



**AMREF INTERNATIONAL UNIVERSITY  
SCHOOL OF MEDICAL SCIENCES  
DEPT. OF NURSING AND MIDWIFERY SERVICES  
BACHELOR OF SCIENCE MIDWIFERY**

**COURSE CODE: BSM 211**

**COURSE NAME: MEDICAL MICROBIOLOGY WRITTEN PAPER**

**DATE: TUESDAY 3<sup>RD</sup> AUGUST, 2021**

**TIME ALLOWED: 2 HOURS**

**START TIME: 9.00AM**

**FINISH TIME: 11.00AM**

**INSTRUCTIONS:**

1. The exam is set out of 70 marks
2. Section A has 50 MCQs, each is one mark
3. For section A, select only one correct response
4. Section B has Short Answer Questions (SAQs) worth 40 marks
5. Answer all the questions in all sections

## SECTION A: MULTIPLE CHOICE QUESTIONS (MCQS ) 50 marks

1. Retroviruses belong to which group in Baltimore virus classification system
  - A. Group 3
  - B. Group 4
  - C. Group 5
  - D. Group 6
  
2. Which of the following statements is **FALSE** about Human Papilloma Viruses
  - A. HPV 6 and 11 cause genital warts
  - B. HPV 16 and 18 cause cervical cancer
  - C. Co-infection with HIV increases the risk of cervical cancer
  - D. Vaccination of postmenopausal women has shown to reduce cervical cancer
  
3. The following is **FALSE** about Human Papillomavirus (HPV)
  - A. Is classified under group I
  - B. Replicates in the nucleus
  - C. Double stranded DNA virus
  - D. Double stranded RNA virus
  
4. One of the following is not a feature of primary HIV in newly infected patients
  - A. Fever
  - B. Pharyngitis
  - C. High viral load
  - D. Kaposi sarcoma
  
5. Acyclovir
  - A. Initial activation is by host enzyme
  - B. Is a potent RNA polymerase inhibitor
  - C. Highly effective without activation step
  - D. Reduction of viral thymidine kinase is a common mechanism of resistance
  
6. One of the following statements about retroviruses is **FALSE**:
  - A. They cause slowly progressing illness
  - B. They have a segmented genome
  - C. They replicate in the nucleus
  - D. Infection is usually long life
  
7. Neonatal herpes is a disease that is majorly caused by infection with
  - A. HSV-1
  - B. HSV-2

- C. HPV 6
  - D. HPV 16
8. The following agent competitively inhibits HIV reverse transcriptase
- A. Lamivudine
  - B. Ritonavir
  - C. Raltegravir
  - D. Maraviroc
9. Which of the following antiviral drugs is the most appropriate for treating alpha-virus infection
- A. Lamivudine
  - B. Amantadine
  - C. Ganciclovir
  - D. Dolutegravir
10. The most common cause of viral STI/STD is
- A. HIV
  - B. Herpes simplex virus
  - C. Human Papillomavirus (HPV)
  - D. Hepatitis B virus
11. All of the following are co-principles in the treatment of malaria EXCEPT?
- A. Rational use of anti-malaria drugs
  - B. Use of combination drugs
  - C. Mass treatment using effective anti-malaria drugs
  - D. Appropriate dosing of anti-malaria drugs
12. The organism likely to cause foetal hydrocephaly is:-
- A. Trypanosoma cruzi
  - B. Plasmodium vivax
  - C. Toxoplasma gondii
  - D. Trypanosoma brucei
13. In central India, a 22-year-old female patient developed irregular fever with chills and rigors, abdominal discomfort with hepatosplenomegaly. These clinical manifestations are thought to be due to an infection acquired via insect bite. The likely organism to cause these clinical manifestations is:
- A. Trypanosoma cruzi
  - B. Loa loa
  - C. Leishmania donovani
  - D. Toxoplasma gondii

