2020

ANATOMY AND PHYSIOLOGY

Paper : CC-102

Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Describe the structure of a eukaryotic cell with neat diagram. Enlist the function of the cell membrane, mitochondria, ribosome and lysosome. 7+8

***Or*,**

Describe the functions of epithelial tissues. Differentiate between axial and appendicular skeleton. Why is blood called connective tissue? State the names of the bones of the vertebral column and describe their functions. 5+3+2+5

2. Differentiate between cardiac, skeletal and smooth muscle. How is red muscle different from white muscle? Describe the carbohydrate digestion process. 6+4+5

***Or*,**

Describe the structure of human heart with a neat diagram and also indicate the direction of blood flow. State the functions of SA Node. Define different types of blood pressure and state their normal physiological values for an adult of age 30 years. 8+2+5

3. (a) Describe the structure of nephrons with a neat diagram.

(b) State the names of the organs involved in the process of respiration.

(c) Why is pituitary called the 'Master Gland'? List the name of the hormones released from the posterior pituitary gland. (5+2)+3+(3+2)

***Or*,**

(a) What is synapse?

(b) Describe the structure of neuron with a neat diagram.

(c) State the functions of different types of autonomic nervous system (three functions each). 2+(5+2)+6

4. Write notes on the following (***any two***) : 7½×2

(a) Different types of muscular contraction

(b) Athletic Heart

(c) Effects of exercise on circulatory system

(d) EPOC and its physiological significance.

Please Turn Over

5. Answer ***any ten*** MCQs from the following and write the correct answers on your answer script : 1×10

(a) Tricuspid valve of human heart is present between

(i) Right atrium and Right ventricle (ii) Left atrium and Right ventricle

(iii) Left atrium and Left ventricle (iv) SA node and AV node.

(b) The main function of mitochondria is to

(i) produce enzymes for digestion (ii) produce lactic acid

(iii) produce energy in the form of ATP (iv) all of these.

(c) The main function of ADH hormone is

(i) to absorb water from the collecting duct

(ii) to absorb sodium ion from the proximal convoluted tubule

(iii) to absorb sodium ion from the collecting duct

(iv) to absorb sodium ion from the distal convoluted tubule.

(d) Resting bradycardia occurs due to

(i) exercise effect on heart

(ii) training effect on heart

(iii) both exercise and training effect on heart

(iv) none of the above.

(e) Pituitary gland is located at the

(i) Brain (ii) Neck (iii) Chest (iv) Abdomen.

(f) Smallest bone in human body is

(i) Incus (ii) Malleus (iii) Hyoid (iv) Stapes.

(g) Muscles are connected with the bones by

(i) Ligament (ii) Tendon (iii) Scapula (iv) Cartilage.

(h) Which one of the following is an end product of Carbohydrate digestion?

(i) Glucose (ii) Amino acids

(iii) Fatty acid and glycerol (iv) All of the above.

(i) One of the main reasons for hyperventilation in lungs during moderate to high exercise intensities is

(i) meet the demands of the muscle for oxygen delivery

(ii) meet the demands of the muscle pH

(iii) counteract the lactic acid actions

(iv) all of the above.

(j) Which of the following hormones secreted from the endocrine pancreas?

(i) Insulin (ii) Testosterone

(iii) Glucocorticoids (iv) Thyroxin.

(k) Participation in which exercise produces more lactic acid within the muscle cells?

(i) Aerobic exercise (ii) Anaerobic exercise

(iii) Stretching exercise (iv) None of these.

(l) In isometric type of muscle contraction

(i) The length of the muscle remains fixed

(ii) The contractile length of the muscle remains unchanged

(iii) The tone of the muscle remains fixed

(iv) None of the above.