

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****II B.Tech. II Sem., II Mid-Term Examinations, April – 2014****ANALYTICAL METHODS IN BIOTECHNOLOGY****Objective Exam**

Name: \_\_\_\_\_ Hall Ticket No.

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**Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.****I Choose the correct alternative:**

- In measuring the radioactive decay rates, the symbol is generally used for [ ]  
a) Length of Particle    b) no. of decays per minute    c) mean life time    d) decay constant
- The sedimentation coefficient has the dimensions of a unit tie and is expressed in [ ]  
a) Wevers    b) Petbergs    c) Per Second    d) Svedbergs
- is the most common method used for uranium enrichment relying on the slight mass difference between atoms of U238 and U235 in uranium hexafluoride gas. [ ]  
a) Centrifugation    b) Sedimentation    c) Flocculation    d) Filtration
- Filtration is a more efficient method for the separation of mixtures than decantation, but is ----- [ ]  
a) Inaccurate    b) very expensive    c) more time consuming    d) not reliable
- In case of ----- electrophoresis, all ions, positive or negative, are pulled through in the same direction by electroosmotic flow [ ]  
a) Capillary    b) Pulse field    c) 1D gel    d) 2D gel
- Common Solvents combination used include ay miscible combination of water or various organic liquids in HPLC which is most successful is [ ]  
a) Methanol and ethaol    b) Acetic acid and acetonitrile  
c) Methanol and acetonitrile    d) Ethanol and acetic acid
- What makes polarography different from other linear sweep voltametry measurement is that polarography makes use of the ----- [ ]  
a) Capillary mercury electrode (CME)    b) Electromagnetic mercury electrode (EME)  
c) Dropping magnetic electrode (DME)    d) Dropping mercury electrode (DME)
- occurs when the neutron to proton ratio is too small. [ ]  
a) Positron emission    b) Alpha decay    c) Beta decay    d) Gamma decay
- Scintillators often convert a single photon of high energy radiation into high number of lowerenergy photons where the number of photons per----- of input energy is fairly constant. [ ]  
a) Megaelectronvolt    b) Gigaelectronvolt    c) teraelectronvolt    d) nanoelectronvolt
- Potentiometry is the field of electroanalytical chemistry in which potential is measured under the conditions of ----- current flow. [ ]  
a) Moderate    b) heavy    c) No    d) very low

**Cont.....2**

**II Fill in the blanks:**

11. ----- is the tendency for particle in suspension to settle out of the fluid in which they are entrained and come to rest against a barrier.
12. The sedimentation speed  $v_t$  ( in  $\text{ms}^{-1}$ ) is also known as the \_\_\_\_\_
13. Gas chromatography is also similar to \_\_\_\_\_ since both processes separate the components of a mixture primarily based on boiling point \_\_\_\_\_ (Vapor pressure) differences
14. TLC refers to \_\_\_\_\_
15. \_\_\_\_\_ occurs when the neutron to proton ratio is great in the nucleus and causes instability.
16. The SI unit of radioactivity which is defined as one transformation ( or decay) per second is \_\_\_\_\_
17. The \_\_\_\_\_ tube ( a counter to detect the presence and intensity of radiation) is one form of a class of radiation detectors called gaseous detectors or simply gas detectors.
18. The \_\_\_\_\_ may be defined as the ration of the distance travelled by the substance to the distance travelled by the solvent.
19. The reason alpha decay occurs is because the nucleus has too many protons which cause excessive \_\_\_\_\_
20. In \_\_\_\_\_ paper chromatography method, the solvent is kept in a trough at the top o the chamber and is allowed to flow down the paper.

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**Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.****I Choose the correct alternative:**

1. Filtration is a more efficient method for the separation of mixtures than decantation, but is ----- [      ]  
a) Inaccurate                      b) very expensive                      c) more time consuming                      d) not reliable
2. In case of ----- electrophoresis, all ions, positive or negative, are pulled through in the same direction by electroosmotic flow [      ]  
a) Capillary                      b) Pulse field                      c) 1D gel                      d) 2D gel
3. Common Solvents combination used include any miscible combination of water or various organic liquids in HPLC which is most successful is [      ]  
a) Methanol and ethanol                      b) Acetic acid and acetonitrile  
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4. What makes polarography different from other linear sweep voltammetry measurement is that polarography makes use of the ----- [      ]  
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5. -----occurs when the neutron to proton ratio is too small. [      ]  
a) Positron emission                      b) Alpha decay                      c) Beta decay                      d) Gamma decay
6. Scintillators often convert a single photon of high energy radiation into high number of lower energy photons where the number of photons per----- of input energy is fairly constant. [      ]  
a) Megaelectronvolt                      b) Gigaelectronvolt                      c) teraelectronvolt                      d) nanoelectronvolt
7. Potentiometry is the field of electroanalytical chemistry in which potential is measured under the conditions of ----- current flow. [      ]  
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8. In measuring the radioactive decay rates, the symbol  $\lambda$  is generally used for [      ]  
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9. The sedimentation coefficient has the dimensions of a unit time and is expressed in [      ]  
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10. ----- is the most common method used for uranium enrichment relying on the slight mass difference between atoms of U238 and U235 in uranium hexafluoride gas. [      ]  
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II B.Tech. II Sem., II Mid-Term Examinations, April – 2014

## ANALYTICAL METHODS IN BIOTECHNOLOGY

## Objective Exam

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