



# BRAINWARE UNIVERSITY

**Term End Examination 2021 - 22**

**Programme – Bachelor of Science in Operation Theatre Technology**

**Course Name – Clinical Microbiology**

**Course Code - BOTT201**

**( Semester II )**

**Time allotted : 1 Hrs.15 Min.**

**Full Marks : 60**

[The figure in the margin indicates full marks.]

## Group-A

(Multiple Choice Type Question)

1 x 60=60

*Choose the correct alternative from the following :*

- (1) Father of microbiology
 

a) Alexander Fleming	b) Leeuwenhoek
c) Louis Pasteur	d) Robert Koch
- (2) Gram positive bacteria contain
 

a) Peptidoglycan	b) Teichoic acids
c) Polysaccharide O Antigen	d) Both option 1 and 2
- (3) Ethylene Oxide is
 

a) physical sterilant	b) chemical sterilant
c) gas vapor sterilant	d) liquid sterilant
- (4) For Gram staining, primary stain is
 

a) safranin	b) acid fuchsin
c) iodine	d) crystal violet
- (5) Basic dye is used for bacterial cell staining purpose because
 

a) cell wall components is negative in charge	b) cell wall component is neutral in charge
c) cell wall component is positive in charge	d) basic dye contain iodine as mordant
- (6) Bacterial chromosome is known as
 

a) nucleoid	b) nucleus
c) mesosome	d) ssDNA
- (7) Spores are killed by
 

a) Boiling at 100 degree C	b) Pasteurization
c) Autoclave	d) Filtration

- (8) Phenol is antimicrobial because
- a) it can disrupt cell membrane structure
  - b) it can prevent replication process
  - c) it can damage DNA strand
  - d) it can absorb water from cell
- (9) Bacteriostatic agents
- a) kill the bacteria
  - b) kill only pathogenic bacteria
  - c) kill bacterial spore only
  - d) prevent the growth of bacteria
- (10) What is the inner surface of autoclaves made of?
- a) Mild steel
  - b) Stainless steel
  - c) Copper
  - d) Aluminum
- (11) Temperature for Vat pasteurization is
- a) 130 degree C for 1 sec
  - b) 60 degree C for 20min
  - c) 72 degree C for 15 sec
  - d) All of these
- (12) Cell division <<<<<< Cell death is characteristics of
- a) Lag phase
  - b) log phase
  - c) Stationary phase
  - d) Death phase
- (13) 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
- (14) Free radicals responsible to
- a) damage cell membrane
  - b) damage DNA
  - c) destroy lipid material of cell
  - d) All of these
- (15) An obligate halophile requires high
- a) Salt
  - b) pH
  - c) temperature
  - d) Both salt and pH
- (16) The major component of agar is
- a) Fat
  - b) Polysaccharides
  - c) Amino acids
  - d) monosaccharide
- (17) Which of the following method is best to sterilize heat labile solutions
- a) Hot air oven
  - b) Autoclave
  - c) Dry heat
  - d) Membrane Filtration
- (18) In which phase would you expect to observe the most endospores in a Bacillus cell culture?
- a) Log phase
  - b) Lag phase
  - c) Death phase
  - d) Stationary phase
- (19) Main site for S. aureus colonization is
- a) Skin
  - b) Nose
  - c) Ear
  - d) Stomach
- (20) In the growth equation:  $n = 3.3 (\log_{10} N - \log_{10} N_0)$ , n stands for \_\_\_\_\_
- a) Growth rate
  - b) Total population
  - c) Number of generations
  - d) Generation time

- (21) \_\_ used for fumigation in OT. Sterilizing instrument
- a) Halogen
  - b) Formaldehyde
  - c) Alcohol
  - d) UV ray
- (22) What is the approximate size of the bacterial cell?
- a) 2mm in diameter
  - b) 1mm in diameter
  - c) 2 micrometer in diameter
  - d) 0.5 to 1.0 micrometer in diameter
- (23) Which of the following are true for Gram-negative bacteria?
- a) upon alcohol treatment, the permeability of the cell wall increases
  - b) crystal violet-iodine (CV-I) complex is extracted
  - c) pore size decreases and the CV-I complex cannot be extracted
  - d) alcohol treatment increases the permeability of the cell wall and the CV-I complex can be extracted
- (24) Bacteria are:
- a) Mesokaryotic
  - b) Acellular
  - c) Prokaryotic
  - d) eukaryotic
- (25) Mordant used in grams staining is
- a) Crystal violet
  - b) Iodine
  - c) Saffranin
  - d) Alcohol and Acetone
- (26) Rapid bacterial growth phase is known as
- a) Lag phase
  - b) Log Phase
  - c) Both lag and log phase
  - d) none of these
- (27) The association of endotoxin in Gram-negative bacteria is a result of the presence of:
- a) Peptidoglycan
  - b) Lipopolysaccharides
  - c) Calcified proteins
  - d) Sterol
- (28) In autoclaving, the temperature and pressure and time reached is
- a) 121°C at 14.5 lb/in for 15 min
  - b) 110°C at 14/5 lb/in for 20 min
  - c) 115°C at 16 lb/in for 20 min
  - d) 116°C at 16 lb/in for 20 min
- (29) Techoic acid is present in \_\_\_\_\_
- a) Cell wall of Gram positive organisms
  - b) Cytoplasm of Gram positive organisms
  - c) Cell wall of Gram negative organisms
  - d) Cytoplasm of Gram negative organisms
- (30) A bacteriological stain also known as the differential stain is used for the identification of acid-fast organisms, what is the name of the stain?
- a) Negative stain
  - b) Gram stain
  - c) Ziehl-Neelsen stain
  - d) Schaeffer Fulton stain
- (31) Which phase shows the reproduction rate equal to the equivalent death rate?
- a) Log phase
  - b) Stationary phase
  - c) Death phase
  - d) Lag phase
- (32) The bacterium Staphylococcus aureus is which type of bacteria?
- a) Mesophile
  - b) Mesophile and psychrophile
  - c) Psychrophile
  - d) Thermophile
- (33) The iodine used in Gram staining serves as a
- a) Mordent
  - b) Cheletor
  - c) Catalyst
  - d) Dye

