

SEM	SET	PAPER CODE	TITLE OF THE PAPER
II	2014	14PBO2202A	BIOPHYSICS AND INSTRUMENTATION

SECTION - A**Answer all the questions:****30 × 1 = 30****Choose the correct answer:**

- It is the sum of the internal energy and the product of pressure and volume given by the equation.
 - Free energy
 - Entropy
 - High energy
 - Enthalpy
- It is a measure of disorder.
 - Entropy
 - High energy
 - Enthalpy
 - Uniform
- _____ is considered by biologists to be the energy currency of life.
 - ATP
 - NAA
 - NADPH
 - FAD
- It is a field of biochemistry that concerns energy flow through living systems
 - Biophysics
 - Biology
 - Bioenergetics
 - Autoradiography
- The third phosphate bond in ATP is called as
 - High energy bond
 - Low energy bond
 - Medium energy bond
 - No energy bond
- The first law of thermodynamics is a version of the law of conservation of
 - Energy
 - Power
 - Heat
 - Oxidation

7. Reduction potential is measured in
- a) Volts (V)
 - b) Joule
 - c) Watt
 - d) Curie
8. The development and application of optical techniques, particularly imaging, to the study of biological modules, cells and tissue is called as.
- a) Biophotonics
 - b) Biophysics
 - c) Microscopy
 - d) Bioinstrumentation
9. It is the spontaneous net movement of solvent molecules through a semi-permeable membrane into a region of higher solute concentration.
- a) Sedimentation
 - b) Osmosis
 - c) Diffusion
 - d) Reduction
10. _____ gives a formula that relates the numerical values of the concentration gradient to the electric gradient that balances it.
- a) Charles law
 - b) Boyles' law
 - c) Nernst equation
 - d) Magnification
11. When two solutions separated by a semi permeable membrane, having equal concentrations of solutes and water.
- a) Hypotonic solution
 - b) Hypertonic solution
 - c) Supertonic solution
 - d) Isotonic solution
12. Capacity of an instrument to resolve two points which are close together is called as.
- a) Resolving power
 - b) Magnification
 - c) Osmosis
 - d) Diffusion
13. A microscope that uses accelerated electrons as a source of illumination
- a) Electron microscope
 - b) Fluorescent microscope
 - c) Optical fiber microscope
 - d) Light microscope
14. A fluorescence microscope is an _____ microscope.
- a) Electron
 - b) Dark field
 - c) Phase contrast
 - d) Optical

15. _____ is the process of enlarging something only in appearance, not in physical size
- a) Resolving power b) Magnification
c) Osmosis d) Diffusion
16. It is an optical microscopy technique that converts phase shifts in light passing through a transparent specimen to brightness changes in the image.
- a) Electron b) Dark field
c) Phase contrast d) Optical
17. It describes microscopy methods, in both light and electron microscopy, which exclude the unscattered beam from the image.
- a) Electron b) Dark field
c) Phase contrast d) Optical
18. It is the simplest of all the optical microscopy illumination techniques.
- a) Electron b) Bright field
c) Phase contrast d) Optical
19. Density gradient centrifugation is otherwise called as
- a) Isopycnic technique b) Magnification
c) Osmosis d) Diffusion
20. A centrifuge optimized for spinning a rotor at very high speeds.
- a) Dark field microscopy b) Magnification
c) Ultracentrifuge d) Diffusion
21. The principle of chromatography is based on differential
- a) Adsorption b) Absorption
c) Osmosis d) Diffusion
22. One among the following is used to test the purity of a particular substance.
- a) GC b) HPTLC
c) Chromatography d) Electrophoresis

23. High performance thin layer chromatography (HPTLC) is an enhanced form of
- a) GC
 - b) TLC
 - c) Chromatography
 - d) Electrophoresis
24. The separation technique which involves size and density.
- a) Ultracentrifugation
 - b) Differential centrifugation
 - c) Osmosis
 - d) Diffusion
25. It is the linear relationship between absorbance and concentration of an absorbing species.
- a) Beer's Law
 - b) Charles Law
 - c) Boyles' Law
 - d) Beer – Lambert Law
26. _____ is an image on an X-ray film or nuclear emulsion produced by the pattern of decay emissions from a distribution of a radioactive substance.
- a) Autoradiograph
 - b) Differential centrifugation
 - c) Osmosis
 - d) Diffusion
27. It is a research technique that exploits the magnetic properties of certain atomic nuclei.
- a) Autoradiography
 - b) ESR
 - c) NMR
 - d) GM Counter
28. _____ is a technique for studying materials with unpaired electrons.
- a) Autoradiography
 - b) ESR
 - c) NMR
 - d) GM Counter
29. The principle of Flame photometry is based on
- a) Adsorption
 - b) Absorption
 - c) Osmosis
 - d) Emission
30. It is an isotope with an unstable nucleus.
- a) Adsorption
 - b) Radioisotopes
 - c) Osmosis
 - d) Emission
