

Roll No.

Question Booklet Number

O. M. R. Serial No.

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Question Booklet Number

M. Sc. (Microbiology) (Fourth Semester)

EXAMINATION, 2022-23

MEDICAL MICROBIOLOGY

Paper Code						
M	I	C	4	0	0	2

Questions Booklet Series
A

Time : 1:30 Hours]

[Maximum Marks : 75

Instructions to the Examinee :

परीक्षार्थियों के लिए निर्देश :

1. Do not open the booklet unless you are asked to do so.
 2. The booklet contains 100 questions. Examinee is required to answer 75 questions in the OMR Answer-Sheet provided and not in the question booklet. All questions carry equal marks.
 3. Examine the Booklet and the OMR Answer-Sheet very carefully before you proceed. Faulty question booklet due to missing or duplicate pages/questions or having any other discrepancy should be got immediately replaced.
1. प्रश्न-पुस्तिका को तब तक न खोलें जब तक आपसे कहा न जाए।
 2. प्रश्न-पुस्तिका में 100 प्रश्न हैं। परीक्षार्थी को 75 प्रश्नों को केवल दी गई OMR आन्सर-शीट पर ही हल करना है, प्रश्न-पुस्तिका पर नहीं। सभी प्रश्नों के अंक समान हैं।
 3. प्रश्नों के उत्तर अंकित करने से पूर्व प्रश्न-पुस्तिका तथा OMR आन्सर-शीट को सावधानीपूर्वक देख लें। दोषपूर्ण प्रश्न-पुस्तिका जिसमें कुछ भाग छपने से छूट गए हों या प्रश्न एक से अधिक बार छप गए हों या उसमें किसी अन्य प्रकार की कमी हो, तो उसे तुरन्त बदल लें।

(Remaining instructions on the last page)

(शेष निर्देश अन्तिम पृष्ठ पर)

(Only for Rough Work)

1. *B. anthracis* was isolated by :
 - (A) Louis Pasteur
 - (B) Robert Koch
 - (C) Antonie Van Leeuwenhoek
 - (D) None of these
2. Mycobacterium tuberculosis was first discovered by :
 - (A) Robert Koch
 - (B) Edward Jenner
 - (C) Louis Pasteur
 - (D) None of these
3. Which of the following enzymes acts as a spreading factor ?
 - (A) Hyaluronidase
 - (B) Coagulase
 - (C) Catalase
 - (D) DNase
4. The lethal dose required to kill 50% of the lab animals tested under standard conditions is called :
 - (A) ID
 - (B) LD₅₀
 - (C) ID₅₀
 - (D) MLD
5. Term 'vaccine' was coined by :
 - (A) Robert Koch
 - (B) Louis Pasteur
 - (C) Needham
 - (D) None of these
6. Reduction of virulence is known as :
 - (A) Exaltation
 - (B) Attenuation
 - (C) Both (A) and (B)
 - (D) None of these
7. Disease that affects many people at different countries is termed as :
 - (A) Sporadic
 - (B) Pandemic
 - (C) Epidemic
 - (D) Endemic
8. Kuru disease in humans is caused by :
 - (A) Bacteria
 - (B) Viroides
 - (C) Prions
 - (D) Mycoplasma

9. Tuberculosis is a :
- (A) Water-borne disease
 - (B) Air-borne disease
 - (C) Food-borne disease
 - (D) Arthropod-borne disease
10. The antiseptic method was first demonstrated by :
- (A) Lwanowski
 - (B) Lord Lister
 - (C) Edward Jenner
 - (D) Beijerinck
11. Nagler's reaction detects :
- (A) *Corynebacterium diphtheria*
 - (B) *Clostridium tetani*
 - (C) *Clostridium perfringens*
 - (D) *Clostridium botulinum*
12. Cerebral malaria is caused by :
- (A) *Plasmodium vivox*
 - (B) *P. ovale*
 - (C) *P. falsiparum*
 - (D) *P. malaria*
13. The primary mode of transmission of poliomyelitis is :
- (A) Oral route
 - (B) Blood
 - (C) Milk
 - (D) Person to person
14. Rabies virus is :
- (A) Naked RNA virus
 - (B) Naked DNA virus
 - (C) Enveloped RNA virus
 - (D) Enveloped DNA virus
15. Which of the following is called serum Hepatitis ?
- (A) HCV
 - (B) HAV
 - (C) HBV
 - (D) HIV
16. Organisms can be attenuated for inoculation by :
- (A) Growing it at a temperature higher than optimum.
 - (B) By passage through animals of different species which are less susceptible to it.
 - (C) By continuous cultivation in presence of antagonistic substance.
 - (D) Any one of the above
17. Antigenic variation is most extensive in :
- (A) Influenza virus
 - (B) Smallpox virus
 - (C) Measles virus
 - (D) Herpes virus

