Regn. No. ……. **Paper Code: MBBS203**

M.B.B.S. SECOND PROFESSIONAL EXAMINATION, FEBRUARY-2022
MICROBIOLOGY
PAPER - FIRST

[Time allotted: Three hours] **SET - A** **[Max Marks: 100]**

Q. 1. Multiple choice questions **(attempt all MCQs in the allotted first 20 minutes in the OMR sheet)** **(20 x 1 = 20)**

1. Microbiological waste should be segregated in which color bag?
   a. Yellow
   b. Red
   c. Blue
   d. White
2. The smallest virus in size is:
   a. Herpes simplex virus
   b. Hepatitis B virus
   c. Parvo virus
   d. Adeno virus
3. Which is the infective form of the malaria parasite to man?
   a. Sporozoite
   b. Trophozoite
   c. Gametocyte
   d. Merozoite
4. Most common cause of infantile diarrhea in developing country is:
   a. EIEC
   b. ETEC
   c. EHEC
   d. EPEC
5. Fungal agent that does **not** infect nail:
   a. Trichophyton
   b. Epidermophyton
   c. Microsporum
   d. Candida albicans
6. Which of the following fungi is capsulated?
   a. Candida albicans
   b. Cryptococcus neoformans
   c. Aspergillus fumigatus
   d. Candida tropicalis
7. Which of the following viral markers when positive indicate high infectivity of hepatitis B virus?
   a. HBsAg
   b. HBcAg
   c. HBeAg
   d. Antibody to HBsAg
8. Which HIV testing strategy is used in India for ensuring blood transfusion safety?
   a. Strategy I
   b. Strategy IIA
   c. Strategy IIB
   d. Strategy III
9. African sleeping sickness is caused by:
   a. Leishmania infantum
   b. Trypanosoma cruzi
   c. Trypanosoma brucei complex
   d. Leishmania donovani
10. Q fever is caused by:
    a. Rickettsia prowazekii
    b. Coxiella burnetti
    c. Ehrlichia sennetsu
    d. Orientia tsutsugamushi
11. Which immunoglobulin class has maximum concentration in the human body?
    a. IgM
    b. IgG
    c. IgA
    d. IgE
12. Lens protein of eye is an example of:
    a. Sequestered antigen
    b. Neoantigen
    c. Cross reacting foreign antigen
    d. Cryptic antigen
13. Germ tube test is diagnostic for:
    a. Candida albicans
    b. Candida krusei
    c. Candida tropicalis
    d. Candida glabrata
14. Which of the following media can be used as transport medium for vibrios?
    a. Selenite F broth
    b. Nutrient broth
    c. Tetrathionate broth
    d. Venkatraman-Ramakrishnan medium
15. Which of the following helminth eggs are **not** bile stained?
    a. Taenia solium
    b. Ascaris lumbricoides
    c. Trichuris trichiura
    d. Hymenolepis nana
16. Common name for Trichuris trichiura is:
    a. Pinworm
    b. Roundworm
    c. Whipworm
    d. Hookworm
17. Which hepatitis virus is associated with highest mortality in pregnancy?
    a. Hepatitis A
    b. Hepatitis B
    c. Hepatitis C
    d. Hepatitis E
18. Definitive host for Echinococcosis is:
    a. Man
    b. Dog
    c. Sheep
    d. Pig
19. Which of the following is a killed vaccine?
    a. Mumps vaccine
    b. Measles vaccine
    c. Rubella vaccine
    d. Injectable Polio vaccine
20. Which of the following is RNA virus?
    a. Herpes simplex virus
    b. Hepatitis B virus
    c. Enterovirus virus
    d. Adeno virus

MICROBIOLOGY
PAPER- FIRST

Note: Attempt all questions.
Draw suitable diagrams (wherever necessary)

Q. 2. Give reasons: **(5 x 2 = 10)**

a. Presence of IgM in fetus or newborn indicates intrauterine infection.
b. HIV RNA detection by RT-PCR is the best method for diagnosis of HIV infection in window period.
c. The symptoms of staphylococcal food poisoning commence within 1-6 hrs of consumption of food.
d. Latent period is absent or short in secondary immune response.
e. Bacterial spores are called endospores.

Q. 3. Problem based question: **(5 x 2 = 10)**

A 16 year old boy was admitted to the hospital with high fever, headache and abdominal discomfort for the last 4 days. On taking history the patient explained that the fever was gradually rising in a step ladder pattern. On examination, he was toxic with temperature of 101^0C, tongue was coated and mild splenomegaly was present.

a. What is the most probable etiological diagnosis?
b. Describe the pathogenesis of this condition.
c. Mention type of specimen that you will collect depending on the duration of illness.
d. Describe the laboratory diagnosis of the above condition.
e. Add a note on treatment and vaccination available for this clinical condition

Q. 4. Write briefly on: **(4 x 6 = 24)**

a. Biomedical waste segregation as per biomedical waste management Rule, India 2016
b. Viral markers of Hepatitis B virus infection
c. Mechanisms of autoimmunity
d. Discuss the ethical issues involved in confidentiality pertaining to patient identity on laboratory results.

