



**AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCES
DEPARTMENT OF NURSING & MIDWIFERY SCIENCES
END OF SEMESTER MAY - AUGUST 2026 EXAMINATIONS**

COURSE CODE AND TITLE: BSM 211: Medical Microbiology and Parasitology Main Examination

DATE: 4TH AUGUST 2026

Duration: 2 HOURS

Start: 9AM

Finish: 11AM

INSTRUCTIONS

1. This exam is out of 70 marks.
2. This Examination comprises THREE Sections. Section I: Multiple Choice Questions (20 marks).
Section II: Short Answer Questions (30 marks) and Section III: Long Answer Questions (20 marks).
3. Answer ALL Questions.
4. Do NOT write anything on the question paper - use the back of your booklet for rough work if need be.

SECTION I: MULTIPLE CHOICE QUESTIONS (MCQs) (20 MARKS)

1. Stool cultures are important in the diagnosis of typhoid fever infections because: -
 - A. 25% of the cases are positive in the 3rd week of infection
 - B. 50% of the cases become seropositive
 - C. 80% of the cases are positive in the 3rd week of the infection
 - D. 30% of the cases are not serosensitive
2. Pili associated with pyelonephritis is found in Escherichia coli strains that cause: -
 - A. Gastrointestinal Infections
 - B. Urinary tract infections
 - C. Pyogenic infections
 - D. Neonatal meningitis

3. Scarlet fever is caused by: -
 - A. *Streptococcus pneumoniae*
 - B. *Streptococcus pyogenes*
 - C. *Streptococcus agalactiae*
 - D. *Streptococcus faecalis*
4. An agent most likely to cause meningitis after a basal skull fracture
 - A. *Streptococcus agalactiae*
 - B. *Streptococcus pneumoniae*
 - C. *Neisseria meningitidis*
 - D. *Staphylococcus aureus*
5. A gram-positive, catalase negative and esculin-positive coccus that commonly causes urinary tract infection is: -
 - A. *Staphylococcus saprophyticus*
 - B. *Enterococcus faecium*
 - C. *Escherichia coli*
 - D. *Streptococcus agalactiae*
6. Aspergillosis is recognized in tissue by the presence of: -
 - A. Metachromatic granules
 - B. Pseudohyphae
 - C. Septate hyphae
 - D. Budding cells
7. A girl who pricked her finger while pruning some rose bushes develops a local pustule that progresses to an ulcer. Several nodules then develop along the local lymphatic drainage. The most likely agent is: -
 - A. *Aspergillus fumigatus*
 - B. *Sporothrix schenckii*
 - C. *Cryptococcus neoformans*
 - D. *Candida albicans*
8. The fungi that is most likely to be found within reticuloendothelial cells is: -
 - A. *Histoplasma capsulatum*
 - B. *Sporothrix schenckii*
 - C. *Cryptococcus neoformans*
 - D. *Candida albicans*

9. Fungal cells that reproduce by budding are seen in the infected tissues of patients with: -
- A. Candidiasis, cryptococcosis, and sporotrichosis
 - B. Mycetoma, candidiasis and mucormycosis
 - C. Tinea corporis, tinea unguium, and tinea versicolor
 - D. Sporotrichosis, mycetoma and aspergillosis
10. An 8-year-old boy develops a circular dry, scaly, and pruritic lesion on his leg. What is the diagnostic significance of observing branching, septate, nonpigmented hyphae in a potassium hydroxide/calcofluor white preparation of a scraping from this skin lesion?
- A. Chromomycosis
 - B. Dermatophytosis
 - C. Phaeohyphomycosis
 - D. Sporotrichosis
11. The parasite that causes amoebic dysentery is: -
- A. Giardia lamblia
 - B. Entamoeba histolytica
 - C. Trichomonas vaginalis
 - D. Plasmodium falciparum
12. The infective stage of Plasmodium species to humans is the: -
- A. Trophozoite
 - B. Schizont
 - C. Sporozoite
 - D. Merozoite
13. The vector for African trypanosomiasis is: -
- A. Sand fly
 - B. Tsetse fly
 - C. Mosquito
 - D. Black fly
14. The parasite that causes hydatid disease is: -
- A. Taenia saginata
 - B. Taenia solium
 - C. Echinococcus granulosus
 - D. Ascaris lumbricoides
15. The opportunistic fungal infection commonly associated with HIV/AIDS is: -
- A. Dermatophytosis
 - B. Candidiasis
 - C. Sporotrichosis
 - D. Mycetoma

16. The Baltimore virus classification system that the Retroviruses belong to is: -
- A. Group 3
 - B. Group 7
 - C. Group 5
 - D. Group 6
17. The characteristic that Hepatitis A and E viruses share is: -
- A. They both cause chronic diseases
 - B. Both are transmitted via fecal-oral route
 - C. Both cause hepatocellular carcinoma
 - D. Both are transmitted via blood transfusion
18. The finding of large, multinucleated, clumps of cells in the bronchial secretions of a 2 year old girl with acute bronchopneumonia suggests that this infection is caused by: -
- A. Epstein – Barr virus
 - B. Mycoplasma hominis
 - C. Rhinovirus
 - D. Respiratory syncytial virus (RSV)
19. The true statement regarding human papilloma virus (HPV) is: -
- A. There is no vaccine available against HPV
 - B. Acyclovir is effective in preventing lesions caused by HPV
 - C. The early proteins of HPV play a more important role in malignant transformation than the late proteins
 - D. Antigen-antibody complexes play an important role in the pathogenesis of the warts caused by HPV
20. The most accurate regarding parvovirus B19 is: -
- A. vaccine is available that contains killed virus as the immunogen
 - B. Patients infected by parvovirus B19 can be diagnosed in the laboratory using the cold agglutinin test
 - C. Parvovirus B19 causes severe anemia because it preferentially infects erythrocyte precursors such as erythroblasts
 - D. Parvovirus B19 commonly infects neutrophils, resulting in an immunodeficiency that predisposes to pyogenic bacterial infections

SECTION II: SHORT ANSWER QUESTIONS (SAQs)**(30 MARKS)**

1. Describe the principle, purpose and expected outcomes of the following bacterial identification tests: (5 marks)
 - a) Urease test
 - b) Triple sugar iron test
2. Describe the pathogenesis of: (5 marks)
 - a) Diphtheria toxin
 - b) Tetanus toxin
 - c) Cholera toxin
 - d) Botulinum toxin
 - e) Typhoid toxin
3. Enumerate five opportunistic fungal infections along with their etiological agents. (5 marks)
4. Describe the pathogenesis of *Histoplasma capsulatum*. (5 marks)
5. Compare and contrast between pinworms and hookworms. (5 marks)
6. Write short notes on Hepatitis B virus (HBV) under the following sub-headings:
 - a) Transmission. (2 marks)
 - b) Pathogenesis and clinical manifestation. (2 marks)
 - c) HBV antibody immune response. (1 marks)

SECTION III: LONG ANSWER QUESTIONS (LAQs)**(20 MARKS)**

1. A 35-year-old male presents with multiple symptoms: a papulovesicular pruritic rash and itch on the foot, diarrhea, pleuritic pain, and hemoptysis. A stool stain showed presence of larvae. History taken shows that he has no toilet and running water.
 - a) The likely parasite that the patient was suffering from is: - (2 marks)
 - b) Describe the life cycle, pathogenesis and treatment of this parasite outlining its multiple transmission methods. (18 marks)