



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF MEDICAL SCIENCES

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN MEDICAL LABORATORY SCIENCE

AML 2204 MEDICAL MICROBIOLOGY II

SPECIAL/ SUPPLIMENTARY EXAMINATIONS

SERIES: SEPTEMBER 2018

TIME: 2 HOURS

DATE: Sep 2018

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of Section A and B. Attempt ALL questions.

Circle the correct answer in section A.

Section A

1. The following are associated with urinary tract infections except?
 - a. *Enterobacter aerogenes*
 - b. *Yersinia pestis*
 - c. *Klebsiella pneumoniae*
 - d. *Bacillus anthracis*

2. 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

3. Scarlet fever is caused by which of the following organism?
 - a. *Streptococcus pneumoniae*
 - b. *Streptococcus pyogenes*
 - c. *Streptococcus agalactiae*
 - d. *Streptococcus faecalis*

4. The following is true of *Streptococcus faecalis* :-
 - a. is a pathogen of gastrointestinal tract of man
 - b. does not grows on MacConkey
 - c. grows on bile aesculin agar
 - d. does not grow on high salt concentration

5. Selective media for isolation of *staphylococcus aureus* from stool includes?
 - a. blood agar plus 10% sodium chloride
 - b. cooked meat broth with sodium chloride
 - c. polymyxin agar or manitol agar
 - d. glycerol mono acetate agar

6. Members of the following family are aquatic and some are known to be pathogenic to fish.
 - a. Corynebacteriaceae
 - b. Micrococaceae
 - c. Vibrionaceae
 - d. Enterobacteriaceae

7. The following are predisposing factors to enteritis associated with campylobacter infection.
- Drinking of untreated water supply
 - Consumption of undercooked chicken
 - From contaminated surfaces
 - From consumption of contaminated pork
8. Widal screening is employed for presumptive diagnosis of which of these diseases?
- Typhoid
 - Tetanus
 - Diphtheria
 - Anthrax
9. Which of the this organism would grow at a pH of 8.6
- Mycobacterium avium*
 - Pseudomonas aeruginosa*
 - Vibrio cholera*
 - Clostridium tetani*
10. CSF should not be refrigerated when delays are expected because?
- C.S.F is sterile
 - C.S.F contains many normal flora
 - Pathogen associated with meningitis are sensitive to temperature change
 - Pathogens associated with meningitis have a long incubation time.
11. Bile solubility test is routinely used to identify
- Streptococcus pneumoniae*
 - Streptococcus pyogenes*
 - Streptococcus agalactiae*

d. *Viridans streptococcus*

12. Which among the following bacteria possess a capsule?

a. *Staphylococcus aureus*

b. *Staphylococcus epidermidis*

c. *Streptococcus pyogen*

d. *streptococcus pneumonia*

13. The following is true of All *Enterobacteriaceae* except?

a. They are glucose fermenters

b. Oxidase negative

c. They are motile

d. They are gram negative rods

14. Which of the following *Haemophilus* species require both the X and the V factors?

a. *H. ducrey*

b. *H. parainfluenzae*

c. *H. influenzae*

d. *H. aegypticus*

15. The following test can be used for identification of *Klebsiella pneumoniae* except?

a. Gas production

b. Simmons citrate

c. Gram staining

d. Voges proskauer

16. Symptoms of staphylococcal food poisoning include?

a. Nausea diarrhoea, vision impairment and dizziness.

b. Nausea, Vomiting, diarrhoea, stomach discomfort

c. Partial paralysis, intestinal irritation, diarrhoea and vomiting

- d. Headache, CNS involvement, and Jaw lock.
17. Most desired media for isolation of *Neisseria gonorrhoeae* include?
- a. Modified Thayer-martin medium
 - b. Blood agar
 - c. Mac conkey agar
 - d. Nutrient agar
18. Bacillary dysentery is a term use to indicate infection with which organism?
- a. *Escherichia coli*
 - b. *Shigella species*
 - c. *Yersinia species*
 - d. *None of the above*
19. The following are important tests in differentiating enteric pathogens from *Proteus*
- a. Gram stain reaction
 - b. Indole test
 - c. Urea utilization test
 - d. Motility
20. Which of the following bacteria can be isolated in acidic environment
- a. *Proteus mirabilis*
 - b. *Neisseria gonnorrhoea*
 - c. *Vibrio cholerae*
 - d. *Helicobacter pylori*
21. To determine whether the attack on sugar by an organism is by oxidation or fermentation the method used is ?
- a. Oxidation test
 - b. Fermentation test