18. DPT is given for the prevention of :
- (A) Diphtheria, Polio and Tetanus
 - (B) Diphtheria, Pertussis and Tuberculosis
 - (C) Diphtheria, Tetanus and Pertussis
 - (D) None of these
19. HIV can be transmitted through :
- (A) Blood
 - (B) Semen
 - (C) Vaginal fluid
 - (D) All of the above
20. Which of the following is a true statement regarding Purified Protein Derivative (PPD) used in tuberculin test ?
- (A) Prepared from tubercle bacilli.
 - (B) It is inferior to old tuberculin.
 - (C) Consists of filtrate of glycerol broth.
 - (D) None of these
21. Anthrax vaccine is prepared by :
- (A) Attenuated bacilli
 - (B) Killing the bacilli
 - (C) Live bacilli
 - (D) None of these
22. Koplic's spots will develop in :
- (A) HIV
 - (B) Measles
 - (C) Mumps
 - (D) Rubella
23. AIDS is caused by :
- (A) Retrovirus
 - (B) Prion
 - (C) Rhabdovirus
 - (D) Retroprison
24. Chloramphenicol is obtained from :
- (A) *Streptomyces griseus*
 - (B) *Streptomyces venezuelae*
 - (C) *Streptomyces pyrogenes*
 - (D) None of these
25. Septicaemia is :
- (A) Bacteria in blood
 - (B) Toxin in blood
 - (C) Pus in blood
 - (D) Multiplication of bacteria and toxins in blood

26. Causative organism of whooping cough is :
- (A) *Bordetella pertussis*
 - (B) *Bordetella parapertussis*
 - (C) *Bordetella bronchi septica*
 - (D) None of these
27. Main causative organism of gas gangrene is :
- (A) *B. anthrax*
 - (B) *Clostridium tetani*
 - (C) *Clostridium deficile*
 - (D) *Clostridium perfringens*
28. The role that human play in the plague life cycle is :
- (A) Secondary reservoir
 - (B) Primary transmission vector
 - (C) Primary host
 - (D) Accidental intruder in rat flea cycle
29. Nalidixic acid activity is due to :
- (A) The inhibition of DNA synthesis
 - (B) Inhibition of protein synthesis
 - (C) The inhibition of cell wall synthesis
 - (D) Both (B) and (C)
30. Rabies virus can multiply in :
- (A) The central nervous system only
 - (B) The peripheral nerves
 - (C) Muscle tissues
 - (D) All the of above
31. Diphtheria toxins are produced from the strains of *C. diphtheriae*, which are :
- (A) Encapsulated
 - (B) Sucrose fermenters
 - (C) Lactose fermenters
 - (D) Lysogenic for β -prophage
32. β -lactum ring is present in :
- (A) Erythromycin
 - (B) Penicillin
 - (C) Tetracyclins
 - (D) Chloramphenicol
33. The anti-bacterial action of penicillin is due to its effect on :
- (A) Cell membrane permeability
 - (B) Cell wall synthesis
 - (C) DNA synthesis
 - (D) Protein synthesis