14. The treatment of choice for infection by trypanosome brucei is:-
- A. Albendazole
  - B. Ivermectin
  - C. Suramin
  - D. Praziquantel
15. Regarding IPT<sub>p</sub> against malaria, the following is false
- A. It assumes every woman in a malaria endemic area has malaria parasites in blood or placenta
  - B. Should not be given together with folic acid
  - C. All HIV positive pregnant women should receive SP for IPT<sub>p</sub>
  - D. Pregnant women taking daily cotrimoxazole prophylaxis should receive IPT<sub>p</sub>
16. The following statement is not true concerning management of malaria in pregnancy
- A. Artemether lumefantrine and not oral quinine is recommended during the 1<sup>st</sup> trimester
  - B. AL and clindamycin are indicated in the 2<sup>nd</sup> and 3<sup>rd</sup> trimester
  - C. IV Artesunate should be used in the management of severe malaria in pregnancy
  - D. Artemether or quinine can be used in the management of severe malaria in pregnancy
17. All of the following are obstetrical outcomes of placental malaria except:
- A. IUGR and LBW
  - B. Preterm birth / Stillbirths and IUFD
  - C. Abruptio placenta
  - D. Placenta previa
18. The clinical presentation in urogenital schistosomiasis include all of the following classical signs except
- A. Hematuria
  - B. Fibrosis of the bladder and ureter
  - C. Vaginal bleeding, pain during sexual intercourse, and nodules in the vulva in women
  - D. Abdominal pain, diarrhea, and blood in the stool
19. Maternal anemia which contributes to fetal anemia at delivery may in part be due to all of the following parasitic infections except
- A. Malaria
  - B. Hookworm disease
  - C. Schistosomiasis
  - D. Cryptosporidiosis

20. Lesions on the cervix are likely due to infection with the following parasite
- Trichomonas vaginalis
  - Schistosoma haematobium
  - Schistosoma mansoni
  - Enterobius vermicularis
21. The following feature can be seen in the various stages of trachoma disease except
- Presence of follicles and inflammation under the eye lid
  - Formation of scar tissue
  - Excessive tearing and bleeding
  - Corneal scarring
22. Laboratory test used for screening for syphilis in an ante-natal clinic is:-
- Dark field microscopy
  - Treponema pallidum* Haemagglutination Assay
  - Fluorescent Treponemal Antibody test
  - Rapid Plasma Reagin test
23. Sterilization of a surgical blade for use in theatre is best achieved using
- Autoclaving
  - Incubation in a hot air oven
  - Flaming in a Bunsen burner
  - Industrial exposure to gamma radiation
24. The following can be used to disinfect skin before venipuncture
- Isopropyl alcohol
  - Sodium hypochlorite
  - Lysol
  - Formaldehyde
25. The following bacteria evades the hosts immune system through antigenic variation of its pili protein
- Staphylococcus epidermidis*
  - Streptococcus pneumoniae*
  - Haemophilus influenzae type b*
  - Neisseria gonorrhoeae*
26. The following agents can be used for treating *Neisseria gonorrhoeae* infections except
- Fluconazole
  - Ceftriaxone
  - Cefixime
  - Spectinomycin

27. Prevention and control of gonorrhoea infections would encompass the following approaches **except**
- A. Accurate diagnosis of patients
  - B. Treatment of sexual contacts of diagnosed individuals
  - C. Vaccination of high risk individuals
  - D. Use of barrier methods like condoms during sexual contact
28. Sterilization of antibiotic solutions can be achieved using
- A. Autoclaving
  - B. Incubation in a hot air oven
  - C. Filtration using nitrocellulose filter membrane
  - D. Exposure to gamma radiation
29. How is *Streptococci agalactiae* spread?
- A. Through respiratory secretions or droplets
  - B. Through contaminated fomites
  - C. By insect vectors
  - D. By vertical transmission
30. Serological test for syphilis which is suitable for screening a large number of specimens
- A. Fluorescent treponemal antibody absorption test
  - B. Venereal Disease Research Laboratory test
  - C. *Treponema pallidum* Haemagglutination assay
  - D. Enzyme-linked immunosorbent assay (ELISA)
31. A commensal mycoplasma that is found in the oropharynx
- A. *Mycoplasma genitalium*
  - B. *Mycoplasma hominis*
  - C. *Mycoplasma salivarium*
  - D. *Mycoplasma pneumoniae*
32. Which of the following parasites is associated with perianal itching?
- A. *Strongyloides stercoralis*
  - B. *Enterobius vermicularis*
  - C. *Trichuris trichiura*
  - D. *Necator americanus*
33. A Gram stain of an eye discharge from a 2 week old baby presenting with peri-orbital oedema shows gram negative intracellular diplococci. The most likely pathogen is:-
- A. *Neisseria gonorrhoeae*
  - B. *Chlamydia trachomatis*
  - C. *Ureaplasma urealyticum*
  - D. *Moraxella catarrhalis*

