

2406000102030701-S
(SUPPLEMENTARY EXAM) FEBRUARY-2025
SECOND MBBS
MICROBIOLOGY (PAPER - I) (NEW) (OMR)

[Time: As Per Schedule]

[Max. Marks:100]

Instructions:

1. Fill up strictly the following details on your answer book
 - a. Name of the Examination: **SECOND MBBS**
 - b. Name of the Subject: **MICROBIOLOGY (PAPER - I) (NEW) (OMR)**
 - c. Subject Code No: **2406000102030701-S**
2. Sketch neat and labelled diagram wherever necessary
3. Figures to the right indicate full marks of the question
4. All questions are compulsory

Seat No

Student's Signature

SECTION-I

Q.1 Multiple Choice Questions (MCQ)

20

1. Which of the following is a Gram-positive cocci that grows in clusters?
 - A. Staphylococcus aureus
 - B. Streptococcus pyogenes
 - C. Neisseria meningitidis
 - D. Escherichia coli

2. The classical pathway of complement activation is triggered by
 - A. Lipopolysaccharides
 - B. Antigen-antibody complexes
 - C. Lectins binding to pathogens
 - D. Alternative surface molecules

3. The vector for transmission of malaria is:
- A. Culex mosquito
 - B. Aedes mosquito
 - C. Anopheles mosquito
 - D. Sandfly
4. The primary site of replication for Hepatitis B virus is:
- A. Pancreas
 - B. Intestine
 - C. Liver
 - D. Spleen
5. Escherichia coli is most commonly associated with:
- A. Skin infections
 - B. Urinary tract infections
 - C. Meningitis
 - D. Endocarditis
6. Which immunoglobulin is present in the highest concentration in serum?
- A. IgA
 - B. IgE
 - C. IgM
 - D. IgG
7. The causative agent of typhoid fever is:
- A. Salmonella typhi
 - B. Vibrio cholerae
 - C. Shigella dysenteriae
 - D. Clostridium perfringens
8. Which of the following is an anaerobic Gram-positive rod?
- A. Clostridium difficile
 - B. Pseudomonas aeruginosa
 - C. Klebsiella pneumoniae
 - D. Proteus mirabilis
9. Which hepatitis virus is most commonly transmitted via the fecal-oral route?
- A. Hepatitis B
 - B. Hepatitis C
 - C. Hepatitis D
 - D. Hepatitis A

10. Which organism is a common cause of bacterial endocarditis on prosthetic valves?

- A. Staphylococcus epidermidis
- B. Staphylococcus aureus
- C. Escherichia coli
- D. Enterococcus faecalis

11. The Widal test is used for diagnosing:

- A. Cholera
- B. Enteric fever
- C. Tuberculosis
- D. Dengue fever

12. Which immunological cell type is primarily involved in granuloma formation?

- A. Neutrophils
- B. Macrophages
- C. T lymphocytes
- D. Plasma cells

13. The causative organism of amoebic dysentery is:

- A. Giardia lamblia
- B. Entamoeba histolytica
- C. Cryptosporidium parvum
- D. Shigella dysenteriae

14. The toxin responsible for the symptoms of tetanus acts on:

- A. Peripheral nerves
- B. Neuromuscular junctions
- C. Central nervous system
- D. Skeletal muscles

15. The characteristic stool appearance in cholera is described as:

- A. Bloody stool
- B. Rice water stool
- C. Mucus-filled stool
- D. Foamy stool

16. Which test is commonly used to detect antibodies in autoimmune diseases?

- A. ELISA
- B. Coombs test
- C. Immunofluorescence assay
- D. Western blot

17. *Helicobacter pylori* is most commonly associated with

- A. Gastric ulcers
- B. Diarrhea
- C. Liver abscess
- D. Pancreatitis

18. A common cause of bacterial peritonitis in cirrhotic patients is

- A. *Escherichia coli*
- B. *Klebsiella pneumoniae*
- C. *Enterococcus faecalis*
- D. *Salmonella typhi*

19. The Ziehl-Neelsen stain is used to identify:

- A. Gram-negative bacteria
- B. Acid-fast bacilli
- C. Fungi
- D. Parasites

20. Rocky mountain spotted fever is due to

- A. *R. rickettsii*
- B. *R. prowazekii*
- C. *R. typhi*
- D. *R. conorii*

SECTION-II

Q.2 Essay-type Question.