Q. 5. **(i)** Define and classify hypersensitivity. Write in detail about type I hypersensitivity reaction. **(2+3+5=10)**

(ii) Name various methods of gene transfer in bacteria. Write in detail about mechanisms of horizontal gene transfer with suitable diagrams where needed. **(3+7= 10)**

Q. 6. Answer as indicated : **(4 x 4 = 16)**

a. Difference between mutational and transferable drug resistance in tabular form
b. Difference between Taenia solium and Taenia saginata in tabular form
c. Draw a labelled diagram of life cycle of hookworm.
d. Draw a labelled diagram of life cycle of malaria parasite

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M.B.B.S. SECOND PROFESSIONAL EXAMINATION, FEBRUARY-2022
MICROBIOLOGY
PAPER - SECOND

[Time allotted: Three hours] **SET - A** **[Max Marks: 100]**

Q. 1. Multiple choice questions **(attempt all MCQs in the allotted first 20 minutes in the OMR sheet)** **(20 x 1 = 20)**

1. Plague is transmitted by:
   a. Soft tick
   b. Hard tick
   c. Rat flea
   d. Louse
2. All of the following are oncogenic viruses **except**?
   a. Hepatitis B virus
   b. Hepatitis C virus
   c. Human papilloma virus
   d. Varicella zoster virus
3. CAMP test is useful in identification of:
   a. Streptococcus pyogenes
   b. Streptococcus agalactiae
   c. Streptococcus pneumoniae
   d. Viridans streptococci
4. Nagler reaction is useful in identification of:
   a. Clostridium tetani
   b. Clostridium difficle
   c. Clostridium perfringens
   d. Clostridium botulinum
5. All of the following statements are true for Anthrax **except**:
   a. Agent of Bioterrorism
   b. Causes malignant pustule
   c. Medusa head colonies on nutrient agar
   d. Anthrax bacilli is non-capsulated
6. Subacute sclerosing panencephalitis (SSPE) is a complication following which viral infection?
   a. Mumps
   b. Measles
   c. Rubella
   d. Influenza
7. African eye worm is the other name of:
   a. Wuchereria bancrofti
   b. Brugia malayi
   c. Loa Loa
   d. Dracunculus medinensis
8. A patient is presented with trismus with opisthotonus position. The probable causative agent is?
   a. Clostridium tetani
   b. Clostridium difficle
   c. Clostridium perfringens
   d. Clostridium botulinum
9. As of 2020, Polio is endemic in all the following countries **except**:
   a. India
   b. Pakistan
   c. Afghanistan
   d. Nigeria
10. Rabies is identified by:
    a. Guarneri bodies
    b. Cowdry A bodies
    c. Paschen bodies
    d. Negri bodies
11. Primary amoebic meningoencephalitis is caused by?
    a. Entamoeba histolytica
    b. Naegleria fowleri
    c. Acanthamoeba species
    d. Balamuthia mandrillaris
12. Lanceolate or flame shape bacteria on Gram staining suggest:
    a. Neisseria meningitidis
    b. Streptococcus pneumoniae
    c. Haemophilus influenzae
    d. Bacillus anthracis
13. The agent of primary atypical pneumonia is:
    a. Mycoplasma pneumoniae
    b. Klebsiella pneumoniae
    c. Streptococcus pneumoniae
    d. Haemophilus influenzae
14. Glanders and farcy is caused by:
    a. Pseudomonas aeruginosa
    b. Burkholderia mallei
    c. Burkholderia pseudomallei
    d. Stenotrophomonas maltophilia
15. Virus possessing a segmented RNA is:
    a. Respiratory syncytial virus
    b. mumps virus
    c. Influenza virus
    d. Parainfluenza virus
16. All are dimorphic fungus **except**:
    a. Aspergillus
    b. Histoplasma
    c. Blastomyces
    d. Coccidioides
17. Which of the following is the most common etiological agent of UTI?
    a. Escherichia coli
    b. Klebsiella
    c. Proteus
    d. Enterobacter
18. Wrong about Bacterial vaginosis is?
    a. Discharge has offensive smell
    b. pH > 4.5
    c. Caused by Chlamydia trachomatis
    d. Clue cell is diagnostic
19. Which of the following is correct about prions?
    a. Destroyed by autoclaving at 121^0C
    b. Long incubation period
    c. Immunogenic
    d. Nucleic acid present
20. Japanese encephalitis is transmitted by:
    a. Aedes mosquito
    b. Culex mosquito
    c. Sandfly
    d. Ticks

MICROBIOLOGY
PAPER- SECOND

Note: Attempt all questions.
Draw suitable diagrams (wherever necessary)

Q. 2. Give reasons: **(5 x 2 = 10)**

a. Rise of Rhinocerebral mucormycosis cases seen in COVID-19 patients.
b. Cerebral malaria is seen only in Plasmodium falciparum infection.
c. Staphylococcus produces localized skin lesions whereas Streptococcus produces spreading lesions.
d. Importance of giving colony count in Urine culture report.
e. Combination therapy is recommended for the treatment of Leprosy

Q. 3. Problem based question: **(4 x 2.5 = 10)**

Vimla, a 30 year old female, was admitted to the hospital with complaints of low grade fever, loss of appetite and chronic cough with expectoration for past 6 months. This lady is a slum-deweller and also works in an indoor crowded environment.

a. What is your most probable diagnosis?
b. Describe the pathogenesis of this condition.
c. What samples should be collected and how will you proceed for its laboratory diagnosis?
d. How will you treat this patient?

Q. 4. Write briefly on: **(4 x 6 = 24)**

a. Neurocysticercosis
b. Laboratory diagnosis of COVID-19
c. Laboratory diagnosis of Leprosy
d. Key points to be kept in mind while collecting Patient's sample and its reporting

Q. 5. **(i)** Enumerate the causes of Acute Meningitis. Write a detailed work-up of a case of meningitis including its clinical presentation, diagnosis and treatment. **(10)**

(ii) Enlist the Sexually transmitted infections and their causative agents. Write a detailed work-up of a case of Genital ulcer including its clinical presentation, diagnosis and treatment. **(10)**

Q. 6. Answer as indicated : **(4 x 4 = 16)**

a. Draw microscopic appearance of Dermatophyte species.
b. Enumerate the various congenital infections.
c. Enumerate the important Zoonotic infections affecting Human beings and their sources.
d. List the toxins and enzymes produced by Staphylococcus aureus.