

Question Paper

Exam Date & Time: 07-Apr-2022 (10:20 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND PROFESSIONAL YEAR MBBS DEGREE EXAMINATION - APRIL 2022

SUBJECT: MICROBIOLOGY - PAPER I

(REPEATER - CBME BATCH)

Marks: 80

Duration: 160 mins.

Answer all the questions.

Draw neat, labeled diagram wherever necessary.

1.) Define Disinfection. Write in detail about the properties of ideal disinfectant. Explain in detail about testing of disinfectants. (10)
(1+5+4 = 10 marks)

2. A 39-year-old man presents with fever, malaise, and cough. He reports a few episodes of night sweats and has noted a 15 kg weight loss over the course of 2 months. Recently, he noted bloody sputum. Chest radiograph demonstrates a cavitory lesion in the right upper lobe of the lung. ZN-stained smear from early morning sputum sample was positive for acid-fast bacilli. Sputum culture on LJ medium showed growth in 40 days.

2A) What is the most probable diagnosis? (1)

2B) What is the pathogenesis of this condition? (3)

2C) How will you diagnose this condition in the laboratory? (5)

2D) Enumerate various antibiotics used for treatment of the condition? (1)

3. Write short notes on:

3A) Discuss the importance of culture media in the diagnosis of Diphtheria. (4)

3B) Discuss in detail the structure of the cell wall of a gram-negative and gram-positive bacterium with the help of a diagram. (4)

3C) Explain the functions and clinical significance of flagella. (4)

3D) Define and differentiate Epitope, paratope and state its uses. (4)

- 3E) Draw a flow diagram to outline the classical pathway of complement. (4)
- 3F) Describe the mechanism of allograft rejection. (4)
- 3G) Indicate the importance of HLA typing in the laboratory for donor recipient tissue matching. (4)
- 3H) Compare and contrast poststreptococcal complications. (4)
- 3I) List the bacterial etiologies of infective endocarditis. (4)
- 3J) List each two bacterial and parasitic agents causing anaemia. (4)
- 3K) Immunoprophylaxis for Whooping cough. (4)
- 3L) 5-year-old child was brought to OPD with history of fever, headache and convulsions. Physical examination showed presence of neck rigidity. Child had a bout of URTI in previous week. Provisional diagnosis of bacterial meningitis was made. CSF protein was raised, but glucose was decreased. Gram stain revealed presence of pus cells and pleomorphic Gram-negative coccobacilli. Identify and describe the methods followed in a laboratory for isolation of this bacteria. (4)
- 3M) Outline the NACO strategies for HIV testing. (4)
- 3N) List Any FOUR opportunistic infections seen in HIV. (4)
- 3O) Role of HICC in infection control in hospital. (4)

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Question Paper

Exam Date & Time: 08-Apr-2022 (10:20 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND PROFESSIONAL YEAR MBBS DEGREE EXAMINATION - APRIL 2022
SUBJECT: MICROBIOLOGY - PAPER II
(REPEATER - CBME BATCH)

Marks: 80

Duration: 160 mins.

Answer all the questions.

Essay Questions:

1. A 28-year-old man presented with right upper quadrant pain and intermittent low-grade fever. He gave history of frequent contact with dogs. Sonography and computed tomography (CT) demonstrated a solitary cystic lesion in the liver with presence of daughter vesicles and membranes within the cyst.
 - 1A. What is the probable diagnosis and the etiological agent? (1)
 - 1B. Illustrate the disease mechanism and the associated stages in the life cycle of the agent. (3)
 - 1C. Discuss the clinical presentation of the infection. (2)
 - 1D. Describe the diagnosis and management of this case. (4)

2. A 24-year-old female presents to the OPD with symptoms of burning micturition, frequency and lower abdominal pain. There is no history of fever. Urine routine examination revealed 8-10 pus cells/HPF and Urine culture grew Escherichia coli >100000 CFU/ml.
 - 2A. Define Significant Bacteriuria and its clinical significance. (2)
 - 2B. Describe the pathogenesis of this infection. (4)
 - 2C. Discuss the laboratory diagnosis of this infection. (4)

3. **Short Notes:**
 - 3A. Enumerate the bacterial pathogens responsible for profuse watery diarrhea. Outline the general and specific measures which can be taken to prevent these disease conditions. (4)
 - 3B. List the serological markers to be ordered in suspected Hepatitis B viral infection with justification. (4)
 - 3C. Associate the virulence attributes of Salmonella Typhi leading to pathogenesis of Enteric fever. (4)
 - 3D. Discuss the laboratory diagnosis in a case of suspected Leprosy. (4)
 - 3E. Enumerate the agents causing subcutaneous mycoses and describe the laboratory diagnosis of Chromoblastomycosis. (4)
 - 3F. Mention the main features of Congenital Rubella syndrome and add a note on the prevention of Rubella. (4)

- 3G. Explain the role of virulence factors of *Bacillus anthracis* in causing Malignant pustule. (4)
- 3H. Compare and contrast between Sabin vaccine and Salk vaccine used in the prophylaxis of Poliomyelitis. (4)
- 3I) Formulate a diagnostic workup plan for suspected acute bacterial meningitis. (4)
- 3J) Primary amoebic meningoencephalitis: Etiology and pathogenesis. (4)
- 3K) Specimen collection and transportation in the diagnosis of suspected Gonorrhoea. (4)
- 3L) A 22-year-old lady presents to the OBG OPD with H/O painful ulcers in the genital area. On examination multiple vesicular ulcers are seen in the genital area with swollen inguinal lymph nodes. (4)
- i) List the etiological agents of genital ulcers.
- ii) Write the uses of VDRL test.
- 3M) Enumerate 2 vector borne rickettsial pathogens and their corresponding vectors of transmission.(4)
- 3N) Discuss the laboratory diagnosis of a suspected case of Brucellosis. (4)
- 3O) A 25-year-old man presents to casualty with H/O multiple bites by a stray dog on his legs. Explain the recommended prophylaxis to be adopted in this case in detail. (4)

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