34. Amoxycillin is combined with clavulanic acid to inhibit :
- (A) DNA gyrase
 - (B) Cell synthesis
 - (C) Protein synthesis
 - (D) β -lactamase enzyme
35. The animals most frequently infected with anthrax are :
- (A) Sheep
 - (B) Cattle
 - (C) Goats
 - (D) All of the above
36. Influenza virus contains :
- (A) Eight segments of RNA
 - (B) Two strands of RNA
 - (C) Single RNA
 - (D) None of these
37. Reye's syndrome is caused by :
- (A) *St. pneumoniae*
 - (B) *St. pyogenes*
 - (C) Influenza
 - (D) None of these
38. Bacilli Calmette Guerin (BCG) contains the avirulent strains of :
- (A) Human tubercle bacilli
 - (B) Avian tubercle bacilli
 - (C) Bovine tubercle bacilli
 - (D) A typical mycobacteria
39. Tetanus is caused by spread of :
- (A) Exotoxin in sympathetic system
 - (B) Exotoxin in parasympathetic system
 - (C) Endotoxin in sympathetic system
 - (D) Endotoxin in parasympathetic system
40. The commonest form of anthrax in man is :
- (A) Alimentary
 - (B) Cutaneous
 - (C) Pulmonary
 - (D) Hepatic
41. Hepatitis B can be prevented by :
- (A) Practicing safe sex
 - (B) Avoiding sharing needles or syringes
 - (C) Vaccination
 - (D) All of the above

42. Which of the following is NOT a symptom of acute hepatitis ?
- (A) Yellowing of the skin and eyes (jaundice)
 - (B) Fatigue and weakness
 - (C) Abdominal pain and loss of appetite
 - (D) High-grade fever and cough
43. AIDS stands for :
- (A) Acute Inflammatory Disease Syndrome
 - (B) Autoimmune Immunodeficiency Syndrome
 - (C) Acquired Immunodeficiency Syndrome
 - (D) Advanced Infectious Disease Syndrome
44. The Human Immunodeficiency Virus (HIV) primarily attacks and weakens which cells of the immune system ?
- (A) T-cells (CD₄ cells)
 - (B) B-cells
 - (C) Natural killer cells
 - (D) Macrophages
45. Which of the following methods can help prevent the transmission of HIV ?
- (A) Correct and consistent use of condoms
 - (B) HIV pre-exposure prophylaxis (PrEP)
 - (C) HIV post-exposure prophylaxis (PEP)
 - (D) All of the above
46. Which of the following is a common mode of transmission for tuberculosis ?
- (A) Inhalation of respiratory droplets
 - (B) Sexual contact
 - (C) Contaminated food and water
 - (D) Skin-to-skin contact
47. The primary site of infection in tuberculosis is typically :
- (A) Lungs
 - (B) Kidneys
 - (C) Liver
 - (D) Brain

48. Which of the following tests is commonly used to diagnose tuberculosis ?
- (A) Chest X-ray
 - (B) Tuberculin skin test (Mantoux test)
 - (C) Acid-fast bacilli (AFB) smear microscopy
 - (D) All of the above
49. Leprosy primarily affects the :
- (A) Skin and peripheral nerves
 - (B) Respiratory system
 - (C) Digestive system
 - (D) Cardiovascular system
50. The main symptom of leprosy is the appearance of :
- (A) Nodules or lumps on the skin
 - (B) Intense fever and chills
 - (C) Severe abdominal pain
 - (D) Persistent cough and chest congestion
51. Leprosy can be effectively treated with :
- (A) Antibiotics such as dapsone, rifampicin and clofazimine
 - (B) Antifungal medications
 - (C) Antiviral drugs
 - (D) Steroids and immunosuppressants
52. Smallpox is caused by which virus ?
- (A) Varicella-zoster virus
 - (B) Influenza virus
 - (C) Human papilloma virus (HPV)
 - (D) Variola virus
53. Smallpox is primarily transmitted through :
- (A) Mosquito bites
 - (B) Sexual contact
 - (C) Inhalation of respiratory droplets
 - (D) Contaminated food and water
54. Which of the following is a characteristic symptom of smallpox ?
- (A) Sore throat
 - (B) Runny nose
 - (C) Itchy rash
 - (D) Muscle pain
55. Smallpox vaccination involves the use of :
- (A) Live attenuated virus
 - (B) Inactivated virus
 - (C) Antibiotics
 - (D) Antiviral drugs

