

M.B.B.S. SECOND PROFESSIONAL EXAMINATION, JULY - 2020
MICROBIOLOGY
PAPER - FIRST

[Time allotted: Three hours]

[Max Marks: 40]

Q. 1. Multiple choice questions (attempt all MCQs in the allotted first 20 minutes in the OMR sheet) (½ x 16 = 08)

SET - A

1. Cuneiform arrangement is characteristic of:
 - a. *Staphylococcus*
 - b. *Streptococcus*
 - c. *Corynebacterium diphtheriae*
 - d. *Bacillus cereus*
2. Crescent-shaped or banana-shaped gametocytes are seen in infection with:
 - a. *Plasmodium vivax*
 - b. *Plasmodium falciparum*
 - c. *Plasmodium ovale*
 - d. *Plasmodium malariae*
3. Anaphylactic reaction is mediated by which class of immunoglobulin?
 - a. IgG
 - b. IgM
 - c. IgE
 - d. IgA
4. Mature cyst of *E.histolytica* is:
 - a. Uninucleate
 - b. Binucleate
 - c. Quadrinucleate
 - d. Octanucleate
5. Heaviest class of antibody is:
 - a. IgG
 - b. IgM
 - c. IgA
 - d. IgE
6. Largest trematode is:
 - a. *Fasciola hepatica*
 - b. *Fasciolopsis buski*
 - c. *Clonorchis sinensis*
 - d. *Schistosoma hematobium*
7. Promastigote form of *Leishmania donovani* is seen in:
 - a. Red blood cells
 - b. Culture media
 - c. Hepatocytes
 - d. Cells of reticuloendothelial system
8. The widal test is a type of:
 - a. Precipitation reaction
 - b. Agglutination reaction
 - c. Complement fixation test
 - d. Immunofluorescence
9. The organ of locomotion of bacteria is:
 - a. Capsule
 - b. Flagella
 - c. Fimbriae
 - d. Spore
10. Hereditary angioneurotic edema is due to genetic deficiency of:
 - a. C3
 - b. C6
 - c. C1 inhibitor
 - d. C7
11. Endoscope is sterilized by:
 - a. Glutaraldehyde
 - b. Formaldehyde
 - c. Autoclave
 - d. Hot air oven
12. Di George's syndrome is due to:
 - a. B cell defect
 - b. T cell defect
 - c. Defect in complement pathway
 - d. Defect in phagocytosis
13. Blood soiled cotton swab is discarded in:
 - a. Yellow bin
 - b. Blue bin
 - c. Black bin
 - d. Green bin
14. Which is the definitive host of *Echinococcus granulosus*?
 - a. Dog
 - b. Sheep
 - c. Cattle
 - d. Man
15. Which of the following nematodes lay unsegmented eggs?
 - a. *Necator americanus*
 - b. *Trichuris trichura*
 - c. *Strongyloides stercoralis*
 - d. *Trichinella spiralis*
16. Which class of antibody / immunoglobulins can cross placenta?
 - a. IgG
 - b. IgM
 - c. IgE
 - d. IgA

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

- Q. 2. Give reasons:** (1 x 4 = 04)
- Primary immune response is slow whereas secondary immune response is prompt.
 - Lactose fermenting bacteria appears pink color in Mac Conkey agar media.
 - The number of viable cells remain stationary during stationary phase of bacterial growth curve.
 - Relapse does not occur in disease caused by *Plasmodium falciparum*.
- Q. 3. Problem based question:** (1 x 4 = 04)
- A 36 year old farmer was brought to medicine OPD with epigastric pain, dyspepsia, vomiting and diarrhea along with general weakness. He gives a history of working barefooted in the field. Blood examination reveals microcytic, hypochromic anaemia and eosinophilia.
- What is the most probable clinical diagnosis?
 - Describe the life cycle of the parasite.
 - What diagnostic tests will be carried out?
 - What is the treatment in this case?
- Q. 4. Write short notes on:** (2 x 4 = 08)
- Bacterial spores
 - IgM
 - Extraintestinal amoebiasis
 - Cutaneous larva migrans
- Q. 5. (i) Define and classify hypersensitivity reaction. Write a note on type IV hypersensitivity reaction.** (2+2 = 04)
- (ii) Enumerate the species of *Leishmania*. Describe the laboratory diagnosis of kala-azar.** (2+2 = 04)
- Q. 6. Write in brief about:** (2 x 4 = 08)
- Superantigen
 - Free-living amoebae
 - Agglutination reaction
 - Autoclave

