapsed. Past medical history is unremarkable. What is the probable clinical diagnosis? Discuss its mechanism.	
3H)	A 45-year-old male presents with history of Fever of 102°F, weakness of lower limbs, and back ache. On physical examination, small, non-tender, erythematous nodular lesions were present. Echocardiography was performed, which revealed vegetations on the mitral valve. Past medical history of the patient revealed cardiac valvular lesions few years back. Laboratory investigations revealed elevated CRP. The cardiologist requested for blood culture. • What is the probable clinical diagnosis and list the important etiological agents of this condition? • How many sets of blood culture has to be collected and specify the time interval between the blood cultures in the diagnosis of the above condition?	(4)
3I)	Discuss the methods used in the laboratory diagnosis of Malaria.	(4)
3J)	Describe the pathogenesis of Dengue Shock syndrome.	(4)
3K)	Illustrate the laboratory diagnosis of a presumptive Pulmonary Tuberculosis in accordance to NTEP using an algorithm.	(4)
3L)	Discuss the pathogenesis of Pneumococcal pneumonia.	(4)
3M)	Summarize the disposal options in Biomedical waste management according to the categories.	(4)
3N)	List the Four Important Opportunistic infections in AIDS with their etiological agents.	(4)
3O)	Summarize the 4 NACO strategies for HIV testing.	(4)

-----End-----

Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND MBBS DEGREE EXAMINATION – FEBRUARY 2025

SUBJECT: MICROBIOLOGY – PAPER I (ESSAY)

(OLD REGULATION - 2018-19 & PRIOR BATCH)

Friday, February 21, 2025

Time: 10:20 – 13:00 Hrs. Maximum Marks: 80

- **Answer all questions.**
- **Your answers should be specific to the questions asked. Draw neat, labeled diagrams wherever necessary**

- **Essay questions:**

1. Enumerate the methods of Gene transfer among bacteria. Describe the plasmid mediated method of gene transfer among bacteria. Add a note on the clinical significance of such gene transfer.

(1+6+3 = 10 marks)

2. A 46-year-old male patient who had undergone hernioplasty 5 days back complained of fever and pain at site of surgery. On examination, surgical wound showed gaping and discharge. Gram stained smear of exudate showed numerous pus cells and gram positive cocci in clusters.

2A. What is the possible etiology?
2B. What are the various types of infections caused by this pathogen?
2C. Describe the lab diagnosis of this condition.
2D. What are the treatment modalities to be considered in this condition?

(1+3+4+2 = 10 marks)

3. **Write Short notes on:**

3A. Draw a neat labelled diagram of the bacterial endospore.
3B. Passive immunity.
3C. What are the methods of sterilizing heat sensitive equipment such as endoscopes?
3D. Biological effects of Complement activation.
3E. Enumerate the contributions of Louis Pasteur.
3F. Type IV Hypersensitivity.
3G. Describe the serological diagnosis of Enteric fever using the Widal test.
3H. Diarroheagenic *Escherichia coli*.
3I. Briefly describe the lab diagnosis of pyogenic meningitis.
3J. Enumerate any 4 Cytokines and mention their actions.
3K. Non-gonococcal urethritis.
3L. Enumerate any four bacterial zoonoses.
3M. Prophylaxis of Tetanus.
3N. Non-tuberculous Mycobacteria.
3O. Halophilic Vibrios.

(4 marks × 15 = 60 marks)