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The West Bengal University of Health Sciences
MBBS 1st Professional Examination (New Regulation), June 2022

Subject: Physiology
Paper : II

Full Marks : 100
Time : 3 hours

Attempt all questions. The figures in the margin indicate full marks.

1. a) Mr. Raju is a 30 year old male after RTA was admitted to the hospital with severe concussion, whiplash and a fractured left radius, difficulty in postural control. The MRI scan revealed a left cerebellar hemisphere lesion.

Enumerate the functions of cerebellum. Describe with labeled diagrams the external and internal connections of cerebellum. Which side of the body will be affected and why ? Add a note on Nystagmus. 4+7+2+2

b) What are different hormones secreted from the thyroid gland ? With a schematic diagram describe different steps of thyroxin hormone biosynthesis. Discuss in brief the functions of thyroxin. What is myxedema and cretinism ? 2+4+5+2+2

2. a) What is the role of Gonadotrophin in the menstrual cycle ? How does progesterone help in preparing the uterus for implantation of the zygote ? 2+5+3

b) List the different components of basal ganglia. Draw and label the pathways that interconnect them and the cerebral cortex. Explain the role of basal ganglia in regulating somatic motor function. 2+6+2

c) What is glomerular filtration rate ? Which factors regulate it & how ? 4+6

3. Write short notes on the following: 2x5
   a) Phantom limb.
   b) Errors of refraction.

4. Explanation the following statements: 5x4
   a) Albuminuria may occur in glomerular disease.
   b) Hemisection of spinal cord causes neurodeficit of both sides of the body.
   c) Pituitary tumor may be associated with bitemporal hemianopia.
   d) Catecholamine can cause vaso constriction in some vessels while causing vaso dilation in others.
   e) Diabetic patients show polyphagia.

5. Choose the correct option of each of the following: 10x1
   i) Fine touch sensation is carried by:
      a) Anterior spinothalamic tract.
      b) Lateral spinothalamic tract.
      c) Spinocerebellar tract.
      d) Dorsal column.

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ii) Maturation of sperm takes place in:
a) Vas deferens.
b) Seminiferous tubules.
c) Epididymis.
d) Female genital tract.

iii) The accommodation reaction consists of all except:
a) Convergence of eyeballs.
b) Convergence of visual axes.
c) Dilatation of pupils.
d) Anterior bulging of lens.

iv) Which of the following is not a function of Insulin
a) Decreased glycogenolysis.
b) Lipogenesis.
c) Gluconeogenesis.
d) Glycogensis.

v) Maximum reabsorption of water in presence ADH takes place in:
a) DCT.
b) PCT.
c) Loop of Henle.
d) Collecting duct.

vi) Sectioning the brainstem between superior and inferior colliculi will produce:
a) Decerebrate rigidity.
b) Decorticate rigidity.
c) Intention tremor.
d) Lead pipe rigidity.

vii) Which neurotransmitter is released by both rods and cones at their synapses with bipolar cells:
a) Acetylcholine.
b) Dopamine.
c) Glutamate.
d) Serotonin.

viii) The synthetic sensation is.
a) Crude touch.
b) Visceral pain.
c) Itching.
d) Fine touch.

ix) Oestrogen causes all except:
a) Rise of basal body temperature.
b) Ductular development of breast.
c) Female psyche.
d) Subcutaneous fat deposition.

x) Temparature regulation is a:
a) Function of thalamus.
b) Function of cortex.
c) Function of reticular activating system.
d) Function of hypothalamus.

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