



BRAINWARE UNIVERSITY

Term End Examination 2023-2024

Programme – B.Optomety-2022/B.Optomety-2023

Course Name – Ocular Biochemistry

Course Code - BOPTOC203

(Semester II)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

(i) Cite the name of antibody found in aqueous humour

- | | |
|----------------|----------------|
| a) IgA and IgD | b) IgG and IgM |
| c) IgA and IgE | d) IgE and IgM |

(ii) Pigment is observed in rod cell

- | | |
|--------------|--------------|
| a) Photopsin | b) Scotopsin |
| c) Iodopsin | d) Rhodopsin |

(iii) Myopia is described as-

- | | |
|---|--|
| a) a condition in which the visual images come to a focus in front of the retina of the eye | b) a condition in which the visual images come to a focus behind the retina of the eye |
| c) Inflammation in retina | d) Inflammation of the conjunctiva due to the accumulation of fluid |

(iv) Hypermetropia is described as-

- | | |
|---|--|
| a) a condition in which the visual images come to a focus in front of the retina of the eye | b) a condition in which the visual images come to a focus behind the retina of the eye |
| c) Inflammation in retina | d) Inflammation of the conjunctiva due to the accumulation of fluid |

(v) Lactose intolerance can be explained by-

- | | |
|--|---|
| a) Inability to digest significant amount of lactose | b) ability to digest significant amount of lactose |
| c) ability to digest significant amount of glucose | d) ability to digest significant amount of amino acid |

(vi) Proteins can be predicted directly in gels by-

- a) Staining them with the dye
c) Measuring their molecular weight
- (vii) Choose the correct statement regarding Buffer Solution
- a) It is a solution whose pH changes when a small amount of an acid or base is added to it.
c) It does not use pH value as a constant in a wide variety of chemical applications.
- (viii) choose the correct subatomic particle from the options which are applied to bombarded with the sample in mass spectrometry-
- a) Alpha particles
c) electron
- (ix) Liquid scintillation spectrometry is a method to predict-
- a) X rays
c) beta emitters
- (x) Choose the wavelength range corresponding to UV-visible region
- a) 400 nm - 800 nm
c) 10 nm - 700 nm
- (xi) According to the Arrhenius concept, an acid is explained as-
- a) is capable of donating one or more H⁺
c) reacts with the solvent to form the cation formed by autoionization of that solvent
- (xii) Following Method is commonly applied for the separation of DNA by electrophoresis -
- a) Agarose -vertical
c) SDS-PAGE
- (xiii) In an experimental set up 8% polyacrylamide gel is produced to detect -
- a) 500-1000 kDa protein
c) 40-50 kDa protein
- (xiv) Match the following-A. Chylomicron. B. VLDL C.LDL D.HDL i. Removes excess cholesterol from tissues and transports it to the liver for excretion. ii. Major carrier of dietary triglycerides. iii. Contains the highest proportion of cholesterol. iv. Carries cholesterol from the liver to peripheral tissues.
- a) A. iii B. iv. C. i. D. ii
c) A. ii B. iv. C. iii. D. i
- (xv) Give example of neuro hormone
- a) oxytocin and vasopressin
c) FSH and LH
- b) Using electron microscope only
d) by EtBr
- b) It is a solution whose pH does not change when a small amount of an acid or base is added to it.
d) The solution of methanoic acid is an example of an effective buffer solution.
- b) neutron
d) proton
- b) alpha emitters
d) gamma-rays
- b) 200 nm - 800 nm
d) 700 nm - 800 nm
- b) can accept a pair of electrons to form a coordinate covalent bond
d) tastes bitter
- b) Agarose -horizontal
d) PAGE
- b) 50-60 kDa protein
d) 20-30 kDa protein
- b) A. ii B. iii. C. i. D. iv
d) A. i B. iii. C. ii. D. iv
- b) TSH and ACTH
d) Insulin and glucagon

Group-B

(Short Answer Type Questions)

3 x 5=15

2. State the common methods used for blood glucose estimation (3)
3. Explain Brownian movement (3)
4. Discuss about the risk Factors of Cataractogenesis (3)
5. Define glycolysis (3)
6. A solution of a compound has an absorbance of 0.75 at a wavelength of 450 nm in a 1 cm cuvette. The molar absorptivity of the compound at 450 nm is 12000 L mol⁻¹ cm⁻¹. Calculate (3)

the concentration of the compound in mol/L.

OR

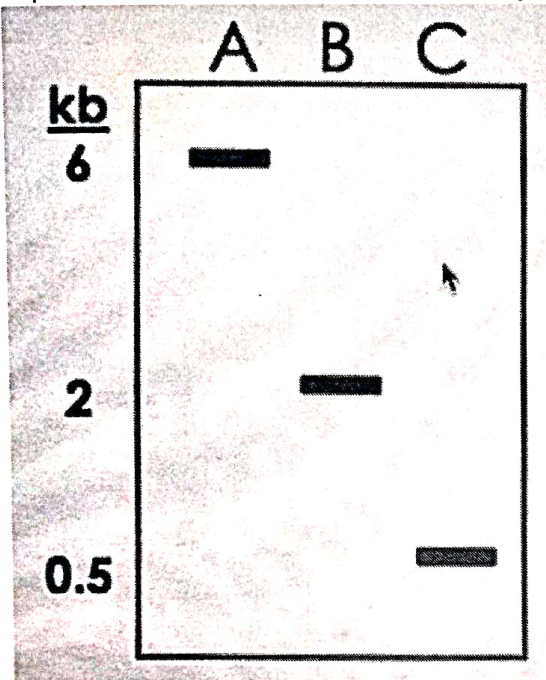
A researcher want to perform compitative ELISA test .He added sample to the microtiter plate (3)
.He did not get any OD.Analyze the result

Group-C

(Long Answer Type Questions)

5 x 6=30

- 7. Discuss about the biochemical composition of lens (5)
- 8. Describe the biochemical composition of tear film (5)
- 9. Deduce the bicarbonate buffer system for regulation of blood pH (5)
- 10. In an experiment the absorbance of total protein of sample A is 2.3 and Sample B is 1.Infer the result (5)
- 11. Explain the role of vitamin A in visual cycle (5)
- 12. (5)



In a gel electrophoresis three DNA fragments (A,B,C) were given in this gel fragments are migrated in 0.5 kb, 2 kb 6 kb .Analyze the result.

OR

In an experiment protein was blotted in SDS PAGE gel. Band intensity of a protein of Sample A (5)
is 2 and B is 6.Infer the result