12

Describe in detail about the structure and function of various lymphoid organs and cells of immune system.

Q.3 Answer in Brief (Any 4 out of 5)

28

1. Describe the differences between innate and adaptive immunity.
2. Describe in detail the structure & Function of the Bacterial Cell wall-write methods of Demonstration of cell wall.
3. Write a short note on the mechanism of action of bacterial endotoxins.
4. Draw the two common complement activation pathways and describe the importance of complement in health and disease.
5. Replication of viruses.

SECTION-III

Q.4 Essay-type Question. **12**

A 35-year-old male presents with high-grade fever, fatigue, and new onset of a heart murmur. Blood culture grows *Streptococcus viridans*.

1. What is the likely clinical condition? **02**
2. Discuss the pathogenesis of this condition. **05**
3. Describe the laboratory diagnosis and treatment options. **05**

Q.5 Answer in Brief (Any 4 out of 5) **28**

1. Pyrexia of unknown origin: definition, causes and diagnostic test used .
2. Explain the pathogenesis and clinical features of amoebic liver abscess.
3. Discuss the role of *Helicobacter pylori* in peptic ulcer disease.
4. Explain the laboratory diagnosis of Hepatitis B virus infection
5. Importance of effective communication skills in Doctor-Patient relationship.

2406000102030702-S
(SUPPLIMENTARY EXAM) FEBRUARY-2025
SECOND MBBS
MICROBIOLOGY (PAPER - II) (NEW) (OMR)

[Time: As Per Schedule]

[Max. Marks:100]

Instructions:

1. Fill up strictly the following details on your answer book

- a. Name of the Examination: **SECOND MBBS**
- b. Name of the Subject: **MICROBIOLOGY (PAPER - II)**
(NEW) (OMR)
- c. Subject Code No: **2406000102030702-S**

2. Sketch neat and labelled diagram wherever necessary.
3. Figures to the right indicate full marks of the question.
4. All questions are compulsory.

Seat No:

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Student's Signature

SECTION-I

Q.1 MCQ

20

1. The fungus that exhibits septate hyphae with dichotomous branching on KOH mount is:

| | |
|-----------------|----------------|
| A. Cryptococcus | B. Mucor |
| C. Penicillium | D. Aspergillus |

2. Rhinosporidiosis is characterized by all the following except:

| | |
|--|---|
| A. It is caused by a fungus. | B. The fungus is usually found in dirty water. |
| C. It manifests as polyps that bleed easily. | D. It can be cultured easily in the laboratory. |

3. Total number of categories in Biomedical Waste are:
- A. 10 B. 8
C. 4 D. 2
4. Which medium is preferred for culturing *Mycobacterium tuberculosis*?
- A. MacConkey agar B. Lowenstein-Jensen medium
C. Chocolate agar D. Sabouraud's agar
5. Buruli ulcer is caused by:
- A. *M. xenopi* B. *M. malmoense*
C. *M. scrofulaceum* D. *M. ulcerans*
6. *Neisseria gonococcus* is primarily associated with which of the following conditions?
- A. Genital infections B. Pharyngitis
C. Meningitis D. Skin abscess
7. *Ecthyma gangrenosum* is caused by:
- A. *Brucella* B. *H. influenzae*
C. *Pseudomonas* D. *Bordetella*
8. Which of the following intestinal parasites migrate to the lung in their lifecycle, except:
- A. *Trichinella spiralis* B. *Ancylostoma duodenale*
C. *Ascaris lumbricoides* D. *Strongyloides stercoralis*
9. Gram-stain morphology of *Bacillus anthracis* is:
- A. Tennis racket appearance
B. Bamboo stick appearance
C. Drumstick appearance
D. Spectacle glass appearance

