AQF

PROVISIONAL ANSWER KEY [CBRT]

Name of The Post	**Assistant Professor, Physiology, General State Service, (Special Recruitment) ,Class-1**
Advertisement No	**94/2019-20**
Preliminary Test Held On	**17-01-2021**
Que. No.	**001-200**
Publish Date	**18-01-2021**
Last Date to Send Suggestion (S)	**27-01 -2021**

Instructions / સૂચના

Candidate must ensure compliance to the instructions mentioned below, else objections shall not be considered: -

(1) All the suggestion should be submitted in prescribed format of suggestion sheet Physically.

(2) Question wise suggestion to be submitted in the prescribed format (Suggestion Sheet) published on the website.

(3) All suggestions are to be submitted with reference to the Master Question Paper with provisional answer key (Master Question Paper), published herewith on the website. Objections should be sent referring to the Question, Question No. & options of the Master Question Paper.

(4) Suggestions regarding question nos. and options other than provisional answer key (Master Question Paper) shall not be considered.

(5) Objections and answers suggested by the candidate should be in compliance with the responses given by him in his answer sheet. Objections shall not be considered, in case, if responses given in the answer sheet /response sheet and submitted suggestions are differed.

(6) Objection for each question shall be made on separate sheet. Objection for more than one question in single sheet shall not be considered & treated as cancelled.

ઉમેદ્વારે નીચેની સૂચનાઓનું પાલન કરવાની તકેદારી રાખવી, અન્યથા વાંધા-સૂચન અંગે કરેલ રજૂઆતો ધ્યાને લેવાશે નહીં

(1) ઉમેદ્વારે વાંધા-સૂચનો નિયત કરવામાં આવેલ વાંધા-સૂચન પત્રકથી રજૂ કરવાના રહેશે.

(2) ઉમેદ્વારે પ્રશ્નપ્રમાણે વાંધા-સૂચનો રજૂ કરવા વેબસાઈટ પર પ્રસિધ્ધ થયેલ નિયત વાંધા-સૂચન પત્રકના નમૂનાનો જ ઉપયોગ કરવો.

(3) ઉમેદ્વારે પોતાને પરીક્ષામાં મળેલ પ્રશ્નપુસ્તિકામાં છપાયેલ પ્રશ્નક્રમાંક મુજબ વાંધા-સૂચનો રજૂ ન કરતા તમામ વાંધા-સૂચનો વેબસાઈટ પર પ્રસિધ્ધ થયેલ પ્રોવિઝનલ આન્સર કી (માસ્ટર પ્રશ્નપત્ર)ના પ્રશ્ન ક્રમાંક મુજબ અને તે સંદર્ભમાં રજૂ કરવા.

(4) માસ્ટર પ્રશ્નપત્ર માં નિર્દિષ્ટ પ્રશ્ન અને વિકલ્પ સિવાયના વાંધા-સૂચન ધ્યાને લેવામાં આવશે નહીં.

(5) ઉમેદ્વારે જે પ્રશ્નના વિકલ્પ પર વાંધો રજૂ કરેલ છે અને વિકલ્પ રૂપે જે જવાબ સૂચવેલ છે એ જવાબ ઉમેદ્વારે પોતાની ઉત્તરવહીમાં આપેલ હોવો જોઈએ. ઉમેદ્વારે સૂચવેલ જવાબ અને ઉત્તરવહીનો જવાબ ભિન્ન હશે તો ઉમેદ્વારે રજૂ કરેલ વાંધા-સૂચન ધ્યાનમાં લેવાશે નહીં.

(6) એક પ્રશ્ન માટે એક જ વાંધા-સૂચન પત્રક વાપરવું. એક જ વાંધા-સૂચન પત્રકમાં એકથી વધારે પ્રશ્નોની રજૂઆત કરેલ હશે તો તે અંગેના વાંધા-સૂચનો ધ્યાને લેવાશે નહીં.