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Q. 1. Multiple choice questions (attempt all MCQs in the allotted first 20 minutes in the OMR sheet) (½ x 16 = 08)

SET – A

1. Which of the following Gram negative bacteria is **not** aerobic:
 - a. *Escherichia coli*
 - b. *Pseudomonas*
 - c. *Proteus*
 - d. *Clostridium*
2. All of the following are yeast like fungi **except**:
 - a. *Trichophyton*
 - b. *Candida albicans*
 - c. *Geotrichum*
 - d. *Cryptococcus neoformans*
3. What is the shape of the rabies virus?
 - a. Spherical
 - b. Polygonal
 - c. Bullet shaped
 - d. Tubular
4. Which of the following viral disease is transmitted by ticks:
 - a. Japanese encephalitis
 - b. Kyasanur forest disease
 - c. Dengue fever
 - d. Yellow fever
5. Which of the following dermatophytes can infect hair, skin and nail?
 - a. *Trichophyton*
 - b. *Microsporum*
 - c. *Epidermophyton*
 - d. None of the above
6. Which of the following fungi is **not** a mold?
 - a. *Aspergillus*
 - b. *Penicillium*
 - c. *Mucor*
 - d. *Cryptococcus*
7. Colonies resembling molar tooth are produced by:
 - a. *Actinomyces israelii*
 - b. *Nocardia brasiliensis*
 - c. *Nocardia asteroides*
 - d. *Actinomadura madurae*
8. HIV virus has:
 - a. Double stranded RNA
 - b. Single stranded DNA
 - c. Double stranded DNA
 - d. Single stranded RNA
9. pH of SDA media is:
 - a. 5.4
 - b. 6.4
 - c. 7.4
 - d. 8.4
10. All of the following hepatitis viruses are RNA viruses **except**:
 - a. Hepatitis A virus
 - b. Hepatitis B virus
 - c. Hepatitis E virus
 - d. Hepatitis G virus
11. All of the following are dimorphic fungi **except**:
 - a. *Sporothrix schenckii*
 - b. *Cryptococcus*
 - c. *Histoplasma capsulatum*
 - d. *Blastomyces dermatitidis*
12. Scrub typhus is caused by:
 - a. *R. prowazekii*
 - b. *R. quintana*
 - c. *O. tsutsugamushi*
 - d. *C. burnetti*
13. A positive tuberculin test is indicated by an area of induration of:
 - a. < 5 mm in diameter
 - b. 6 - 9 mm in diameter
 - c. ≥ 10 mm in diameter
 - d. No induration
14. Herpes simplex virus is:
 - a. Double stranded RNA
 - b. Single stranded DNA
 - c. Double stranded DNA
 - d. Single stranded RNA
15. One of the following about *Corynebacterium diphtheria* is **wrong**:
 - a. Gram negative
 - b. Babes Ernest granules seen
 - c. Chinese letter pattern
 - d. Prevented by immunization
16. Swarming growth is seen in which gram positive bacilli:
 - a. *Clostridium welchi*
 - b. *Clostridium tetani*
 - c. *Proteus*
 - d. *Bacilli cereus*

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

Q. 2. Give reasons: (1 x 4 = 04)

- a. Satellitism of *Haemophilus influenzae* is observed in blood agar streaked with *Staphylococcus aureus*.
- b. Colonies of *Mycoplasma* are best studied by staining with Dienes method.
- c. Sabin vaccine is not recommended in immunosuppressed.
- d. p24 antigen assay is the most useful screening test for acute HIV syndrome.

Q. 3. Problem based question: (1+1+1+1 = 04)

A 14 year old boy is suffering from productive cough and evening rise of temperature since last 15 days. Chest X ray findings showed a well-defined cavity in the upper lobe of right lung.

- a. What is the probable diagnosis?
- b. What is the causative agent?
- c. What laboratory tests will you suggest?
- d. What finding do you expect in your suggested test?

Q. 4. Write short notes on: (2 x 4 = 08)

- a. El Tor Vibrios
- b. Name 4 pigment producing bacteria
- c. Mycetoma
- d. Epstein Barr virus

Q. 5. (i) What are arbo viruses? Give an account of common arboviral diseases prevalent in India. (04)

(ii) What are opportunistic fungi? Give examples. (04)

Q. 6. Write in brief about: (2 x 4 = 08)

- a. Pathogens causing dysentery
- b. Specific tests for confirming the diagnosis of syphilis
- c. Differences between trichophyton and epidermophyton
- d. Acquired Immuno Deficiency Syndrome