BRAINWARE UNIVERSITY

Term End Examination 2019 - 20

Programme – Bachelor of Science Honours in Biotechnology

Course Name – Mammalian Physiology

Course Code – BBT301

(Semester – 3)

Time allotted: 3 Hours | Full Marks: 70

[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) 20 x 1 = 20

1. *Choose the correct alternative from the following* (Answer any Twenty)

(i) Which of the following gastrointestinal hormones stimulates insulin secretion?

a. Gastric Inhibitory Polypeptide b. Cholecystokinin

c. Gastrin d. Secretin

(ii) Which vitamin is essential for blood clotting?

a. Vitamin K b. Vitamin A

c. Vitamin B d. Vitamin C

(iii) The blood corpuscles are of

a. 5 kinds b. 4 kinds

c. 3 kinds d. 2 kinds

(iv) Absorption of food occurs in

a. Small intestine b. Stomach

c. Large intestine d. Rectum

(v) Name the basic structural and functional unit of the nervous system

a. Neuroglia b. Glial cells

c. Perikaryon d. Neurons

(vi) What is the site for gluconeogenesis?

a. Liver
b. Blood
c. Muscles
d. Brain

(vii) Name the hormones that control the body's homeostasis.

a. Insulin and glucagon
b. Glucocorticoids
c. Epinephrine
d. Insulin

(viii) Amount of total blood volume in an individual is approximately

a. 50 ml/kg body weight
b. 60 ml/kg body weight
c. 70 ml/kg body weight
d. 80 ml/kg body weight

(ix) Normal blood pH is

a. 7.20
b. 7.30
c. 7.40
d. 7.50

(x) Function of the plasma protein are all except

a. Transport hormones
b. Transport oxygen
c. Transport antibodies
d. Transport chylomicrons

(xi) Maximum triglycerides are in which fraction?

a. VLDL
b. LDL
c. HDL
d. Chylomicron

(xii) Adult hemoglobin in a healthy individual has chains

a. $2\alpha, 2\gamma$
b. $2\alpha, 2\beta$
c. $2\alpha, 2\delta$
d. $2\beta, 2\gamma$

(xiii) Semilunar valves

a. Consists of two flaps/ cusps
b. Are so called because of half-moon shaped
c. Are tricuspid and mitral valves
d. Close and open activity

(xiv) All are the examples of pacemaker tissue of the heart except

a. S-A node
b. A-V node
c. Remification of Bundle of His
d. Internodal atrial pathways

(xv) SA node is called the cardiac pacemaker because of its

a. Neural control
b. Location of atrium
c. Strength of impulse formation
d. Rate of impulse formation

(xvi) The Purkinje fibers

a. Are myelinated axons
b. Have a conduction velocity of about four times that seen in heart muscle
c. Have action potentials about a tenth as long as those are in heart muscle
d. Are large and thin fibers

(xvii) All of the following transport mechanisms are passive processes except

a. Diffusion
b. Facilitated diffusion
c. Osmosis
d. Vesicular transport

(xviii) Where would you expect to find stratified squamous epithelia?

a. in the testes
b. in the kidney tubules
c. in the vagina
d. in the small intestine

(xix) Smooth muscle

a. is under voluntary and involuntary control
b. can be found in the eye, uterus and blood vessels
c. can be found in the eye and heart
d. is striated

(xx) Which of the following is the function of the skeletal muscle?

a. secretion and absorption
b. contraction
c. storage of minerals
d. communication

(xxi) Muscle tissue, one of the four basic tissue groups, consists chiefly of cells that are highly specialized for

a. secretion
b. contraction
c. cushioning
d. conduction

(xxii) The action potential is conducted into a skeletal muscle fiber by

a. transverse tubules
b. motor end plates
c. neuromuscular junctions
d. sarcoplasmic reticulum

(xxiii) Acetylcholine initiates muscle contraction by

a. binding to receptors on the muscle cell and inducing a voltage change throughout the sarcoplasmic reticulum

b. binding to troponin, revealing binding sites for actin

c. closing Na^+ channels

d. removing Ca^{2+} ions from the sarcomere

(xxiv) Each kidney contains about ..... nephrons

a. Half million

b. One million

c. Two million

d. Four million

(xxv) Malpighian corpuscle comprises of:

a. Bowman's capsule

b. Glomerulus

c. Peritubular capillary plexus

d. a and b both

Group – B

(Short Answer Type Questions) 4 x 5 = 20

Answer any *four* from the following

2. What are the steps involved in digestion and absorption of carbohydrates? 5
3. What is chloride shift? 5
4. Write the characteristics of skeletal muscle? 5
5. What is depolarisation? 5
6. What is the structure of a synapse? 5
7. Name few hormones secreted by pituitary gland including functions. 5

Group – C

(Long Answer Type Questions) 3 x 10 = 30

Answer any *three* from the following

8. Discuss briefly about the digestion and absorption of protein. 10
9. Briefly discuss about the impulse of nerve. 10
10. Discuss briefly about the mechanism of blood coagulation. 10
11. Discuss about the mechanism of action of neurotransmitter with diagram. 10
12. What are the parathyroid glands, and what do they do? 10