001. The major determinant of the fluidity of a cell membrane is

(A) lipid composition
(B) degree of unsaturation of lipids
(C) cholesterol-phospholipid ratio
(D) fatty acid length

002. Which enzyme clears the chylomicrons from the circulation?

(A) lipoprotein lipase
(B) lecithin-cholesterol acyltransferase (LCAT)
(C) hormone-sensitive lipase
(D) HMG-CoA reductase

003. The proton pump which is present in lysosome is

(A) H^+ ATPase
(B) H^+K^+ATPase
(C) Na^+H^+counter-transport
(D) All of the above

004. The anticancer drug paclitaxel (Taxol) binds to

(A) intermediate filaments
(B) microtubules
(C) microfilaments
(D) focal adhesion complexes

005. Which control mechanism operates during rapid movements of the body?

(A) Positive feedback
(B) Negative feed back
(C) Vicious Cycle
(D) Adaptive control

006. Na-K-2Cl transporter in the apical membrane of the thick ascending limb of the loop of Henle is an example of

(A) Primary active transport
(B) Secondary active transport
(C) Passive transport
(D) Facilitated diffusion

007. The molecular motor present in cilia is

(A) Kinesin
(B) Myosin
(C) Cytoplasmic dynein
(D) Axonemal dynein

008. The test that screens the extrinsic pathway is

(A) Prothrombin time (PT)
(B) Activated partial thromboplastin time (aPTT)
(C) Thrombin time
(D) Clot lysis time

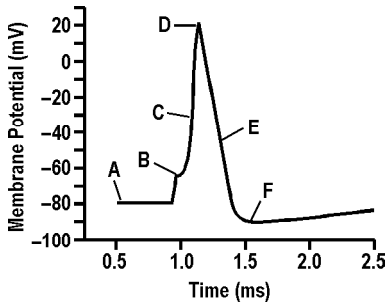
009. When cells are homogenized and the resulting suspension is centrifuged, which of the following sediments first?

(A) Nucleus
(B) Mitochondria
(C) Ribosomes
(D) Peroxisomes

010. The nucleolus is rich in

(A) Chromatin
(B) Histones
(C) DNA
(D) RNA

011. The figure shows the change in membrane potential during an action potential in a giant squid axon. Which of the following is primarily responsible for the change in membrane potential between points B and D?



(A) Inhibition of the Na^+K^+ATPase
(B) Movement of K^+ into the cell
(C) Movement of K^+ out of the cell
(D) Movement of Na^+ into the cell

012. The amiloride inhibitable Na^+ channels in the kidneys are

(A) Leaky Na^+ channels
(B) Voltage gated Na^+ channels
(C) Epithelial Na^+ channels
(D) Ligand gated Na^+ channels

013. The γ-aminobutyric acid A (GABA-A) and glycine receptors in the CNS are

(A) Na^+channels
(B) K^+ channels
(C) Ca^{2+} channels
(D) Cl^- channels

014. Which of the following clotting factor is present in serum?

(A) Clotting factor II
(B) Clotting factor V
(C) Clotting factor VII
(D) Clotting factor VIII

015. Hypoproteinemia is present in all of the following conditions except

(A) Fasting
(B) Dehydration
(C) Cirrhosis of liver
(D) Nephrosis

016. In the body of a 70-kg man, the amount of hemoglobin destroyed and synthesized every hour is

(A) 0.3 g
(B) 1.34 g
(C) 11.0 g
(D) 20.0 g

017. What function do vitamin B12 and folic acid perform that is critical to hematopoiesis?

(A) Support porphyrin production
(B) Serve as cofactors for iron uptake
(C) Support terminal differentiation of erythroid and myeloid cells
(D) Support production of thymidine triphosphate

018. During the second trimester of pregnancy, where is the predominant site of RBC production?

(A) Yolk sac
(B) Bone marrow
(C) Lymph nodes
(D) Liver

019. Erythropoietin levels increase after a decreased arterial oxygen level, with the maximum EPO production occurring within

(A) 24 hours
(B) 3 days
(C) 5 days
(D) 2 weeks

020. The adhesion of platelets to subendothelial collagen is impaired in the absence of

(A) Von Willebrand Factor
(B) Plasmin
(C) Antithrombin III
(D) Heparin

021. Which of the following would best explain a prolonged bleeding time test?

(A) Hemophilia A
(B) Hemophilia B
(C) Thrombocytopenia
(D) Warfarin use

022. Which of the following clotting factors is not vitamin K dependent?

(A) Factor II
(B) Factor V
(C) Factor VII
(D) Factor IX

023. The enzyme that ultimately lyses fibrin is

(A) Plasminogen
(B) Tissue Plasminogen Activator (t-PA)
(C) Urokinase
(D) Plasmin

024. A 2-year-old boy bleeds excessively from minor injuries and has previously had bleeding gums. The maternal grandfather had a bleeding disorder. The child's physical examination shows slight tenderness and swelling in the knee joint. You suspect this patient is deficient in which coagulation factor?

