KLE ACADEMY OF HIGHER EDUCATION AND RESEARCH, BELAGAVI.

[Declared as Deemed-to-be University u/s 3 &12B of the UGC Act, 1956]

Accredited A' Grade by NAAC (3rd Cycle) **Placed in 'A' Category by MoE (GoI)**

MBBS PHASE – II
DEGREE EXAMINATION – DECEMBER 2024

Time 3 Hours **Max. Marks 100**

MICROBIOLOGY
PAPER – I

Q.P. Code A011

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All the questions are compulsory.

Question Number **Marks**

1. M.C.Q. **20 X 1 = 20**

LONG ESSAY QUESTIONS **2 X 10 = 20**

2. A 45-year-old male presented to OPD with complaint of yellowish discoloration of skin and sclera and passage of clay colored stool. He also complained of nausea, vomiting, flu-like symptoms. It is a case of Hepatitis B infection. (2+3+5)
   a. What are the modes of transmission of this infection?
   b. Describe the pathogenesis and write in detail laboratory diagnosis of this condition.

3. Enumerate the tissue nematodes. Write the pathogenesis and laboratory diagnosis of Wuchereria bancrofti. (2+4+4)

SHORT ESSAY QUESTIONS **9 X 5 = 45**

4. A 45-year-old farmer was brought to the emergency department following a bee sting with shortness of breath, pounding sensation in his head and tightness in his chest. He had a history of being stung by bees on two earlier occasions. The clinical diagnosis is of cutaneous anaphylaxis. (3+2)
   a. Describe the mechanism of the cutaneous anaphylaxis.
   b. Write the management.

5. Three days after a road traffic accident, a 30-year-old man presented to hospital with sudden onset of excruciating pain at left leg with wound oozing foul-smelling thin sero-sanguineous discharge. On examination, the wound was found to be bandaged with a soiled gauze, appeared to be heavily contaminated with soil, there was edema and pain at the site and crepitus was felt on palpation. (1 + 4)
   a. What is the diagnosis?
   b. Write the laboratory diagnosis of this condition.

6. Discuss HACEK group of organisms.

7. Define Plasmids. Discuss types of plasmids with appropriate example for each type.

8. A 52-year-old man was diagnosed with acute myeloid leukemia and received an allogeneic bone marrow transplant 30 days ago. He also complains of abdominal pain, vomiting and diarrhea. (2+3)
   a. Name the type of graft rejection.
   b. Write the mechanism of rejection.

9. Discuss the types of typhoid carriers and methods available for laboratory diagnosis.

10. What are the microbial factors that influence an outbreak of infectious diseases?

11. A 25-year-old female presented to OPD with complaints of persistent diarrhea, bloating, foul smelling stools since 14 days. There is history of fatigue and weight loss. Stool microscopy showed oval structures with four nuclei each, axoneme and crescentric fibrils visible on both sides. (1 + 4)
    a. What is the diagnosis?
    b. Write the life cycle of this agent.

12. Discuss the differences between Lepromatous leprosy and Tuberculoid leprosy.

SHORT ANSWER QUESTIONS **5 X 3 = 15**

13. Enumerate the contributions of Louis Pasteur.

14. A sputum sample being rejected with a note. Repeat the sample after proper collection. Justify rejection.

15. Write the differences between endotoxin and exotoxin.

16. Name **three** mycotoxins produced by Aspergillus species.

17. Explain Urea breath test.

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MULTIPLE CHOICE QUESTIONS

Course	**MBBS Phase-II, December 2024**	**Max. Marks**	**20 Marks**
Subject	**Microbiology Paper-I, QP Code A011**	**Time**	**30 Minutes**

Instructions

- Each question is followed by four options.
- Pick up the single best option and darken the appropriate circle in the OMR Sheet provided.
- Each question carries one mark. No negative marking.

