



KENYATTA UNIVERSITY

**UNIVERSITY EXAMINATIONS 2011/2012
SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR
OF SCIENCE (NURSING AND PUBLIC HEALTH)
HML 107: MEDICAL BACTERIOLOGY**

DATE: FRIDAY 30TH MARCH 2012

TIME: 2.00 P.M. - 4.00 P.M.

INSTRUCTIONS

SECTION A: ANSWER ALL THE QUESTIONS

1. Briefly outline the ultrastructure of bacteria. (5 marks)
2. Briefly describe the major contribution of Robert Koch (1843-1910) towards the germ theory. (5 marks)
- 3 Briefly describe the genetic variation in bacteria (5 marks)

SECTION B: Answer ONLY ONE question (20 Marks each).

4. Describe bacterial culture methods used in bacteriology, while indicating various types of media and inoculation of the media (20 marks)
5. Describe the host- parasite relationship of bacteria, explaining how this depends on a balance between the virulence of the parasite and the resistance of the host. (20 marks)

SECTION C

There are thirty (30) multiple choice questions (MCQ) in this section. Answer questions by circling correct answer (1/2) marks each.

1. What is the define transduction
 - a. frangment of bacterial DNA replicates without a stop
 - b. fragments of chromosomal DNA is transferred into a second bacterium by phage.
 - c. fragments of exogenous bacterial DNA are taken up by another bacterium
 - d. frangment of DNA get lost from bacterium
2. Organisms are named using binomial nomenclature, except in?
 - a. Bacteria
 - b. Fungi

c. Parasites

d. Virus

3. In the Bacteriology lab the selection of culture media will depend on the following, except

a. The major pathogens to be isolated, their growth requirements and the features by which they are

recognized.

b. Whether the specimens being cultured are from sterile sites or from sites having normal microbial flora

c. The training and experience of laboratory staff in preparing, using and controlling culture media

d. The time of season the culture is being prepared.

4. Which of the methods is used in sterilization in culture media?

a. filtration

b. hydration

c. dehydration

d. illumination

5. Who disproved theory of biogenesis

a. Antony Van Leeuwenhoek

b. Hippocrates

c. Aristotle

d. Louis Pasteur

6. Which of the following is not a feature of Prokaryotic cells

a. contains only DNA

b. Lysosome absent

c. size 1 μm

d. ribosomes 70s

7. Which of the following is not a cell membrane function in a bacteria?

a. receptor sites for phages.

b. secretes proteins

c. assist DNA replication

d. synthesis cell wall.

8. Bacteria without flagellum is called

a. Amphitrichous

b. Lophotrichous

c. Atrichous

d. Peritrichous

9. Which of the following is true about flagellum and not true about Pilus?

a. Flagellum is bigger than pillus

b. Flagellum and pillus originate from cell membrane

c. flagellum is for locomotive but not pillus

d. Pilus is used for conjugation but not flagellum

10. When bacteria are visualized under light microscope, the following morphology are seen, except.

a. Cocci

b. hyphae

c. bacillus

d. coccobacillus

11. which of the following is not a types of microbiological stains

a. basic stain

b. neutral stains

c. stainless stain

d. acidic stain.

12. Which of the following report is true for examinon of a smear under the oil immersion objective to look for acid fast bacilli.

- a. 0 AFB/100 field AFB seen but not clear
- b. 1-2 AFB/ 300 field..... Scanty
- c. 1-10 AFB/100 field..... 1+
- d. 1-10 AFB/field..... 3+

13. Common ingredients of culture media, except.

- a. Peptone
- b. Bone extract
- c. Carbohydrates
- D. Agar

14. Which of the following is one of most important elements of bacteria are

- a. carbon,
- b. sulphur
- c. Nickel
- d. zinc

15. Which of the following is not true about bacteria growth.

- a. It is an orderly increase in all the components of an organism.
- b. It is an increment in biomass.
- c. It has to cause disease before grow.
- d. It is synchronous with bacterial cell reproduction.

16. Quantitative measurement of bacterial growth

Bacterial growth is measured by determining number of bacteria.

Three of the following methods are commonly used, except

- a. Weight
- b. Viable plate count
- c. Direct count

d. Turbid metric method

17. What is in gram +ve bacteria cell membrane and not in gram -ve bacteria

- a. Phospholipid
- b. Lipopolysaccharide
- c. Peptidoglycan
- d. Teichoic acid

18. Which of the following bacterial characteristic is useful bacterial classification.

- a. replication
- b. Cultural characteristics
- d. motility
- d. agility

19. Plasmids

- a. never tranfered to next generation
- b. always inert
- c self replicating
- d. dictates reproduction

20. Not a type of bacterial mutation

- a. deletion
- b. inertness of gene
- c. insertion
- d. substitution

21. Transposons

- a. running genes
- b. following gene
- c. promoters
- d. jumping genes.

22. Which of the following is not a danger of indiscriminate use of antimicrobial drugs

- a. Wide spread sensitization resulting in hypersensitivity and anaphylactic reaction, and drug rashes.
- b. Changing normal microbial flora leading to "super infection" due to over growth of drug-resistant micro-organism.
- c. Direct drug intoxicity Eg. renal and auditory nerve damage due to aminoglycosides toxicity.
- d. Masking serious infection without eradicating it.

23. Which of the following is not a function of antibodies

- a. Neutralization of toxin
- b. Promotion of phagocytosis
- c. Bacterial Lysis
- d. direct where pathogen to go

24. Which of the following is a function of lymphokines

- a. Release macrophage migration all over the body
- b. Chemotactic attraction of lymphocytes, macrophages and polymorphs to the site of infection.
- c. Unmitogenic activity.
- d. open leeway for more immunosuppression.

25. Normal flora prevent colonization by pathogenic micro-organisms and possible disease through the following, which phenomenon is not,

- a. Competition for nutrition with pathogenic bacteria
- b. Competition for binding sites with pathogenic bacteria.
- c. Mutual inhibition by their inciting their hosts to kill pathogenic bacteria..
- d. Mutual inhibition by bacteriocins.

26. **Pneumonia**; It is infection of the lung parenchyma.

Which of the following is not a causative agent for the above infection.

- a. *V. cholera*
- b. *S. pneumoniae*
- c. *S. aureus*
- d. *H. influenzae*

27. **Infection of gastrointestinal tract**; Host defense mechanisms to prevent GIT infection does not include.

- a. Gastric acidity
- b. Mucosal epithelium
- d. Heat
- c. Normal flora

28. Classification of chemical methods of sterilization and

Disinfection. Which one is not,

- a. Chemical agents that damage the cell membrane
- b. Chemical agents that denature proteins
- c. Chemical agents that modify functional groups of proteins and nucleic acids
- d. Chemicals that slow the growth of bacteria

29. Which of the following is the kingdom which gave birth to bacteriology studies

- a. Monera
- b. Fungi
- c. Animalia
- d. Protista

30. In bacterial taxonomy

- a. Genus comes before species
- b. species is the lowest taxon
- c. Genus name is always capitalized
- d. Species name is never capitalized