(A) Prothrombin activator
(B) Factor II
(C) Factor VIII
(D) Factor X

025. Presentation of antigen on major histocompatibility complex (MHC)-I by a cell will result in which of the following?

(A) Generation of antibodies
(B) Activation of cytotoxic T cells
(C) Increase in phagocytosis
(D) Release of histamine by mast cells

026. The clinical syndrome of Parahemophilia is due to congenital deficiency of

(A) Factor V
(B) Factor VIII
(C) Factor IX
(D) Factor XI

027. The plasma protein called tissue factor pathway inhibitor (TFPI) is secreted mainly by

(A) Liver
(B) Platelets
(C) Fibroblasts
(D) Endothelial cells

028. Prior to dental procedures or surgery, patients with Von Willebrand disease are treated with desmopressin, which stimulates production of

(A) Factor VII
(B) Factor VIII
(C) Factor IX
(D) Factor XI

029. Low doses of aspirin cause a steady-state decrease in

(A) Platelet Cyclooxygenase
(B) Endothelial-Cell Cyclooxygenase
(C) Phospholipases A2
(D) Lipoxygenase

030. Kernicterus is a neurologic syndrome in which unconjugated bilirubin is deposited in the

(A) Area Postrema
(B) Basal Ganglia
(C) Organum Vasculosum of the Lamina Terminalis
(D) All of the above

031. Which of the following forms an irreversible complex with heparin and is used clinically to neutralize heparin?

(A) Antithrombin III
(B) Protamine
(C) Human t- Plasminogen Activator
(D) Dicumarol

032. In which organ endothelial cells do not produce thrombomodulin, a thrombin-binding protein on their surfaces?

(A) Brain
(B) Heart
(C) Liver
(D) Kidneys

033. Which of the following Antigen-presenting cell presents antigens for recognition by certain lymphocytes such as T cells?

(A) Macrophages
(B) Dendritic Cells
(C) B Lymphocytes
(D) All of the above

034. Secretory immunity is an important function of

(A) Immunoglobulin G
(B) Immunoglobulin A
(C) Immunoglobulin D
(D) Immunoglobulin M

035. Rheumatic carditis following a streptococcal infection is an example of

(A) Autoimmunity (B) Molecular mimicry

(C) Immune surveillance (D) Immune tolerance

036. The acetylcholine-gated ion channels in the muscle fiber membrane of the Neuromuscular junction allows the passage of the following ions except

(A) Sodium (B) Chloride

(C) Calcium (D) Potassium

037. The end plate potential is characterized by

(A) Propagation (B) All or none law

(C) Depolarization (D) Hyperpolarization

038. Which one of the following acts postsynaptically, blocking the nicotinic ACh receptors and preventing the excitation of the muscle cell membrane?

(A) Botulinum toxin (B) Curare

(C) Neostigmine (D) Tetrodotoxin

039. Which of the following drugs would likely alleviate myasthenia gravis patient's symptoms?

(A) Atropine (B) Cholinesterase

(C) Curare (D) Neostigmine

040. In skeletal muscle, thin filaments do not contain

(A) Actin (B) Myosin

(C) Troponin (D) Tropomyosin

041. The delayed onset and prolonged duration of smooth muscle contraction, as well as the greater force generated by smooth muscle compared with skeletal muscle are all consequences of which of the following?

(A) Higher energy requirement of smooth muscle

(B) Physical arrangement of actin and myosin filaments

(C) Slower cycling rate of the smooth muscle myosin cross-bridges

(D) Slower uptake of Ca++ ions after contraction

042. The calcium-binding protein that plays a key role in the regulation of smooth muscle cell contraction is

(A) Dystrophin (B) Calmodulin

(C) Troponin C (D) Calcineurin

043. The immediate energy source for skeletal muscle contraction is

(A) Guanosine Triphosphate (GTP) (B) Adenosine triphosphate (ATP)

(C) Lactic acid (D) Creatine phosphate

044. Which of the following is true regarding dystrophin–glycoprotein complex?

(A) Adds strength to the muscle.