34. *Chlamydia trachomatis* genital tract infection in men
- A. Is associated with serovars A, B and C
  - B. Is asymptomatic unlike in females
  - C. Has been associated with infertility due to azoospermia
  - D. Diagnosis can be confirmed after gram stain of urethral discharge
35. Hemolytic anaemia in Mycoplasma infections is due to
- A. Autoimmune reactions due to destruction of I antigens
  - B. Production of hydrogen peroxide by the pathogens
  - C. Secretion of Community-acquired distress syndrome exotoxin
  - D. Direct invasion of tissue
36. The following chemical would be most suitable for disinfection of a ward floor after blood spillage
- A. Isopropyl alcohol
  - B. Chlorhexidine
  - C. Sodium hypochlorite
  - D. Ethyl alcohol
37. Prevention of nosocomial infections may involve the following except
- A. Compliance with proper hand hygiene
  - B. Good antimicrobial stewardship
  - C. Use of different brands of disinfectants in different wards
  - D. Education and training for all healthcare staff
38. The following organisms are usually associated with nosocomial urinary tract infections except
- A. *Pseudomonas aeruginosa*
  - B. *Escherichia coli*
  - C. *Proteus* spp
  - D. *Clostridium difficile*
39. The following factors are associated with increased risk of surgical site infections except
- A. Malnutrition
  - B. Diabetes mellitus
  - C. Obesity
  - D. Pre-operative antibiotic prophylaxis

40. The following precautions should be taken in management of hospital acquired diarrhea except
- A. Use of Personal Protective Equipment in patient rooms
  - B. Hand washing after each patient contact
  - C. Staff should not consume food or drink within the clinical areas
  - D. Provide patients with alcohol swabs for use after bowel movements
41. The following is the causative agent of chancroid
- A. *Klebsiella granulomatis*
  - B. *Chlamydia trachomatis* serovar L1
  - C. *Ureaplasma urealyticum*
  - D. *Haemophilus ducreyi*
42. Which of the following is the recommended treatment for chancroid
- A. Penicillin
  - B. Ciprofloxacin
  - C. Azithromycin
  - D. Levofloxacin
43. Which of the following findings best describes chancroid
- A. Painful shallow ulcers with erythematous base and well defined border
  - B. Multiple group of tender vesicles
  - C. Large painless beefy-red ulcers
  - D. Painless shallow ulcers with adjacent painless subcutaneous nodules
44. A patient with diabetes presents with vaginal pruritus, vulvar edema and dysuria. Which of the following is the most likely causative agent
- A. *Ureaplasma urealyticum*
  - B. *Mycoplasma genitalium*
  - C. Herpes simplex virus
  - D. *Candida albicans*
45. Which of the following is the initial step applied in presumptive diagnosis of vulvovaginal candidiasis
- A. Perform pH testing of the vaginal discharge
  - B. Culture the specimen in artificial media
  - C. Perform a wet preparation of the vaginal discharge using 10% potassium hydroxide
  - D. Perform a PCR assay of the discharge
46. Which is the recommended oral antifungal agent for treatment of uncomplicated vulvovaginal candidiasis
- A. Nystatin
  - B. Clotrimazole
  - C. Fluconazole
  - D. Ceftriaxone



47. Which of the following is the causative agent of granuloma inguinale
- A. Treponema pallidum
  - B. Klebsiella granulomatis
  - C. Chlamydia trachomatis
  - D. Mycoplasma genitalium
48. The following is consistent with physical examination of granuloma inguinale
- A. Large painless beef-red ulcer
  - B. Painful hyperpigmented ulcer with flat borders
  - C. Painful shallow ulcers with adjacent painful subcutaneous nodules
  - D. Multiple shallow painful ulcers with crusted superficial yellow-green exudate
49. The following is true of group B streptococcus except
- A. Gram positive cocci in chains
  - B. Catalase negative
  - C. Posses a polysaccharide capsule
  - D. Alpha haemolytic
50. The following is not considered a commensal in the genital tract
- A. Candida albicans
  - B. Streptococcus agalactiae
  - C. Haemophilus ducreyi
  - D. Lactobacillus

**SECTION B: SHORT ANSWER QUESTION ( SAQ) AND LONG ANSWER QUESTIONS (LAQ (40 marks)**

1. State five (5) sexually transmitted pathogens associated with genital ulcer disease (5 marks)
2. "Parasitic infections during pregnancy may be associated with increased risk of pregnancy complications and adverse outcomes particularly among the rural women in low resource settings".  
Discuss this statement giving 5 specific case examples of parasitic infections (15 marks)
3. Discuss syphilis under the following subheadings: (20 marks)
  - a. Causative agent
  - b. clinical manifestations
  - c. screening and confirmatory tests
  - d. antimicrobial agents for treatment