



## BRAINWARE UNIVERSITY

**Term End Examination 2021 - 22**

**Programme – Bachelor of Science (Honours) in Biotechnology**

**Course Name – Basic Laboratory Sciences and Clinical Techniques**

**Course Code - GEAHS401**

**( Semester IV )**

**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) In light microscopy, which of the following is used as fixatives prior to staining technique?
- |               |                                     |
|---------------|-------------------------------------|
| a) Osmic acid | b) Glutaraldehyde                   |
| c) Heat       | d) Osmic acid, glutaraldehyde, heat |
- (2) In Phase contrast microscopy, the rate at which light enters through objects is \_\_\_\_\_
- |  |   |
|--|---|
| a) Constant  | b) Inversely proportional to their refractive indices |
| c) Directly proportional to their refractive indices | d) Exponentially related to their refractive indices  |
- (3) Which part of the compound microscope helps in gathering and focusing light rays on the specimen to be viewed?
- |                   |                    |
|-------------------|--------------------|
| a) Eyepiece lens  | b) Objective lens  |
| c) Condenser lens | d) Magnifying lens |
- (4) Resolving power of a microscope is a function of \_\_\_\_\_
- |                             |   |
|-----------------------------|---|
| a) Wavelength of light used | b) Numerical aperture of lens system                              |
| c) Refractive index         | d) Wavelength of light used and numerical aperture of lens system |
- (5) The greatest resolution in light microscopy can be obtained with \_\_\_\_\_
- |   |   |
|---|---|
| a) Longest wavelength of visible light used | b) An objective with minimum numerical aperture |
|---|---|

- c) Shortest wavelength of visible light used      d) Shortest wavelength of visible light used and an objective with the maximum numerical aperture
- (6) Which of the microscopes below is usually good for use on unstained specimens?  
 a) Phase-contrast      b) fluorescence  
 c) bright-field      d) transmission electron microscopy
- (7) Which of the microscopes below form images in visible light?  
 a) bright-field      b) dark field  
 c) fluorescence      d) both b and c
- (8) Scanning electron microscopy is most often used to reveal \_\_\_\_\_  
 a) surface morphology      b) internal structures  
 c) both surface and internal structures simultaneously      d) either surface or internal structures, but not simultaneously
- (9) The resolving power of unaided human eye is  
 a) 1 cm      b) 100 um  
 c) 200nm      d) 400nm
- (10) Which of the following is used in electron microscope?  
 a) electron beams      b) magnetic fields  
 c) light waves      d) electron beams and magnetic fields
- (11) Which of the following are true for electron microscopy?  
 a) specimen should be thin and dry, image is obtained on a phosphorescent screen and electron beam must pass through evacuated chamber      b) electron beam must pass through evacuated chamber  
 c) image is obtained on a phosphorescent screen      d) specimen should be thin and dry
- (12) Which of the following light is suitable for maximum resolution  
 a) Red      b) blue  
 c) green      d) orange
- (13) What mordant is used in Gram staining?  
 a) crystal violet      b) safranin  
 c) acid-alcohol      d) iodine
- (14) Who is the probable inventor of the compound microscope?  
 a) Girolamo Fracastoro      b) Zaccharias Janssen  
 c) Antonie van Leeuwenhoek      d) Robert Hooke
- (15) Photobleaching refers to  
 a) Oxidative damage of visualized cell      b) heating the sample  
 c) Overlapping of the planes      d) All of these
- (16) In fluorescence, mitochondria stained through Mito-tracker appears  
 a) Red      b) Green  
 c) blue      d) purple
- (17) In fluorescence, actin cytoskeleton stained through phalloidin derivatives appears  
 a) purple      b) Green







- (54) Heat coagulation test of urine is performed to check
- a) Protrins
  - b) Ketone bodies
  - c) bile salt
  - d) Cells
- (55) To demonstrate the similarity between different animal species with reference to some specific protein coding is called
- a) Phylogenetic plot
  - b) Zoo plot
  - c) Animal profiling
  - d) Garden blot
- (56) Which of the following spectroscopy techniques is associated with molecular emission?
- a) UV-Visible spectroscopy
  - b) IR spectroscopy
  - c) Fluorescence spectroscopy
  - d) X-ray diffraction
- (57) The polymerase chain reaction is \_\_\_\_\_
- a) It is a DNA sequencing technique.
  - b) It is a DNA degradation technique
  - c) It is a DNA amplification technique
  - d) All of these
- (58) Western blotting technique is the detection of
- a) specific DNA in a sample
  - b) specific RNA in a sample
  - c) specific protein in a sample
  - d) specific glycolipid in a sample
- (59) What is used to transfer nucleic acid from gels to membranes for further analysis?
- a) Gel electrophoresis
  - b) PFGE
  - c) Blotting
  - d) PCR
- (60) When was the original method of southern blotting developed?
- a) 1975
  - b) 1964
  - c) 1954
  - d) 1944