

VINAYAKA MISSION'S RESEARCH FOUNDATIONS, SALEM
(Deemed to be University)

B.OPTOMETRY DEGREE EXAMINATION – August 2019
First Year

GENERAL BIO-CHEMISTRY AND OCULAR BIO-CHEMISTRY

Time: Three hours

Maximum: 80 marks

I Choose the best answer

(10 x 1 = 10)

1. The principal produces of ATP in the aerobic cell is
 - a) Lysosomes
 - b) Golgi apparatus
 - c) Mitochondria
 - d) Endoplasmic reticulum
2. The glycosaminoglycan that serves as an anticoagulant
 - a) Hyaluronic acid
 - b) Heparin
 - c) Chondroitin sulphate
 - d) Dermatan sulphate
3. The nitrogenous base present in lecithin
 - a) Choline
 - b) Ethanolamine
 - c) Inositol
 - d) Serine
4. An example of complete protein
 - a) Rice albumin
 - b) Wheat protein
 - c) Maize
 - d) Egg albumin
5. In plant foods, Vitamin A exists as
 - a) Retinol
 - b) Carotenes
 - c) Retinal
 - d) Retionic acid
6. Rods and cones are present in
 - a) Internal limiting membrane
 - b) Inner nuclear layer
 - c) Nerve fiber layer
 - d) Layer of rods and cones
7. Colour vision is the function of
 - a) Rod cells
 - b) Muller cells
 - c) Cones
 - d) Amacrine cells
8. The enzyme found in tears is
 - a) Hexokinase
 - b) Catalase
 - c) Lactase
 - d) Lysozyme
9. The cornea is involved in the following functions except
 - a) Powerful refracting medium
 - b) Protect intraocular contents
 - c) Blood supply to intraocular contents
 - d) Corneal wound healing
- 10.Opacity of the lens causes
 - a) Nyctalopia
 - b) Cataract
 - c) Loss of vision
 - d) Retinopathy

II State whether the following statements are **TRUE** or **FALSE** (10 x 1 = 10)

1. Hyaluronic acid serves as a lubricant and shock absorber in joints.
2. Buffers will change the pH of the solution.
3. Immunoglobulins are plasma proteins.
4. Antioxidants are the scavengers of free radicals.
5. Anaemia is due to the deficiency of copper.
6. Cornea is vascular in structure.
7. Cilicary body is the site of aqueous production.
8. Tearfilm transfers oxygen from the atmospheric air to the cornea.
9. Rhodopsin, the photosensitive visual pigment present in cone cells.
10. Vitreous humour is non elastic in nature.

III Fill in the blanks: (10 x 1 = 10)

1. The buffer system found in blood is _____
2. _____ is a non reducing disaccharide
3. Example for semi essential amino acid is _____
4. _____ is the end product of lipid metabolism.
5. Urea cycle takes place in _____
6. The _____ layer of tearfilm prevents over flow of tears and their evaporation.
7. Refractive index of the cornea is _____
8. _____ is the most sensitive part of the retina.
9. The layer of the cornea once destroyed does not regenerate is _____
10. _____ continues to grow in the life time.

IV Write any **FIVE** answers of the following: (5 x 6 = 30)

1. Write the functions of sodium and potassium.
2. Briefly explain Wald's visual cycle.
3. Write about the significance of HMP shunt pathway (NADPH importance).
4. Explain the classification of enzymes.
5. Write in detail about the therapeutic use of antioxidants.
6. Write about the composition and functions of tears.
7. Explain the various layers of cornea with diagram.

V Write any **TWO** essays of the following: (2 x 10 = 20)

1. Discuss the sources, functions and deficiency of disorders of Vitamin A.
2. Write in detail about various layers of retina with labeled diagram.
3. Write in detail about corneal transparency.

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