BRAINWARE UNIVERSITY

Term End Examination 2020 - 21

Programme – Bachelor of Science (Honours) in Biotechnology

Course Name – Mammalian Physiology

Course Code - BBT301

Semester / Year - Semester III

Time allotted : 85 Minutes 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) 1 x 70=70

1. *(Answer any Seventy)*

(i)

Normal viscosity of blood is ……..times that of water

a) 1-2 b) 2-3
c) 3-4 d) 4-5

(ii)

What percentage of glomerular filtrate is normally reabsorbed?

a) 1% b) 10%
c) 80% d) 99%

(iii)

Aerobic versus anaerobic energy production from one free glucose to pyruvic acid is

a) 4:1
b) 1:4
c) 3:1
d) 1:3

(iv) Which of the following gastrointestinal hormone stimulates insulin secretion?

a) Gastric Inhibitory Polypeptide
b) Cholecystokinin
c) Gastrin
d) Secretin

(v) What do endocrine cells of pancreas secrete?

a) Omega growth hormone
b) Betasomatostatin
c) Delta insulin
d) Alpha glucagon

(vi) Oxygen and hemoglobin bind in a reversible manner to form

a) Carboxyhemoglobin
b) Oxyhemoglobin
c) Methoglobin
d) Biphosphoglyceric acid

(vii) What is the length of small intestine?

a) 1metre
b) 3metres
c) 5.5 metres
d) 7.6 metres

(viii) Which vitamin is essential for blood clotting?

a) Vitamin K
b) Vitamin A
c) Vitamin B
d) Vitamin C

(ix) Which blood cell secrets antibody?

a) Eosinophils
b) Monocytes
c) Lymphocytes
d) Neutropils

(x) Which of the following membrane is responsible for the protection of the heart?

a) Epicardium
b) Myocardium
c) Endocardium
d) Pericardium

(xi) The blood corpuscles are of

a) 5 kinds
b) 4 kinds
c) 3 kinds
d) 2 kinds

(xii) Which sphincter is present between the stomach and the duodenum of the small intestine?

a) Pyloric
b) Iliocolic
c) Cardiac
d) Ileocecal

(xiii) What is the end product of protein digestion?

a) Fatty acids
b) Monoglycerides
c) Amino acids
d) Glucose

(xiv) Absorption of food occurs in

a) Small intestine
b) Stomach
c) Large intestine
d) Rectum

(xv) System of the body which coordinates and controls its activity is known as

a) Organ system
b) Muscular system
c) Nervous tissue
d) Nervous system

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

a) Neuroglia
b) Glial cells
c) Perikaryon
d) Neurons

(xvii) What is the site for gluconeogenesis?

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

(xviii) Which of the following are major sites for glycogen storage?

a) Adipose tissue
b) Bones
c) Kidney and liver
d) Muscle and liver

(xix) Which of the following hormone maintain blood glucose level by activation of gluconeogenesis?

a) Nor-epinephrine
b) Glucagon
c) Insulin
d) Epinephrine

(xx) Major constituent of blood is

a) Water
b) Protein
c) Cells
d) Inorganic molecules

(xxi) Total blood volume (% of body weight) is

a) 8
b) 20
c) 40
d) 80

(xxii) Specific gravity of

a) RBC is less than that of plasma
b) Plasma is related more to its protein content than to its electrolyte content
c) Plasma decreases as ECF volume decreases
d) Blood is higher on an average in women than in men

(xxiii) Normal blood pH is

a) 7.2
b) 7.3
c) 7.4
d) 7.5

(xxiv) Most abundant blood cells in the human body are

a) RBC
b) WBC
c) Platelets
d) Plasma cells

(xxv) Which component of protein contributes to maximum percentage to total plasma protein?

a) Albumin
b) Globulin
c) Fibrinogen
d) Prothrombin

(xxvi) Which of the following is not a non-protein nitrogenous substance?

a) Urea
b) Uric acid
c) Creatinine
d) Lecithin

(xxvii) Serum does not contain

a) Calcium
b) Prothrombin
c) Factor VII
d) Factor X

(xxviii) Function of the plasma protein are all except

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

(xxix) Maximum triglycerides are in which fraction?

a) VLDL
b) LDL
c) HDL
d) chylomicron

(xxx) Proteins of cells are of following types except

a) Fixed cell proteins
b) Dispensable reserve proteins
c) Labile reserve proteins
d) Non-essential amino acids

(xxxi) Most of the protein loss after injury comes from

a) Plasma proteins
b) Liver and other organs
c) Bone
d) Muscle proteins

(xxxii) Total plasma protein levels are low during infancy due to

a) Low protein intake
b) Increased protein loss in urine

c) Hepatic immaturity

d) Total plasma protein levels are higher in infants as compared to adults

(xxxiii) Increased in gamma globulin is mainly seen in

a) Tissue destruction

b) Severe malnutrition

c) Fasting

d) Mal-absorption

(xxxiv) Haemoglobin iron combines with

a) Molecular oxygen rather than ionic oxygen

b) Both molecular as well as ionic oxygen

c) Oxygen attached to 2,3 DPG

d) Superoxide radical

(xxxv) Combination of haem with oxygen is called

a) Oxygenation

b) Oxidation

c) Oxygenation

d) Oxidised haem

(xxxvi) Endocardium means

a) Muscles of the heart

b) Pacemaking and conducting system

c) Double layered structure that encloses the entire heart

d) Endothelial lining of the cardiac chambers

(xxxvii) A-V valve on the right side of heart is

a) Mitral valve

b) Tricuspid valve

c) Aortic valve

d) Pulmonary valve

(xxxviii) All statements are true about A-V valves except

a) These valves close and open passively with the pressure gradient forces

b) They prevent the backward flow of blood from ventricles to atria during ventricular systole

