

Question Paper

Exam Date & Time: 10-Dec-2022 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND PROFESSIONAL YEAR MBBS DEGREE EXAMINATION - DECEMBER 2022

SUBJECT: MICROBIOLOGY - PAPER I

(CBME BATCH)

Marks: 80

Duration: 160 mins.

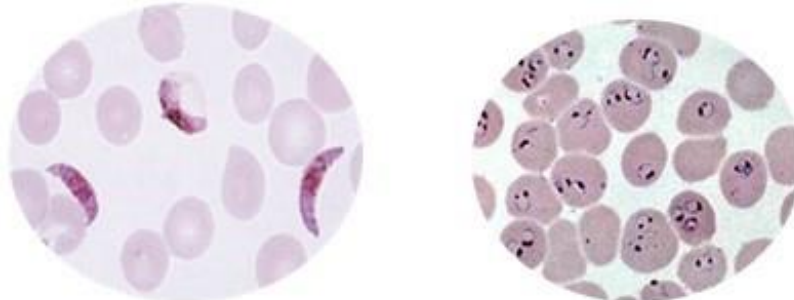
Answer all the questions.

Draw neat labeled diagram wherever necessary.

1) During the paediatric clinical teaching, a professor was explaining a clinical scenario of respiratory infections. While discussing the host-pathogen interactions, he inquires about the protective mechanisms against the invading microbes. Provide specific answers to the following questions in relevance to the clinical scenario.

- 1A) Define and classify Immunity (3)
- 1B) Describe the innate immune mechanisms in preventing respiratory tract infections (5)
- 1C) Add a note on the importance of herd immunity in controlling respiratory infections. (2)

2) A 35 year old construction worker was brought to tertiary care centre with complaints of severe fatigue and fever associated with headache, chills and rigors for the past 4 days. The peripheral blood smear showed following findings.



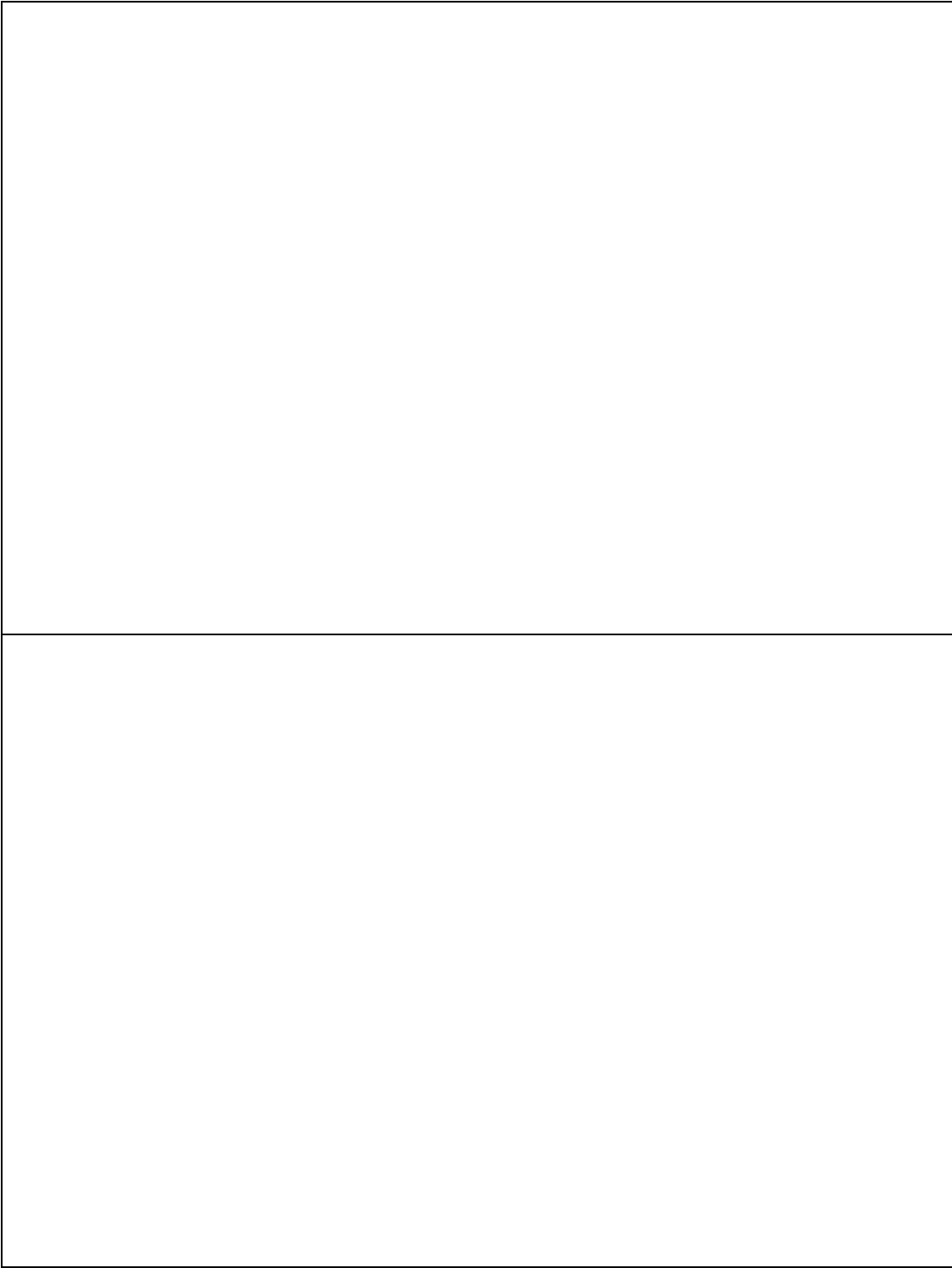
- 2A) Based on above history & laboratory findings what is the most likely diagnosis and the causative agent? (2)
- 2B) List the important steps in the life cycle of this agent. (3)
- 2C) Discuss the clinical features and complications associated with this illness (2)
- 2D) Briefly describe the various laboratory tests used for diagnosing this infection (3)