56. Diphtheria primarily affects which part of the body ?
- (A) Lungs
 - (B) Intestines
 - (C) Skin
 - (D) Throat and tonsils
57. Diphtheria is primarily transmitted through :
- (A) Mosquito bites
 - (B) Contaminated food and water
 - (C) Inhalation of respiratory droplets
 - (D) Sexual contact
58. Prevention of diphtheria is achieved through :
- (A) Antibiotic treatment
 - (B) Vaccination with the diphtheria toxoid
 - (C) Quarantine measures
 - (D) Administration of antitoxin
59. Histoplasmosis is commonly associated with exposure to :
- (A) Bird droppings
 - (B) Moldy food
 - (C) Contaminated water
 - (D) Soil contaminated with cat feces
60. Which of the following is a gram-positive bacterium ?
- (A) Actinomyces
 - (B) Clostridium
 - (C) Rhizobium
 - (D) Clostridium, Actinomyces
61. The primary route of transmission for histoplasmosis is through :
- (A) Skin contact with infected individuals
 - (B) Ingestion of contaminated food
 - (C) Inhalation of fungal spores
 - (D) Sexual contact
62. The most severe form of histoplasmosis primarily affects which organ(s) ?
- (A) Lungs
 - (B) Liver
 - (C) Brain
 - (D) Heart
63. Candida infections are primarily caused by which yeast-like fungus ?
- (A) *Candida albicans*
 - (B) *Candida auris*
 - (C) *Candida glabrata*
 - (D) *Candida tropicalis*

64. *Candida* infections in the mouth and throat are commonly known as :
- (A) Thrush
 - (B) Pneumonia
 - (C) Meningitis
 - (D) Otitis media
65. *Candida* infections can be triggered by factors such as :
- (A) Weakened immune system
 - (B) Prolonged use of antibiotics
 - (C) Diabetes
 - (D) All of the above
66. Which of the following is a common species of *Aspergillus* ?
- (A) *Aspergillus tuberculosis*
 - (B) *Aspergillus salmonella*
 - (C) *Aspergillus niger*
 - (D) *Aspergillus influenza*
67. *Aspergillus* infections most commonly affect which organs ?
- (A) Lungs
 - (B) Liver
 - (C) Kidneys
 - (D) Brain
68. *Aspergillus* infections are more likely to occur in individuals with :
- (A) Weakened immune systems
 - (B) High cholesterol levels
 - (C) Diabetes
 - (D) Hypertension
69. Brucellosis is primarily transmitted to humans through :
- (A) Mosquito bites
 - (B) Inhalation of respiratory droplets
 - (C) Direct contact with infected animals or their products
 - (D) Contaminated food and water
70. Which of the following animals is commonly associated with the transmission of *Brucella* to humans ?
- (A) Cats
 - (B) Birds
 - (C) Cows
 - (D) Fish
71. The most common symptoms of brucellosis in humans include :
- (A) High fever, fatigue and joint pain
 - (B) Severe cough and respiratory distress
 - (C) Skin rash and itching
 - (D) Abdominal pain and diarrhoea

72. Which of the following diagnostic tests is commonly used to confirm a brucellosis infection ?
- (A) Chest X-ray
 - (B) Blood culture
 - (C) Urine analysis
 - (D) Stool sample examination
73. Plague is a highly infectious disease caused by the bacterium :
- (A) *Yersinia pestis*
 - (B) *Salmonella enterica*
 - (C) *Bacillus anthracis*
 - (D) *Clostridium tetani*
74. Which of the following is the primary mode of transmission for plague ?
- (A) Mosquito bites
 - (B) Inhalation of respiratory droplets
 - (C) Direct contact with infected animals or their fleas
 - (D) Contaminated food and water
75. The most common form of plague, characterized by swollen and painful lymph nodes, is called :
- (A) Pneumonic plague
 - (B) Bubonic plague
 - (C) Septicemic plague
 - (D) Cutaneous plague
76. Prevention of rubella is achieved through :
- (A) Antibiotic treatment
 - (B) Vaccination with the MMR vaccine
 - (C) Quarantine measures
 - (D) Administration of antiviral medications
77. Which of the following historical pandemics is known as the “Black Death” and caused by the plague ?
- (A) Spanish Flu pandemic
 - (B) H1N1 influenza pandemic
 - (C) COVID-19 pandemic
 - (D) 14th century plague pandemic
78. The three main forms of anthrax infection in humans include :
- (A) Cutaneous, pulmonary and septicemic
 - (B) Bubonic, pneumonic and septicemic
 - (C) Cutaneous, gastrointestinal and neurological
 - (D) Pneumonic, gastrointestinal and septicemic