(B) Links actin and the extracellular connective matrix.

(C) Abnormal dystrophin increases membrane permeability to calcium.

(D) All of the above.

045. Which of the following is used to compare the excitability of various tissues?

(A) chronaxie (B) rheobase

(C) utilization time (D) all of the above

046. Staircase phenomenon (Treppe) is due to

(A) increased availability of intracellular calcium

(B) summation

(C) tetanus

(D) increased excitability

047. Contraction of muscles which help in maintaining posture against gravity is an example of

(A) isometric contraction (B) isotonic contraction

(C) lengthening contraction (D) eccentric contraction

048. Postganglionic parasympathetic neurons innervating circular and longitudinal layers of gastrointestinal smooth muscle are located in

(A) myenteric plexus (B) submucosal plexus

(C) paravertebral ganglia (D) prevertebral ganglia

049. When the balance of the gut microbial community is deranged as a result of disease or the use of broadspectrum antibiotics, it is known as

(A) probiotic (B) prebiotic

(C) dysbiosis (D) microbiome

050. Which of the following hormone is secreted by the stomach and plays an important role in the central control of food intake?

(A) gastrin (B) CCK

(C) Ghrelin (D) peptide YY

051. The proenzyme pepsinogen is secreted mainly from which of the following structures?

(A) Acinar cells of the pancreas (B) Ductal cells of the pancreas

(C) Epithelial cells of the duodenum (D) Gastric glands of the stomach

052. Slow waves in the GIT are believed to be initiated by

(A) I cells (B) K cells

(C) Interstitial cells of Cajal (D) S cells

053. Which is the most important cholagogue?

(A) Secretin (B) CCK

(C) Gastrin (D) Gastric Inhibitory Peptide (GIP)

054. The most potent stimulus for release of secretin from the duodenum is

(A) Reduction in duodenal lumen pH to < 4.5

(B) Peptides

(C) Fatty acids with > 8 carbons

(D) Carbohydrates

055. The enzyme activated in Apoptosis is

(A) Oxidase (B) Hydrolase

(C) Caspase (D) All of the above

056. Vitamins synthesized by intestinal bacteria and absorbed in significant quantity include

(A) Vitamin B6 (B) Vitamin K

(C) Folic Acid (D) Thiamine

057. The following are the functions of bile salts except

(A) Reduce the surface tension

(B) Responsible for emulsification of fat

(C) Fats are converted into fatty acids and glycerol

(D) Form micelles

058. Brunner's glands are present in

(A) Stomach (B) Duodenum

(C) Jejunum (D) Ileum

059. In the stomach mucosa, the pH value at the surface of the epithelial cells is

(A) 1.0 (B) 3.0 - 4.0

(C) 5.0 - 6.0 (D) 6.0 - 7.0

060. Acidification of bile occurs in the

(A) Liver (B) Hepatic duct

(C) Gall bladder (D) Duodenum

061. Which organelle in the cell protects cells from oxidative stress?

(A) Mitochondria (B) Lysosomes

(C) Peroxisomes (D) Microsomes

062. Normally the angle between the anus and the rectum is approximately

(A) 15 degree (B) 45 degree

(C) 90 degree (D) 180 degree

063. Gastrin secreting G cells are found in the following sites except

(A) Pyloric antrum (B) Anterior pituitary

(C) Medulla oblongata (D) Distal ileum

064. The myenteric plexus of the oesophagus is deficient at the 'Lower Esophageal Sphincter' in which of the following condition ?

(A) Gastro oesophageal reflux disease (B) Achalasia cardia

(C) Aerophagia (D) Hirshsprung's disease

065. Slow waves in small intestinal smooth muscle cells are

(A) Action potentials (B) Phasic contractions

(C) Tonic contractions (D) Oscillating resting membrane potentials

066. Which of the following is characteristic of saliva?

(A) Hypotonicity relative to plasma

(B) A lower HCO3- concentration than plasma

(C) Secretion rate is increased by vagotomy

(D) Modification by the salivary ductal cells involves reabsorption of K^+ and $HCO3^-$

067. Which of the following substances is released from neurons in the GI tract and produces smooth muscle relaxation?

(A) Secretin (B) Cholecystokinin (CCK)

(C) Vasoactive intestinal peptide (VIP) (D) Gastrin

068. Which of the following has been characterized as an "ileal brake"?

(A) Peptide YY (B) Guanylin

(C) Vasoactive intestinal peptide (VIP) (D) Gastric inhibitory peptide (GIP)

069. In acute pancreatitis,which of the following causes disruption of pancreatic tissue and necrosis of the surrounding fat ?

