

I. Viral infections result in a variety of clinical diseases. Name one virus and discuss: transmission, clinical picture, treatment and prevention. (10 marks)

II. Sterilization procedures are essential for proper medical practice: (15 marks)

1. Define sterilization.
2. Enumerate the main methods of Sterilization.
3. Describe how to monitor steam sterilizers (autoclaves).

III. Discuss the following: (15 marks)

1. Penetration stage of virus replication.
2. structure and functions of bacterial Cell wall.
3. Catalase test.
4. Modes of hepatitis B virus (HBV) Transmission.
5. the characteristics of 'good quality' clinical specimen.

IV. Mention one function or use for each of the following: (20 marks)

1. Inclusion granules.
2. Cleaning.
3. Ribosomes
4. Mesosomes
5. Viral capsid
6. Viral Nucleic Acid (Genome)
7. Capsule
8. Flagella
9. Pili
10. Normal bacterial flora in the large intestine.

I. Choose the correct answer (20 marks)

1. Viruses are obligatory intracellular parasites because:

- a) They contain only one type of nucleic acid.
- b) They are the smallest infectious agents.
- c) They are inert particles with no metabolic activity.
- d) They are susceptible to antibiotics.
- e) All of the above.

2. Bacteriophage is:

- a) Plant virus
- b) Gram positive bacteria
- c) Gram negative bacteria
- d) Bacterial virus
- e) None of the above

3. Viruses ranging in size form:

- a) 20-300 nm.
- b) 200-300 nm
- c) 20-300 μm
- d) 200-300 μm
- e) None of the above

4. Staphylococci are:

- a) motile.
- b) spore forming bacteria.
- c) Gram +ve cocci arranged in chains.
- d) Produce catalase enzyme.
- e) None of the above

5. High-Level Disinfectants are effective against:

- a) All bacteria, including Mycobacterium tuberculosis.
- b) All bacteria, except Mycobacterium tuberculosis.
- c) Enveloped viruses only.
- d) b&c.

6. The primary stain in Gram's is:

- a) Dil. carbol fuchsin
- b) Methyl violet
- c) Methylene blue
- d) Strong carbol fuchsin
- e) Ethyl alcohol

7. Gram-negative bacilli stained by Gram's stain appear:

- a) Violet
- b) Blue
- c) Pink
- d) Colourless
- e) brown

8. Regarding prokaryotes, all the following statements are correct

EXCEPT:

- a) Ribosomes are 70 S
- b) No mitochondria
- c) Divide by mitosis
- d) Bacteria and rickettsia are examples of prokaryotic cells
- e) Contain single circular chromosome.

9. Gram-negative cell wall characterized by:

- a) Stained violet with Gram stain.
- b) contain 40 sheets of peptidoglycan.
- c) decolorized with ethyl alcohol.
- d) Composed of peptidoglycan and teichoic acid.
- e) None of the above.

10. Cell wall is an essential structure in bacteria, the main function of cell wall is:

- a) Respiration.
- b) Energy production.
- c) Selective transport.
- d) Protect bacteria against external environment.
- e) Cell membrane biosynthesis.

II. Put true (✓) or false (X): (10 marks)

1. Gram-negative cell wall contain 40 sheets of peptidoglycan. ()
2. Prokaryotes divide by mitosis. ()
3. Pseudomonas aeruginosa is a major cause of hospital acquired
(nosocomial) infections. ()
4. Eukaryotic nucleus contains multiple chromosomes. ()
5. Bacteria and rickettsia are examples of prokaryotic cells. ()
6. Bacteremia means bacterial invasion of bloodstream. ()
7. Salmonella is the most common cause of urinary tract infection. ()
8. Prokaryotes Contain mitochondria and other organelles. ()
9. Eukaryotic ribosomes are 80 S. ()
10. Staphylococcus aureus enterotoxin change food taste, color and odor.
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