

SUM-2023
13/5/23

Seat Number

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PANKH-54

BP-303-T

Pharmaceutical Microbiology

(723303)

Total Pages : 7]

Time : 3 Hours

Max Marks : 75

Note : (1) Do not write anything on question paper except Seat No.

(2) Students should note, no supplement will be provided.

1. Answer all the multiple choice questions : 20

(i) Structure of 'Prokaryotic DNA' is called :

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|--------------|---------------------|
| (a) Ribosome | (b) Cytoplasm |
| (c) Nucleoid | (d) Plasma membrane |

(ii) Which of the following group of bacteria is considered as link between bacteria and virus ?

- | | |
|-------------------|------------------|
| (a) Mycoplasmas | (b) Spirochaetes |
| (c) Actinomycetes | (d) Vibrios |

(iii) In Gram staining iodine is used as :

- | | |
|-----------------|-------------|
| (a) Fixative | (b) Mordant |
| (c) Solubilizer | (d) Stain |

(iv) Which is a form of cold sterilization ?

- | | |
|----------------|-------------------------|
| (a) UV rays | (b) Infrared rays |
| (c) Gamma rays | (d) Steam sterilization |

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- (v) Which of the following disinfectants act by disrupting microbial membranes ?
- (a) Cationic detergents (b) Halogens
(c) Heavy metals (d) Aldehydes
- (vi) T_2 phage is
- (a) ds DNA phage (b) ss DNA phage
(c) ss RNA phage (d) ds RNA phage
- (vii) In microbiological assay of streptomycin sulphate by diffusion method the test microorganism is :
- (a) *Saccharomyces cerevisiae* ATCC 9763
(b) *Mycobacterium smegmatis* ATCC 607
(c) *Micrococcus luteus* ATCC 9341
(d) *Bacillus subtilis* ATCC 6633
- (viii) For assay of Vitamin B_2 test microorganism is
- (a) *Enterococcus hirae* ATCC 10541
(b) *Staphylococcus aureus* ATCC 6538 P
(c) *Mycobacterium smegmatis* ATCC 607
(d) *Lactobacillus helveticus* ATCC 7469

- (ix) For assay of cysteine the test microorganism is
- (a) *Bacillus subtilis* ATCC 6633
 - (b) *Mycobacterium smegmatis* ATCC 607
 - (c) *Saccharomyces cerevisiae* ATCC 9763
 - (d) *Lactobacillus arabinosus*
- (x) If you were given a specimen of an active motile microorganism, which of the following microscopy would be most effective in visualizing it ?
- (a) Phase-contrast
 - (b) Bright field
 - (c) Dark field
 - (d) None of these
- (xi) A differential stain that detects if cells are capable of retaining a primary stain when treated with acid alcohol and to identify bacteria *Mycobacterium tuberculosis* is
- (a) Carbol-fuchsin
 - (b) Acid fast stain
 - (c) Mycolic acid
 - (d) Acid alcohol
- (xii) What would you see using a dark field microscope on bacteria that transmit light without reflecting it into the objective lens ?
- (a) Dark bacteria on bright background
 - (b) Bright bacteria on dark background
 - (c) Bright bacteria on bright background
 - (d) Fluorescent bacteria on dark background.

(xiii) For assay of Inositol the test microorganism is

- (a) *S. Carisburgenesis* ATCC 9084
- (b) *Neurospora crossa*
- (c) *L. casei* ATCC 7469
- (d) None of the above

(xiv) For assay of Gentamicin sulphate by turbidimetric method :

- (a) *Enterococcus hirae* ATCC 10541
- (b) *Staphylococcus aureus* ATCC 6538 P
- (c) *Lactobacillus helveticus* 7469
- (d) *Lactobacillus fermenti* ATCC 9338

(xv) HEPA have efficiency for removal of 0.3 μm diameter or larger particulate matter.

- (a) 99.71 %
- (b) 79.99 %
- (c) 67.99%
- (d) 54.98 %

(xvi) Bacteriophages that induce bacterial cell lysis are called

- (a) Temperate phages
- (b) Virulent phages
- (c) Lysogenic phages
- (d) Viroids

(xvii) is used to prevent infection by killing or inhibiting pathogen growth on animal tissue.

- (a) Bacteriostatic agent
- (b) Disinfectant
- (c) Sterilant
- (d) Antiseptic

(xviii) In gram staining the alcohol acts on

- (a) Teichoic acid
- (b) Periplasm
- (c) Membrane lipids
- (d) Peptidoglycan

(xix) Cork-screw shaped form of bacteria is :

- (a) Bacilli
- (b) Stalued bacteria
- (c) Spirochaetes
- (d) Actinomycetes

(xx) Number of chromosomes in eukaryotes cell is :

- (a) Single chromosome
- (b) Multiple chromosome
- (c) No chorosome
- (d) Double chromosome

2. Answer the following long questions (any 2 out of 3) : 20
- (1) Describe the method of microbial standardization of streptomycin.
 - (2) Enumerate the parameters for designing of Aseptic area.
 - (3) Explain the reproduction/replication of viruses along with cultivation techniques of viruses.

3. Answer the following short questions (any 7 out of 9) : 35
- (1) What is working principle of dark field microscopy ? Is it advantageous compared to phase contrast microscopy ?
 - (2) What is IMViC series of test ? Explain the principle, procedure and results of all four tests.
 - (3) Define sterility testing of products. Elaborate sterility testing methods for :
 - (a) Filtrable pharmaceutical product
 - (b) Non-filtrable pharmaceutical product.
 - (c) Product such as transfusion, infusion assemblies
 - (4) Define chemical indicators for sterilization. What are the different types of chemical indicators for sterilization ?
 - (5) What are sources of contamination in aseptic area and which are the methods of its prevention.

- (6) What are antimicrobial agents ? Discuss the preservation of pharmaceutical product using antimicrobial agents.
- (7) Compare and contrast the disk diffusion, use dilution and in-use methods for testing effectiveness of antiseptics and disinfectants.
- (8) Why do we need additional elements of value for antibiotic ?
- (9) What is microbial spoilage of pharmaceutical product ? Explain the factors affecting the microbial spoilage of pharmaceutical product.