79. Plague is primarily associated with which animal ?
- (A) Rats
 - (B) Dogs
 - (C) Birds
 - (D) Cattle
80. *Bacillus anthracis* is commonly found in which environment ?
- (A) Soil and water
 - (B) Human respiratory secretions
 - (C) Domestic animals only
 - (D) Urban areas with high population density
81. Which of the following types of Herpes Simplex Virus primarily causes oral herpes ?
- (A) HSV-1
 - (B) HSV-2
 - (C) HSV-3
 - (D) HSV-4
82. Genital herpes is primarily caused by which type of Herpes Simplex Virus ?
- (A) HSV-1
 - (B) HSV-2
 - (C) HSV-3
 - (D) HSV-4
83. Which of the following is a characteristic symptom of herpes simplex infection ?
- (A) Severe cough
 - (B) Abdominal pain
 - (C) Painful blisters or sores
 - (D) Joint stiffness
84. Chickenpox is caused by which virus ?
- (A) Varicella-zoster virus
 - (B) Influenza virus
 - (C) Measles virus
 - (D) Human papillomavirus
85. Chickenpox is highly contagious and primarily spreads through :
- (A) Mosquito bites
 - (B) Inhalation of respiratory droplets
 - (C) Direct contact with skin lesions or air-borne particles
 - (D) Sexual contact
86. Prevention of chickenpox is achieved through :
- (A) Antibiotic treatment
 - (B) Vaccination with the varicella vaccine
 - (C) Quarantine measures
 - (D) Administration of antiviral medications

87. Rubella primarily spreads through :
- (A) Mosquito bites
 - (B) Inhalation of respiratory droplets
 - (C) Direct contact with skin lesions or bodily fluids
 - (D) Contaminated food and water
88. Rubella infection during pregnancy can cause :
- (A) Severe cough and respiratory distress in the mother
 - (B) Premature birth
 - (C) Autism in the child
 - (D) Encephalitis in the child
89. Measles can cause complications such as :
- (A) Pneumonia and encephalitis
 - (B) Liver failure and kidney damage
 - (C) Blindness and deafness
 - (D) All of the above
90. Prevention of measles is achieved through :
- (A) Antibiotic treatment
 - (B) Vaccination with the MMR vaccine
 - (C) Quarantine measures
 - (D) Administration of antiviral medications
91. Which of the following is a drug that interferes with the process of DNA production in the virus that causes genital herpes ?
- (A) Erythromycin
 - (B) Vancomycin
 - (C) Amantadine
 - (D) Acyclovir
92. Cycloserine inhibits :
- (A) alanine racemase
 - (B) D-alanyl-D-alanine synthetase
 - (C) Both (A) and (B)
 - (D) None of the above
93. Chemotherapeutic agents must :
- (A) prevent/destroy the activity of a parasite
 - (B) leave unaltered the host's natural defense mechanisms
 - (C) be able to come in contact with the parasite by penetrating the cells
 - (D) All of the above

