

MEDICAL MICROBIOLOGY AND IMMUNOLOGY

SECTION 1: MULTIPLE CHOICE QUESTION

(20 MARKS)

- 1. Fungi existing in two different morphological forms at two different environmental conditions are said to exhibit:-**
 - a) Polymorphism
 - b) Dimorphism
 - c) Commensalism
 - d) Bimorphism

- 2. The organism that causes vaginal yeast infection has the following characteristic:-**
 - a) Unicellular, Rounded fungi, Filamentous
 - b) Unicellular, Rounded fungi, Produce spores to reproduce
 - c) Multicellular, Filamentous, Produce spores to reproduce
 - d) Reproduce by budding, Unicellular, Rounded fungi

- 3. The factors that predispose one to fungal infections include:-**
 - a) Momentary exposure to antibiotic therapy and Surgical procedures
 - b) Irradiation therapy and Use of Immune boosting drugs
 - c) Age and Underlying diseases
 - d) Brief use of urinary catheters and Use of immunosuppressive drugs.

- 4. The characteristic features of prokaryotic cells are:-**
 - a) No nucleus, No organelles and cell wall is made of chitin
 - b) Divide by Binary fission, no nucleus and has one circular chromosome
 - c) No nucleus, no organelles and has linear chromosomes
 - d) No nucleus, divide by mitosis and no organelles.

- 5. The bacterial cell membrane has the following features:-**
 - a) Has two bi-lipid layers of phospholipids that have polar tails and non-polar heads.
 - b) Has a pili called fimbriae where DNA can be transferred between two bacteria
 - c) Some have a peritrichous flagella all around it for movement rather than attachment.

- d) Is permeable and molecules can move through by active transport along the concentration gradient.

6. Plasmids play the following role in a bacteria:-

- a) Contains extra genetic information for production of Toxins, Virulence and for drug resistance.
- b) Useful in transfer of genetic information from one organism within itself
- c) Have chromosomes that carries the genetic information and it duplicates before cell division.
- d) Contains extra genetic information for cell division, Virulence and nutrition.

7. The Gap between outer membrane and plasma membrane of Gram positive bacteria is called:-

- a) Mesoderm
- b) Metaderm
- c) Plasma
- d) Periplasma

8. The following are gram negative cocci:-

- a) *Moraxellac catarrhalis* and *Neisseria gonorrhoea*
- b) *Neisseria gonorrhoea* and *Haemophilus influenza*
- c) *Bordetella pertussis* and *Salmonella typhi*
- d) *Helicobacter pylori* and *Vibrio cholera*

9. The bacteria whose colonies appear diplococci characteristic are:-

- a) *Streptococcus pneumonia* and *Neisseria gonorrhea*
- b) *Streptococcus pneumonia* and *Neisseria meningitides*
- c) *Staphylococcus aureus* and *Neisseria gonorrhea*
- d) *Staphylococcus aureus* and *Neisseria gonorrhea*

10. 'Gangrene' is caused by:-

- a) *Clostridium botulinum*
- b) *Clostridium tetani*
- c) *Clostridium perfringens*
- d) *Clostridium difficile*

11. What is the correct order of staining reagents in Gram-Staining?

- a) Crystal violet, alcohol, iodine solution, safranin
- b) Crystal violet, iodine solution, alcohol, safranin
- c) Crystal violet, safranin, alcohol, iodine solution
- d) Iodine solution, crystal violet, alcohol, safranin

12. Phase of bacterial growth in which bacterial parent cell does not divide but metabolic activity is vigorous, named as:-

- a) Log phase
 - b) Lag phase
 - c) Stationary phase
 - d) Death phase
- 13. The process whereby bacteria, parasites, fungi and viruses enter the host cells or tissues and spread in the body is called:-**
- a) Virulence
 - b) Invasion
 - c) Pathogenicity
 - d) Toxigenicity
- 14. The features of innate immunity are:-**
- a) Specificity, Memory and tolerance
 - b) First line of defense, non-specific and has no memory
 - c) Second line of defense, non-specific and has no memory
 - d) Has memory, specific and acts as second line of defense.
- 15. An example of an antigen presenting cell is:-**
- a) Macrophages
 - b) Eosinophil
 - c) Lymphocytes
 - d) Mast cells
- 16. The type of immunity acquired through vaccination is called:-**
- a) Naturally acquired active immunity
 - b) Naturally acquired passive immunity
 - c) Artificially acquired active immunity
 - d) Artificially acquired passive immunity
- 17. The Immunoglobulin that is found in tears, breast milk, semen and vaginal secretions is:-**
- a) IgG
 - b) IgM
 - c) IgA
 - d) IgE

Mark true or false for question 18 (3 marks)

- 18. About viruses:-**
- a) Viruses Contain both DNA and RNA

- b) May have an envelope
- c) Have their own metabolism
- d) They are obligate extracellular parasites
- e) Contain Cell walls
- f) Reproduce by binary fission

SECTION 11:SHORT ANSWER QUESTIONS

(30 Marks)

1. Explain five (5) reasons why nurses need to study medical microbiology **(5marks)**
2. Draw a well labeled diagram of a bacterial cell **(5 Marks)**
3. Giving examples, explain three ways bacteria is classified based on shape **(3 marks)**
4. Explain primary and secondary immune response with the help of a sketch graph **(7 marks)**
5. Explain the difference between vertical and horizontal transmission of infections using a relevant example **(5 marks)**
6. State five (5) virulence factors of fungi **(5 marks)**

SECTION 11I: LONG ANSWER QUESTION

(20 Marks)

1. Viruses are transmissible inert micro-organisms that often rely on the hosts' metabolic activity to replicate and often trigger an immune response when they invade.
 - I. State five (5) morphological characteristics of viruses **(5 marks)**
 - II. Outline the replication cycle of a virus **(7 marks)**
 - III. Explain how T-Lymphocytes neutralize an attack by a virus **(8 marks).**

END