- (34) Which of the following terms refers to a prokaryotic cell that is comma shaped?
- a) Coccus  
b) Vibrio  
c) Bacillus  
d) Palisade
- (35) Endospore is formed by
- a) Gram negative bacteria  
b) Gram positive bacteria  
c) Gram variable bacteria  
d) All of these
- (36) In which of the following phase secondary metabolites are produced during growth?
- a) Lag phase  
b) Log/Exponential phase  
c) Stationary phase  
d) Death phase
- (37) Flagella in bacteria enable them to
- a) Reproduce  
b) Locomote  
c) Conjugate  
d) Adhere to tissue surfaces
- (38) Peptidoglycan layer synthesis is inhibited by
- a) Streptomycin  
b) penicillin  
c) tetracyclines  
d) All of the above
- (39) Streptomycin is produced by
- a) *S. griseus*  
b) *S. griseoflavus*  
c) *S. aerofaciens*  
d) *S. ramosus*
- (40) How many types of antibodies are there?
- a) 4  
b) 5  
c) 3  
d) 10
- (41) Which one is more immunogenic ?
- a) molecule with molecular weight 10 Da  
b) Molecule with only glucose moiety  
c) Molecule with 8 different amino acids  
d) Self high molecular weight protein molecule
- (42) Skin can act as innate immunity part due to
- a) Basic pH of skin  
b) Acidic pH of skin  
c) Neutral pH of skin  
d) High temperature of skin
- (43) Which of the following systems protects our body against disease-causing microbes?
- a) Immune system  
b) Digestive system  
c) Excretory system  
d) Respiratory system
- (44) B-cells and T-cells are two types of cells involved in \_\_\_\_
- a) Innate Immunity  
b) Active immunity  
c) Passive immunity  
d) Acquired immunity
- (45) Which type of hypersensitivity reaction is known as a delayed hypersensitivity reaction?
- a) Type I  
b) Type II  
c) Type IV  
d) Type V
- (46) Transplanted graft may be rejected due to
- a) cell-mediated immune response  
b) humoral immune response  
c) innate immune response  
d) passive response
- (47) Antigen binding sites are present in
- a) Fab regions of an antibody  
b) Fc region of an antibody  
c) only in the light chain  
d) only in the heavy chain

- (48) This is the main symptom of Tuberculosis
- |                     |                       |
|---------------------|-----------------------|
| a) Liquid formation | b) Tubercle formation |
| c) Pus formation    | d) None of these      |
- (49) Which of the following is an important HIV antigen in determining the early detection of HIV infection?
- |             |                 |
|-------------|-----------------|
| a) p24      | b) gp120        |
| c) pol gene | d) All of these |
- (50) This form of Hepatitis could be passed via contaminated water or food
- |            |                     |
|------------|---------------------|
| a) A and E | b) C                |
| c) B       | d) All of the above |
- (51) Nelidixic Acid is ----- group of antibiotic
- |                 |                      |
|-----------------|----------------------|
| a) Beta Lactams | b) Quinolone         |
| c) Macrolide    | d) None of the above |
- (52) TAB vaccine is useful against
- |              |               |
|--------------|---------------|
| a) Polio     | b) Diphtheria |
| c) Pertussis | d) Typhoid    |
- (53) A sexually transmitted bacterial disease is
- |           |              |
|-----------|--------------|
| a) AIDS   | b) Syphilis  |
| c) Herpes | d) Hepatitis |
- (54) Immune deficiency syndrome could develop due to
- |                    |                     |
|--------------------|---------------------|
| a) Defective liver | b) Defective thymus |
| c) AIDS virus      | d) None of these    |
- (55) SARS-Cov contain
- |          |                 |
|----------|-----------------|
| a) dsRNA | b) ssRNA        |
| c) dsDNA | d) All of these |
- (56) Aspergillus lives in
- |            |            |
|------------|------------|
| a) Soil    | b) Water   |
| c) Streams | d) Dryland |
- (57) Which of the following agent is used to prevent Malaria
- |                        |                |
|------------------------|----------------|
| a) Mebendazole         | b) Chloroquine |
| c) Inactivated vaccine | d) Zinc table  |
- (58) Whooping cough" in children is caused by which of the following pathogen?
- |                               |                          |
|-------------------------------|--------------------------|
| a) Streptococcus pneumoniae   | b) Bordetella pertussis  |
| c) Mycobacterium tuberculosis | d) Mycoplasma pneumoniae |
- (59) All of the following are the most common pathogens that can cause pharyngitis/sore throat, Except?
- |                           |                         |
|---------------------------|-------------------------|
| a) Streptococcus pyogenes | b) Herpes Simplex virus |
| c) Adenovirus             | d) Candida albicans     |
- (60) The most common cause of UTI is ?
- |                     |                          |
|---------------------|--------------------------|
| a) Escherichia coli | b) Staphylococcus aureus |
| c) Chlamydia        | d) Mycoplasma            |