10. Epstein-Barr virus is associated with the following malignancies, except:
- A. Nasopharyngeal carcinoma
 - B. Burkitt's lymphoma
 - C. Carcinoma of the cervix
 - D. Non-Hodgkin lymphoma
11. Which of the following is vector for leishmaniasis:
- A. Sandfly
 - B. Reduvid bug
 - C. Anopheles mosquito
 - D. Tsetse fly
12. Cryptococcus neoformans is most likely to cause:
- A. Pulmonary infection
 - B. Meningitis
 - C. Skin infections
 - D. Bone infections
13. MGIT used in tuberculosis diagnosis is:
- A. Automated culture
 - B. Biochemical test
 - C. Microscopic method
 - D. None of the above
14. Which of the following fungus DOES NOT infect nail:
- A. Trichophyton
 - B. Epidermophyton
 - C. Microsporum
 - D. Candida albicans
15. The amplifier host for Japanese B Encephalitis is:
- A. Ardeid birds
 - B. Pigs
 - C. Forests
 - D. Herons
16. Neisseria meningitidis primarily causes:
- A. Meningitis
 - B. Urethritis
 - C. Endocarditis
 - D. Pharyngitis

17. The fungus that causes mucormycosis most commonly belongs to which genus?

- A. Rhizopus
- B. Candida
- C. Cryptococcus
- D. Aspergillus

18. Which of the following statements about the shape of the virus is correct?

- A. Rotavirus- Wheel-shaped
- B. Tobacco Mosaic Virus - Filamentous-shaped
- C. Ebola Virus - Rod-shaped
- D. Adenovirus - Brick-shaped

19. MRSA is mediated due to

- A. Plasmid
- B. Meca Gene
- C. Transposons
- D. None

20. All of the following antimicrobial agents act on cell membrane, except

- A. Gramicidin
- B. Daptomycin
- C. Polymyxins
- D. Vancomycin

SECTION-II

Q.2 Essay

12

A 55-year-old male was admitted to the hospital with complaints of severe pain in the lateral aspect of his left calf and small amount of pus discharge from the ingrown hair. On physical examination, the local area was found to be red, warm and tender. Pus was aspirated and was subjected to Gram stain showed gram-positive cocci in clusters culture on blood agar (showed golden yellow pigmented beta-haemolytic colonies).

- a. What is the clinical diagnosis and its causative organism? 02
- b. List the infections caused by this organism. 02
- c. List the virulence factors of this organism. 03
- d. Briefly discuss the laboratory diagnosis. 05

Q.3 Answer in Brief (Any 4 out of 5): 28

- 1. Cutaneous tuberculosis.
- 2. Superficial fungal infections.
- 3. Pathogenesis of *Streptococcus pyogenes* in soft tissue infections.
- 4. Fever with rash in a child: four causative organisms and pathogenesis, laboratory diagnosis and prevention of anyone
- 5. Describe the morphology of the rabies virus. Discuss the laboratory methods used for its diagnosis in humans and animals.

SECTION-III

Q.4 Essay 12

A 28-year-old female presents with a 3-day history of burning sensation during urination, increased frequency, and lower abdominal discomfort. She denies fever or back pain. A urine dipstick test shows the presence of nitrites and leukocytes.

- 1. What is the likely diagnosis? 02
- 2. List common organisms causing this condition. 03
- 3. Discuss laboratory investigations used to confirm the diagnosis. 04
- 4. Outline the treatment and prevention strategies. 03

Q.5 Answer in Brief (Any 4 out of 5):

28

1. Role of healthcare workers in preventing HAIs.
2. Rhinosporidiosis
3. Laboratory diagnosis of Candidiasis.
4. Differentiate between healthcare-acquired and community-acquired pneumonia.
5. Filtration techniques used in hospital infection control.