1. Most **common** cause of secondary bacterial peritonitis is
   (A) Escherichia coli (B) Streptococci
   (C) Enterococci (D) Pneumococci

2. The selective medium used for screening soil samples for Burkholderia pseudomallei is
   (A) Ashdown medium (B) Cetrimide agar
   (C) Oxacillin screen agar (D) King B medium

3. A boy started developing recurrent otitis media and pneumonia caused by staphylococcus aureus, pneumococcus after 6 month of age. On evaluation it was noted that, total absence of B cells and plasma cells in the circulation, with depressed serum levels of all classes of immunoglobulins was seen. This could be due to
   (A) Bruton disease (B) DiGeorge syndrome
   (C) Chronic granulomatous disease (D) Ataxia telangiectasia

4. Extended spectrum Beta lactamases (ESBL) producing organisms are resistant to all **EXCEPT**
   (A) All Penicillins (B) 3rd generation cephalosporins
   (C) Monobactams (D) Carbapenems

5. Which of the following is a non-inflammatory diarrhea?
   (A) Shigella species (B) Entamoeba histolytica
   (C) Enterohemorrhagic Escherichia coli (D) Staphylococcus aureus

6. A farmer aged 35 years attending Medicine OPD with symptoms of undulating fever, joint pains, body ache and night sweats since 3 months. The probable causative organisms is
   (A) Brucella melitensis (B) Bordetella pertussis
   (C) Yersinia pseudotuberculosis (D) Francisella tularensis

7. All the following are colony descriptions of Bacillus anthracis **EXCEPT**
   (A) Frosted glass (B) Inverted fir tree
   (C) String of pearls (D) Bamboo stick

8. Which of the following acts as a anaphylatoxin?
   (A) C3a (B) C3b
   (C) C4b (D) C4b

9. Ectothrix and endothrix are **best** demonstrated by
   (A) Calcofluor white stain (B) Methenamine silver stain
   (C) Hair penetration test (D) Germ tube test

10. A patient with 14 days of fever is suspected of having typhoid, what relevant investigation is carried out?
    (A) Blood culture (B) Widal test
    (C) Stool culture (D) Urine culture

11. Sporulated oocyst of Cystiisospora belli contains
    (A) One sporocyst and two sporozoites (B) One sporocyst and three sporozoites
    (C) Two sporocyst and four sporozoites (D) Two sporocyst and eight sporozoites

12. Which of the following is **NOT** true about K antigen of Escherichia coli?
    (A) Inhibition of phagocytosis
    (B) Capsular antigen
    (C) Renders strain inagglutinable by O antiserum
    (D) Expressed only by strains of Escherichia coli that cause diarrhea

13. HBV can be transmitted in the absence of visible blood and remains infectious on environmental surfaces for atleast
    (A) 5 days (B) 7 days
    (C) 24 days (D) 30 days

14. Dressings from a suspected anaerobic wound of a patient revealed a red fluorescence under UV light. The anaerobic bacteria that has this property is
    (A) Prevotella (B) Bacteroides
    (C) Porphyromonas (D) Fusobacterium

15. A gardener presents with chronic progressive swelling on the leg with discharging sinuses. The probable diagnosis is
    (A) Sporotrichosis (B) Histoplasmosis
    (C) Mucormycosis (D) Mycetoma

16. Which dermatophyte shows club-shaped macroconidia in clusters?
    (A) Microsporum (B) Trichophyton
    (C) Epidermophyton (D) All of the above

17. Vietnam time-bomb disease is caused by
    (A) Burkholderia mallei (B) Burkholderia pseudomallei
    (C) Burkholderia cepacia (D) Stenotrophomonas maltophilia

18. HIV virus contain
    (A) Single stranded DNA (B) Single stranded RNA
    (C) Double stranded DNA (D) Double stranded RNA

19. Calabar swellings are caused by
    (A) Onchocerca volvulus (B) Loa loa
    (C) Mansonella perstans (D) Brugia malayi

20. Which of the following is cell wall deficient bacteria?
    (A) Staphylococcus (B) Mycoplasma
    (C) Rickettsia (D) Chlamydia

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MBBS PHASE – II
DEGREE EXAMINATION – DECEMBER 2024

Time 3 Hours **Max. Marks 100**

MICROBIOLOGY
PAPER – II

Q.P. Code A012

Answers should be specific to the Questions asked.
Draw neat, labeled diagrams wherever necessary.
All the questions are compulsory.

