

## **SEM II: EXAMINATION**

**COURSE NAME: BIOMEDICAL TECHNIQUE INSTRUMENTATION II.**

**COURSE CODE: BMD-227**

**YEAR OF STUDY: 2**

**ACADEMIC YEAR: 2017/2018**

### **INSTRUCTION**

- 1. WRITE YOUR UNIVERSITY REGISTRATION NUMBER ON EVERY SHEET OF PAPER USED**
- 2. SECTION A COMPRISES OF 20 MULTIPLE QUATTIONS**
- 3. SECTION B COMPRISES OF 5 SHORT ANSWER QUESTIONS WHICH ARE COMPULSORY**
- 4. SECTION C COMPRISES OF 3 ESSAY QUESTIONS IN WHICH TWO MUST BE ANSWEERED**

### **TIME TWO HOURS**

#### **SECTION A (20MKS)**

1. Which Of the Following Is Not A Radioactive Decay
  - a. Negetronemision
  - b. Postron Emissionc.
  - c. Alfa Particlesd. Gamma Rays
  - d. Beta Particles
2. Which of the following is not true about the application of radioactivity?
  - a. used for therapeutics
  - b. Fused for sterilization
  - c. used for diagnosis
  - d. can be used as a tool of maintaining instruments
3. The following are true about atoms except
  - a. smallest component of an element having the chemical properties of the element
  - b. consist of positively charged nucleus surrounded by negatively charged electrons
  - c. the nucleus is made up positively charged protons and uncharged neutronsd.
  - d. they are positively charged have beta particles
- 4 what is half-life life of 3H istope
  - a. 12.26 year
  - b. 5760 years,
  - c. 14.20 days
  - d. 30 minutes
5. The following are the SI units for radio activity except
  - a. Becquerel
  - b. curie

- c. a and b
  - d. 3-8 mev
6. Materials to be viewed under an electron microscope may require processing to produce a suitable sample, which of the following is not a technique for processing the sample
- a. dehydration
  - b. gram staining
  - c. chemical fixation
  - d. cryofixation
7. when was the first electromagnetic lens developed
- a. 1929
  - b. 1931
  - c. 1938
  - d. 1939
8. An electron microscopes are used to investigate the ultrastructure of a wide range of biological and organic specimens except;
- a. micro organisms
  - b. cells
  - c. biopsy samples
  - d. metal shadowing
9. which of the following is not part of an electron microscope
- a. electron gun
  - b. electron beam
  - c. specimen holder
  - d. specimen mixer
10. Inn spectrophotometry, which of the following is photo ditector array
- a. InGaAS
  - b. Si multielement
  - c. a and b
  - d.  $\beta$  max
11. when making many copies of DNA what machine can you use,
- a. eliza machine
  - b. PCR machine
  - c. spectrophotometer
  - d. photocopy
12. which of the following steps takes place in the a PCR machine
- a. denaturisation
  - b. amplification
  - c. annealing
  - d. all the above
  - e. none of the above
13. The following are true about centrifuges except
- a. separating cell types from one another
  - b. isolating viruses and micro molecules

- c. separating dispersed tissues from various sub cellular organalesd.
  - d. separating organ from systems
14. Which of the following can affect centrifugation?
- a. speed
  - b. density
  - c. centrifugal force
  - d. all of the above
  - e. none of the above
15. In spectrophotometry which of the following is not true
- a. take in light
  - b. break the light into spectro components
  - c. digitize signal as a function of a wave length
  - d. reads the wave length and display it via a computer
  - e. reflects light
16. In eliza the function of elizareader is to;
- a. quantify the concentration of the material in question
  - b. screen the viruses
  - c. diffracting the light
  - d. isolating viruses and other micromolecules
17. The following are used in eliza except
- a. eliza washer
  - b. multichannel pippet
  - c. antibody& antigen
  - d. enzyme/ substrate
  - e. proteins & substrates
18. Which of the following is not an electron microscope?
- a. scanning electron microscope
  - b. transmission electron microscop
  - c. reflection electron microscope
  - d. defraction electron microscope
19. Which of the following comprises of an atomic number?
- a. number of protons
  - b. number of neutrons
  - c. number of electrons
  - d. a&c
20. The stability of an atom is dependent on.
- a. neutron proton ratio
  - b. neutron atomic number ratio
  - c. a&b above
  - d. Mass number neutron ratio

SECTION B (20MKS)

- 1 Name the different types of spectrophotometers
2. What is the working principle of a PCR machine
3. Name the different types of radioactive decay
4. Compare and contrast an electron microscope
5. Name the main uses of centrifugation

SECTION C (20mks)

1. Describe the application of radioactive decay in biomedical assays.
2. Describe in details how centrifuges can be used in dispersing and separating tissues of subcellular organalles
3. Describe how a spectrophotometer works.