94. Which of the following methods would be most appropriate for sterilizing an antibiotic solution ?
- (A) Dry heat sterilization
 - (B) Microfiltration
 - (C) Autoclaving
 - (D) Desiccation
95. When using alcohol as an antiseptic, which concentration is considered most effective ?
- (A) 95%
 - (B) 50%
 - (C) 70%
 - (D) 25%
96. The susceptibility of a microorganism to antibiotics and other chemotherapeutic agents can be determined by using :
- (A) tube dilution technique
 - (B) paper disk plate
 - (C) Both (A) and (B)
 - (D) None of these
97. Most antibiotics are isolated from :
- (A) viruses
 - (B) aquatic microorganisms
 - (C) soil microorganisms
 - (D) plants
98. Which of the following is not an aminoglycoside antibiotic ?
- (A) Streptomycin
 - (B) Neomycin
 - (C) Kanamycin
 - (D) Cephalosporin
99. Which of the following is not a semi-synthetic chemotherapeutic agent ?
- (A) Ampicillin
 - (B) Carbenicillin
 - (C) Penicillin
 - (D) Sulfonamide
100. *Tinea capitis* is :
- (A) Ring worm of the foot
 - (B) Ring worm of scalp
 - (C) Ring worm of non-hairy skin of body
 - (D) Both (A) and (C)

4. Four alternative answers are mentioned for each question as—A, B, C & D in the booklet. The candidate has to choose the correct answer and mark the same in the OMR Answer-Sheet as per the direction :

Example :

Question :

Q. 1 (A) ● (C) (D)

Q. 2 (A) (B) ● (D)

Q. 3 (A) ● (C) (D)

Illegible answers with cutting and over-writing or half filled circle will be cancelled.

5. Each question carries equal marks. Marks will be awarded according to the number of correct answers you have.
6. All answers are to be given on OMR Answer sheet only. Answers given anywhere other than the place specified in the answer sheet will not be considered valid.
7. Before writing anything on the OMR Answer Sheet, all the instructions given in it should be read carefully.
8. After the completion of the examination candidates should leave the examination hall only after providing their OMR Answer Sheet to the invigilator. Candidate can carry their Question Booklet.
9. There will be no negative marking.
10. Rough work, if any, should be done on the blank pages provided for the purpose in the booklet.
11. To bring and use of log-book, calculator, pager and cellular phone in examination hall is prohibited.
12. In case of any difference found in English and Hindi version of the question, the English version of the question will be held authentic.

Impt. : On opening the question booklet, first check that all the pages of the question booklet are printed properly. If there is any discrepancy in the question Booklet, then after showing it to the invigilator, get another question Booklet of the same series.

4. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार सम्भावित उत्तर—A, B, C एवं D हैं। परीक्षार्थी को उन चारों विकल्पों में से सही उत्तर छँटना है। उत्तर को OMR आन्सर-शीट में सम्बन्धित प्रश्न संख्या में निम्न प्रकार भरना है :

उदाहरण :

प्रश्न :

प्रश्न 1 (A) ● (C) (D)

प्रश्न 2 (A) (B) ● (D)

प्रश्न 3 (A) ● (C) (D)

अपठनीय उत्तर या ऐसे उत्तर जिन्हें काटा या बदला गया है, या गोले में आधा भरकर दिया गया, उन्हें निरस्त कर दिया जाएगा।

5. प्रत्येक प्रश्न के अंक समान हैं। आपके जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।
6. सभी उत्तर केवल ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर ही दिये जाने हैं। उत्तर-पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।
7. ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाये।
8. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी OMR Answer Sheet उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें। परीक्षार्थी अपने साथ प्रश्न-पुस्तिका ले जा सकते हैं।
9. निगेटिव मार्किंग नहीं है।
10. कोई भी रफ कार्य, प्रश्न-पुस्तिका के अन्त में, रफ-कार्य के लिए दिए खाली पेज पर ही किया जाना चाहिए।
11. परीक्षा-कक्ष में लॉग-बुक, कैलकुलेटर, पेजर तथा सेल्युलर फोन ले जाना तथा उसका उपयोग करना वर्जित है।
12. प्रश्न के हिन्दी एवं अंग्रेजी रूपान्तरण में भिन्नता होने की दशा में प्रश्न का अंग्रेजी रूपान्तरण ही मान्य होगा।

महत्वपूर्ण : प्रश्नपुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्न-पुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्षनिरीक्षक को दिखाकर उसी सिरीज की दूसरी प्रश्न-पुस्तिका प्राप्त कर लें।