

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

B.OPTOMETRY DEGREE EXAMINATION – February 2020
First Year

GENERAL PHYSIOLOGY AND OCULAR PHYSIOLOGY

Time: Three hours

Maximum: 80 marks

I Choose the best answer

(10 x 1 = 10)

1. The power generating units of the cells are
 - a) Nucleus
 - b) Mitochondria
 - c) Plasma membrane
 - d) Centrosomes
2. The proteins involved in muscle contraction are all EXCEPT
 - a) Troponin
 - b) Myosin
 - c) Actin
 - d) Albumin
3. Anemia is characterized by
 - a) Low RBC count
 - b) High Bilirubin values
 - c) Low Serum Ca^{2+}
 - d) High Hb%
4. The main site of peripheral resistance to blood circulation is at the level of
 - a) Large arteries
 - b) Veins
 - c) Arterioles
 - d) Shunt vessels
5. The respiratory center is located in the
 - a) Cerebrum
 - b) Brainstem
 - c) Cerebellum
 - d) Spinal cord
6. The gland which plays an important role in Calcium metabolism is
 - a) Thyroid Gland
 - b) Islets of Pancreas
 - c) Parathyroid gland
 - d) Adrenal gland
7. The following are caused by sympathetic nervous system EXCEPT
 - a) Pupillary dilation
 - b) Increases gastric secretion
 - c) Constricts skin blood vessels
 - d) Increased heart rate
8. The following muscles adduct the eye except
 - a) Medial rectus
 - b) Inferior rectus
 - c) Superior rectus
 - d) Superior oblique
9. The cranial nerve responsible for closure of the eyelids is
 - a) Oculomotor nerve
 - b) Facial nerve
 - c) Vagus nerve
 - d) Abducent nerve
10. Near triad comprises the following EXCEPT
 - a) Convergence
 - b) Accommodation
 - c) Miosis
 - d) Reflex eyelid closure

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

1. Sensory stimuli are carried through pyramidal tracts.
2. Melatonin is secreted by the pineal gland.
3. Human beings are homeotherms.
4. Expiration is an active process.
5. The diastolic BP characterizes peripheral vascular resistance.
6. Lymphocytes increase in allergic conditions and worm infestations.
7. Striations are characteristic of smooth muscles.
8. The crystalline lens is derived from the surface ectoderm.
9. The tight junctions between retinal endothelial cells comprise the inner blood retinal barrier.
10. Rhodopsin is the pigment found in cones.

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

1. When a stimulus produces a response which in turn inhibits the stimulus it is called _____ feedback mechanism.
2. The normal blood pH is _____ .
3. The normal hematocrit value is _____ .
4. _____ are called capacitance vessels.
5. The subarachnoid space is filled with _____ fluid.
6. The release of ovum from the ovary is called _____.
7. The alpha cells of the islets of Langerhans secrete _____.
8. Failing near vision due to age related decrease in amplitude of accommodation is called _____.
9. _____ is an example of indentation tonometry.
10. The distant visual acuity is usually tested with _____ chart.

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

1. Pancreatic digestion.
2. Mechanism of breathing.
3. Growth Hormone.
4. Arterial Blood Pressure.
5. Corneal transparency.
6. Test for Binocular Single vision.
7. Intraocular Pressure.

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

1. Describe the visual pathway with a diagram and give a brief account of visual pathway lesions.
2. Explain with diagram the structure of a nephron. Write a note on mechanism of urine formation.
3. Write an essay on the theories and tests of colour vision. Add a note on colour vision defect.