c) Opening of these valves is responsible for the first heart sound

d) Chordae tendinae are attached to the free edges of the valve flaps

(xxxix) Semilunar valves

a) Consists of two flaps/ cusps

b) Are so called because of half moon shaped appearance

c) Are tricuspid and mitral valves

d) Close and open avtivity

(xl) Example of bicuspid valve is

a) Tricuspid valve

b) Mitral valve

c) Pulmonary valve

d) Aortic valve

(xli) 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

(xlii) The following statements are true regarding the SA node except

a) Is located at the right border of the ascending aorta

b) It contains specialized nodal cardiac muscle

c) It is supplied by the arterial branches of the right coronary artery

d) It initiates cardiac conduction

(xliii) 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

(xliv) Cardiac muscle

a) has a velocity of conduction of action potentials at 1 meter per second

b) Never contracts for more than 0.12 second

c) Is not influenced by nor-epinephrine

d) Has a longer duration of contraction during tachycardia

(xlv) 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

(xlvi) Ventricular muscles receive impulses directly from the

a) Purkinji system

b) Bundle of His

c) Right and left bundle branches

d) AV node

(xlvii) 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

(xlviii) Which nervous system controls skeletal muscle?

a) Sympathetic

b) Parasympathetic

c) Somatic

d) Afferent

(xlix) 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

(l) Which kind of muscle tissue is directly involved in the regulation of blood pressure?

a) cardiac and smooth muscle

b) smooth muscle only

c) cardiac muscle only

d) skeletal muscle

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

a) secretion and absorption

b) contraction

c) storage of minerals

d) communication

(lii) The normal pacemaker of the heart is located in the

a) sinoatrial node
b) Purkinje fibers
c) atrioventricular node
d) wall of the left ventricle

(liii) The pancreas produces ……digesting enzymes in the form of proenzymes

a) Carbohydrate
b) Protein
c) Lipid
d) Nuclic acid

(liv) Which of the following is not the characteristic of smooth muscle?

a) The thin filaments of stomach muscle fibers are attached to dense bodies
b) Smooth muscle cells are uninucleate
c) Smooth muscle connective tissue forms tendons and aponeuroses
d) Smooth muscles do not contain sarcomeres

(lv) At each end of the muscle, the collagen fibers of the epimysium, and each perimysium come together to form a

a) tenosynovium
b) tendon
c) sheath
d) satellite cell

(lvi) 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

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

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

(lviii) 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 Ca2+ ions from the sarcomere

(lix) Each kidney contains about ……. Nephrons
a) Half million
b) One million
c) Two million
d) Four million

(lx) Malpighian corpuscle comprises of
a) Bowman’s capsule
b) Glomerulus
c) Peritubular capillary plexus
d) Bowman’s capsule and Glomerulus both

(lxi) Filtration at glomerulus occurs through all of the following except
a) Endothelium
b) Basement membrane
c) Epithelial cells
d) Malpigian corpuscle

(lxii) Normal kidney does not allow passage of
a) Substances > 8nm in diameter
b) Lysozyme
c) IgG
d) Albumin

(lxiii) Juxta glomerular cells are located in
a) Afferent arteriol
b) Efferent arteriol
c) Distal convoluted tubule
d) Glomerular

(lxiv) Renin is secreted by
a) Aldosterone
b) Angiotensin I
c) Angiotensin II
d) Juxta glomerular cells

(lxv) Hormones secreted by kidney include all except
a) Vitamin D
b) Erythropoietin
c) Renin
d) Vitamin A

(lxvi) A major site of autoregulatory resistance in the kidney is

a) Afferent arterioles
b) Efferent arterioles
c) Both Afferent arterioles and Efferent arterioles
d) Peritubular capillary plexuses

(lxvii) The volume of blood in the renal capillaries at any given time is

a) 30-40 ml
b) 70-100 ml
c) 100-300 ml
d) 300-450 ml

(lxviii) Glomerular filtration rate is

a) Plasma filtered through microtubules
b) Serum filtered through microtubules
c) Arterial blood filtered through microtubules
d) Venous blood filtered through microtubules

(lxix) Glomerular filtration per day is

a) 40-50 litres
b) 90-100 litres
c) 140-150 litres
d) 170-180 litres

(lxx) Which of the following statement about renal function is not true?

a) Oncotic pressure of filtrate is equal to glomerular capillaries
b) If afferent arteriole is vasconstricted, then pressure in glomerular capillaries will fall
c) The hydrostatic pressure of peritubular capillaries determine the glomerulotubular balance
d) Ureteric obstruction increases the hydrostatic pressure of Bowman’s space and reduces the glomerular filtration rate