3) Write short notes on:

(15 X 4 marks = 60 marks)

- 3A) Enumerate different kinds of flagellation in bacteria with examples. Add a note on their clinical significance.
- 3B) Define Minimum inhibitory concentration. List out ANY THREE methods for determining antimicrobial susceptibility.
- 3C) Explain different methods for detecting viral growth in cell cultures with examples.

- 3D) List ANY FOUR virulence factors of bacteria and their corresponding clinical implications.
- 3E) List ANY TWO indicator organisms' for bacterial contamination of water. Discuss Eijkman test.
- 3F) What is CSSD? Write a note on the workflow and importance of CSSD in hospital settings.
- 3G) Describe the mechanism involved in type 4 hypersensitivity reaction with an example.
- 3H) Discuss ANY FOUR laboratory tests used in diagnosing lymphatic filariasis.
- 3I) List FOUR Non-tuberculous mycobacteria and mention the infection caused.
- 3J) Enumerate the microbial agents of atypical pneumonia. Write one laboratory test for each
- 3K) Write a note on respiratory infections caused by adenovirus.
- 3L) Explain ANY FOUR infection control measures involved in prevention of transmission of human Coronaviruses.
- 3M) Discuss five moments of hand hygiene in clinical settings.
- 3N) Describe the morphology of HIV virus with a neat labelled diagram.
- 3O) List ANY FOUR opportunistic infections and write one laboratory test for each.



Question Paper

Exam Date & Time: 12-Dec-2022 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION
SECOND PROFESSIONAL YEAR MBBS DEGREE EXAMINATION - DECEMBER 2022
SUBJECT: MICROBIOLOGY – PAPER II
(CBME BATCH)

Time: 10:20 – 13:00 Hrs.

Maximum Marks: 80

Answer all the questions.

- 1) A 30-year-old man brought to the emergency department with a reduced level of consciousness after a day of flu-like symptoms, headache and vomiting. Physical examination revealed nuchal rigidity with no focal neurological deficits. Lumbar puncture revealed cloudy cerebrospinal fluid and the Gram-stained smear of CSF showed numerous polymorphonuclear leucocytes with Gram-positive lanceolate cocci in pairs.
- 1A) Mention the diagnosis with etiological agent. (2)
1B) Describe the pathogenesis of above condition (3)
1C) List the other two etiological agents, which can cause similar clinical condition (1)
1D) Plan a complete laboratory diagnosis for above condition (4)
- 2) A 26-year-old male patient came to the dermatology clinic with complaints of severe burning sensation during urination, urethral discharge for 4 days. He had a history of multiple heterosexual relationships with a last contact 8 days ago. On physical examination, there was mucopurulent discharge from urethra. Gram-stained smear of the urethral discharge revealed Gram-negative diplococci intra and extracellularly along with pus cells.
- 2A) What is the presumptive diagnosis and the etiological agent? (1)
2B) Describe the pathogenesis of above condition (3)
2C) List out all the clinical conditions and the complications caused by the above organism (3)
2D) Describe the specimen collection for the laboratory diagnosis of each condition caused by the above organism. (3)
- 3) **Write short notes on:** (15 X 4 marks = 60 marks)
- 3A) A 21-year-old male patient presented to outpatient department with history of fever of 4 days duration associated with abdominal pain and headache. Plan the laboratory diagnosis for this patient considering the clinical suspicion of enteric fever and the duration of illness.
3B) Describe the virulence attributes of *Vibrio cholerae* responsible for watery diarrhea
3C) Write a brief note on the pathogenesis of extra-intestinal Amoebiasis and mention two microbiological tests for the diagnosis
3D) Describe the specimen collection and the laboratory diagnosis in a suspected case of Enterobiasis.
3E) Describe methods for the prevention of gastrointestinal infections
3F) Name the bacteria associated with acid-peptic disease
Describe the methods of diagnosis of infection with this bacteria
3G) Describe the pathogenesis and laboratory diagnosis of necrotizing fasciitis caused by Group A streptococcus.
3H) What are the general and specific prophylactic methods for the prevention of tetanus?
3I) Describe the etiology and pathogenesis of Chromoblastomycosis
3J) Describe the pathogenesis and laboratory diagnosis of Herpes zoster.
3K) Discuss the pathogenesis of Japanese B encephalitis and mention one laboratory test to diagnose this condition

- 3L) A 25 year old lady comes with history of burning and increased frequency of micturition, clinically diagnosed as lower urinary tract infection
- What are the predisposing factors for lower UTI in females?
 - Which are the common etiological agent of community acquired UTI?
- 3M) A 30-year-old man comes with fever, jaundice and altered renal function. His serological test for Leptospira IgM is positive
- Name the Leptospira species infective to man
 - Describe the pathogenesis of this disease
- 3N) Detail the laboratory diagnosis of rabies in humans
- 3O) Cutaneous Anthrax : Etiology and laboratory diagnosis

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