- c. Gordon and Macleod
 - d. oxidation- fermentation test
22. The mutual inhibition of swarming by the genus *proteus* is indicative of?
- a. Over incubation
 - b. Growth of different strains
 - c. Growth of similar strains
 - d. Under incubation
23. The following specimen is ideal for isolation of *Brucella* species
- a. Vaginal swab
 - b. Urine
 - c. Blood
 - d. Stool
24. Which of the following *E.coli* are associated with traveller's diarrhoea?
- a. ETEC
 - b. EPEC
 - c. EHEC
 - d. EIEC
25. *Yersinia pestis* can be well described as?
- a. a gram positive coco bacilli
 - b. the causative agent bubonic plague
 - c. a bacteria that grows at high temperature
 - d. causing serious enteritis
26. Why is decontamination of sputum important?
- a. It reduces chances of contamination during culture
 - b. It increases contamination by the upper respiratory flora

- c. It reduces the survival of the isolate
 - d. It increases the survival of the isolate
27. Which of the following is rod shaped Neiseriaceae?
- a. *Neisseriae sicca*
 - b. *Neisseria subflava*
 - c. *Neisseria elongate*
 - d. *Neiseria meningitis*
28. Culture of anaerobic organisms is done in which of the following media?
- a. Nutrient broth deep culture
 - b. McIntosh-Fildes' anaerobic jar
 - c. Nutrient agar plate
 - d. Blood agar
29. Which of these media would support the growth of Mycobacterium?
- a. Charcoal cephalixin agar
 - b. Thayer martin media
 - c. Loefflers medium
 - d. New york city medium
30. The following statement is true about TCBS except:
- a. composed of Thiosulphate citrate and sucrose
 - b. used for culture of *V.cholera*
 - c. it contains bromothymol blue indicator
 - d. used for culture of campylobacter
31. DNase agar is able to differentiate:
- a. Genus Staphylococci from Streptococci
 - b. *Staph aureus* from other staphylococci species

- c. Diphtheria species from Clostridium species
 - d. Neisseria species from diphtheria species
32. The fir tree pattern in gellatin is a characteristic of which organism?
- a. *Bacillus anthracis*
 - b. *Corynebacteria perfringens*
 - c. *Clostridium perfringens*
 - d. *Treponema pallidum*
33. Certain strains of Proteus agglutinate the sera from patients with typhus fever, this phenomenon is called?
- a. Dienes phenomenon
 - b. Wasserman reaction
 - c. Weil felix reaction
 - d. Rheumatoid reaction
34. The following indicators are incorporated in the media TSI
- a. Bromothymol blue
 - b. Ferric iron
 - c. Phenol red
 - d. Neutral red
35. Characteristics of a bacterial capsule include:
- a. All bacteria have one
 - b. It is composed of peptidoglycan
 - c. It is an important mechanism for protecting a bacteria against ingestion by PMNs
 - d. It is what causes the gram stain reaction
36. Specific organisms that are considered strict aerobes include:
- a. E. coli and Streptococcus pneumoniae
 - b. Bacteroides and Klebsiella

- c. *Mycobacterium tuberculosis*
 - d. Peptostreptococcus and Nocardia
37. When carrying out coagulase test, a positive result is indicated by?
- a. Effervescence
 - b. Red cells clotting
 - c. Fine clumping
 - d. Bubbling
38. Stormy clot reaction is useful in identification of
- a. *Clostridium tetani*
 - b. *Clostridium difficile*
 - c. *Clostridium botulinum*
 - d. *Clostridium perfringens*
39. Which of the following organism can causes gas gangrene ?
- a. *Clostridium species*
 - b. *Shigella sonnei*
 - c. *Salmonella enteritidis*
 - d. *Klebsiella rhinoscleromatis*
40. Which of the following statement is true about pathogenesis of Tetanus?
- a. Germination of spores initiates the infection
 - b. Spores germinate aerobically
 - c. Tetanospasmin toxin is not absorption by motor nerve endings
 - d. All of the above

Section B

1. Briefly explain :-

- a. Five ways you would use to prevent swarming of *Proteus* (5 marks)
- b. The Dienes phenomenon (5 marks)
- c. The principle and the procedure of urease test . (10 marks)

2. A Patient was sent to the laboratory from the comprehensive chest clinic with complains of persistent productive cough for two weeks and a lot of chest pains. The doctor is suspecting pneumonia, what would you say is the causative agent of pneumonia? Discuss the laboratory processing of sputum sample. (20marks.)

3. Antenatal mothers are commonly affected by urinary tract infections(UTI)

- a. State the commonest cause of UTI associated with above patients (2marks)
- b. State 3 factors that you think may contribute to this problem? (3marks)
- c. To assist in making proper diagnoses clearly explain how to recover the causative agent. (15 marks)