Question Number **Marks**

1. M.C.Q. **20 X 1 = 20**

LONG ESSAY QUESTIONS **2 X 10 = 20**

2. Enumerate the organisms producing lower respiratory tract infection. Describe the pathogenesis and laboratory diagnosis of Aspergillosis. (3+3+4)

3. A child was brought to the casualty with complaints of altered sensorium and fever since **three** days. The neck rigidity and Babinski sign was positive. The CSF sample showed pus cells more than 10 / high power and the glucose level was decreased. (3+3+4)
   a. Enumerate the organisms causing this condition.
   b. Discuss the pathogenesis & laboratory diagnosis of meningococcal meningitis.

SHORT ESSAY QUESTIONS **9 X 5 = 45**

4. A 40-year-old woman presented with vaginal discharge. Describe the microbial etiology of bacterial vaginosis. Add a note on laboratory diagnosis of bacterial vaginosis.

5. A laborer developed cough with expectoration and skin lesions. There were similar cases in his village. Discuss the clinical types of human plague. Describe the laboratory diagnosis of plague.

6. A 56 years old patient presented with high grade fever, breathlessness and on examination SpO_2 was 78%. Viral pneumonia was suspected. Chest X-ray showed bilateral ground glass appearance. Describe the methods of sample collection and transport for molecular diagnosis of the infection.

7. Discuss pathogenesis and diagnosis of Cryptococcal meningitis

8. A farmer complains of fever with a history of assisting in the parturition of a cow. The blood grew gram negative coccobacilli in the castaneda medium after 14 days. Identify the disease and discuss the laboratory diagnosis of the same.

9. Draw a neat labeled diagram of Naegleria fowleri and explain the pathogenesis of Primary Amoebic Encephalitis.

10. Discuss the laboratory diagnosis of Infectious Mononucleosis.

11. Name **three** molecular methods to diagnose pulmonary tuberculosis. Write the principle of each test.

12. Describe Standard and Universal precautions to prevent healthcare associated infections. Add a note on Bundle care approach.

SHORT ANSWER QUESTIONS **5 X 3 = 15**

13. Draw a neat labeled diagram of HIV.

14. What are opportunistic infections? Give **two** examples of opportunistic parasitic infection.

15. Write the salient differences between oral and injectable polio vaccines.

16. Demonstration of sympathy when breaking through of result to healthcare workers, providing counselling and maintaining confidentiality pertaining to occupational hazards such as needle stick injury.

17. List the Treponemal (specific) tests for syphilis.

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MULTIPLE CHOICE QUESTIONS

Course	**MBBS Phase-II, December 2024**	**Max. Marks**	**20 Marks**
Subject	**Microbiology Paper-II, QP Code A012**	**Time**	**30 Minutes**

Instructions

- Each question is followed by four options.
- Pick up the single best option and darken the appropriate circle in the OMR Sheet provided.
- Each question carries one mark. No negative marking.

1. Most **common** manifestation of Toxoplasma gondii in immunocompetent adult is
   (A) Lymphadenopathy (B) Chorioretinitis
   (C) Myocarditis (D) Encephalitis

2. A 20-year-old presented with projectile vomiting, headache and fever. He was hospitalized and diagnosed as meningitis. The Gram stain of CSF showed intracellular Gram negative diplococci. Which organism is responsible for this condition?
   (A) Escherichia coli (B) Neisseria meningitidis
   (C) Streptococcus pneumoniae (D) Klebsiella pneumoniae

3. Rabies is identified by
   (A) Guarneri bodies (B) Negri bodies
   (C) Cowdry A bodies (D) Paschen body

4. Negative staining of CSF from a case of meningitis showed capsulated budding yeast cells, the organism is
   (A) Cryptococcus species (B) Candida species
   (C) Trichosporon species (D) Rhodotrola species

5. XDR-TB is a Mycobacterium tuberculosis strain resistant to
   (A) INH and rifampicin (B) INH and fluoroquinolone
   (C) INH, rifampicin and fluoroquinolone (D) INH, rifampicin, fluoroquinolone & aminoglycoside

6. Enriching agent in LJ medium is
   (A) Egg (B) Malachite green
   (C) Glycerol (D) PNBA

7. A 50-year-old diabetic man developed fever, cough, respiratory distress and flulike syndrome. He was diagnosed as a case of pneumonia and admitted for the same. On the third day, his condition deteriorated and he was put on ventilator. A suitable clinical sample was collected in a viral transport medium and screened for H1N1 influenza. Which of the following is **true** with regard to better case management?
   (A) Viral culture is recommended (B) ELISA is a good test for screening
   (C) Immunochromatography test yields rapid results (D) Real-time PCR is the best diagnostic test

8. Mycobacterium tuberculosis is
   (A) Acid fast (B) Non fastidious
   (C) Rapid grower (D) Capsulated

9. Cock screw motility of spirochetes is **best** diagnostic test in
   (A) Primary syphilis (B) Secondary Syphilis
   (C) Latent Syphilis (D) Tertiary Syphilis

10. A 28-year-old sexually active woman had frequent episodes of urinary tract infections. Which of the following **common** novobiocin-resistant bacteria are likely to be associated in this case?
    (A) Escherichia coli (B) Proteus vulgaris
    (C) Pseudomonas aeruginosa (D) Staphylococcus saprophyticus

11. One of the following is **false** regarding urine culture
    (A) Quantitative urine culture is necessary
    (B) Catheter urine sample is collected from urine bag
    (C) Three early morning samples are collected for the diagnosis of renal tuberculosis
    (D) Suprapubic aspiration of urine is suggested in infants

12. Multiple painful ulcer is a feature of which viral infection?
    (A) Syphilis (B) Herpes
    (C) Chancroid (D) Donovanosis

13. Non-specific urethritis may be caused by
    (A) Chlamydia trachomatis (B) Neisseria gonorrhoeae
    (C) Escherichia coli (D) Staphylococcus aureus

14. How many moments of hand hygiene is laid by WHO?
    (A) 5 (B) 6
    (C) 7 (D) 8

15. As per BMW-2016 rules, white, translucent containers should be used for the disposal of
    (A) Sharp waste (B) Contaminated glassware
    (C) Contaminated plastic ware (D) Liquid chemical waste

16. Aspergillus infection in the tissues is characterized by
    (A) Budding cell (B) Metachromatic granules
    (C) Septate hyphae (D) Pseudohyphae

17. A 68-year-old female, presented with chronic watery diarrhea. She was seropositive for HIV, her stool microscopy showed acid fast oocysts measuring 5 microns in diameter. What is the likely etiological agent?
    (A) Cryptosporidium parvum (B) Isospora belii
    (C) Entamoeba histolytica (D) Balantidium coli

18. All of the following are the examples of bacterial zoonotic diseases **EXCEPT**
    (A) Kyasanur Forest disease (B) Anthrax
    (C) Plague (D) Brucellosis

19. Which of the following is **NOT** a zoonotic infection caused by Rickettsia?
    (A) Scrub typhus (B) Tick typhus
    (C) Typhoid (D) All of the above

20. Among ESKAPE organisms, ‘A’ stands for
    (A) Agrobacterium tumefaciens (B) Acinetobater baumanii
    (C) Actinomyces israelii (D) Azorhizobium caulinodans

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