(A) Trypsin (B) Lecithin

(C) Lyso- phosphatidylcholine (D) All of the above

070. The Portal venous pressure is normally about

(A) 5 mm Hg (B) 10 mm Hg

(C) 15 mm Hg (D) 20 mm Hg

071. Chromium deficiency causes

(A) Insulin resistance (B) Skin ulcers

(C) Depressed immune responses (D) Hypogonadal dwarfism

072. Fructose is transported across the apical membrane of enterocyte by

(A) SGLT 1 (B) GLUT 2

(C) GLUT 4 (D) GLUT 5

073. All of the following are true regarding glucose reabsorption except

(A) Glucose and Na+ binds to a common carrier

(B) Glucose is transported into the interstitium by GLUT-2 transporter

(C) Phlorizin accentuates glucose reabsorption

(D) Glucose reabsorption is by Secondary active transport

074. Which is the major site of cyclooxygenase 2 (COX-2) and prostaglandin synthase (PGES) expression in the kidney?

(A) Proximal tubule (B) Distal tubule

(C) Macula densa (D) Renal medullary interstitial cell

075. 1α hydroxylation of active Vitamin D3 occurs in

(A) Skin (B) Kidney

(C) Liver (D) Intestine

076. Which of the following statements is true?

(A) The descending vasa recta have a non fenestrated endothelium.

(B) The ascending vasa recta have a non fenestrated endothelium.

(C) Capillaries draining the tubules of cortical nephrons form vasa recta

(D) All of the above

077. Which is the terminal sugar present on the H antigen in individuals with type A blood group?

(A) N-acetylgalactosamine (B) Fucose

(C) Galactose (D) Glucose

078. In uncompensated metabolic alkalosis

(A) Plasma pH, plasma [HCO3] and arterial PCO2 are all low

(B) Plasma pH is high but plasma [HCO3] and arterial PCO2 are low

(C) Plasma pH and plasma [HCO3] are low but arterial PCO2 are normal

(D) Plasma pH and plasma [HCO3] are high but arterial PCO2 are normal

079. All of the following factors stimulate renin secretion except

(A) Increased sympathetic activity via renal nerves

(B) Increased circulating catecholamines

(C) Increased afferent arteriolar pressure

(D) Prostaglandins

080. Phosphate reabsorption is maximum from

(A) Distal Convoluted Tubule (B) Loop of Henle

(C) Collecting Duct (D) Proximal Convoluted Tubule

081. Metabolic syndrome of obesity includes all except

(A) Hyperinsulinemia (B) Hyperlipidemia

(C) Accelerated atherosclerosis (D) Decreased serum insulin levels

082. If the rate of Glomerular filtration is 125 mL/min, in 1 day the kidneys filter an amount of fluid equal to how many times the plasma volume?

(A) 4 times (B) 7 times

(C) 15 times (D) 60 times

083. Compared to hepatic bile, gallbladder bile contains a reduced concentration of which of the following?

(A) Bile acids (B) Chloride ions

(C) Potassium (D) Calcium ions

084. Which organ plays an important role in activating angiotensin I which is converted into angiotensin II ?

(A) Liver (B) Lungs

(C) Kidneys (D) Adrenal cortex

085. Filterability of myoglobin by Glomerular Capillaries is

(A) 1.0 (B) 0.75

(C) 0.075 (D) 0.5

086. All of the following drugs inhibit Na+ K+ 2Cl- cotransporter in the thick ascending limb of loop of Henle except

(A) Furosemide (B) Ethacrynic acid

(C) Acetazolamide (D) Bumetanide

087. The obligatory 24 hr urine volume to maintain solute homeostasis in a healthy adult male weighing 65 kg and consuming a balanced 2000 calorie diet is approximately

(A) 100 ml (B) 500 ml

(C) 1000 ml (D) 1500 ml

088. Atrial Natriuretic Peptide released by the cardiac atria act in which part of the renal tubule ?

(A) Proximal tubule (B) Collecting tubule

(C) Thick ascending loop of Henle (D) Descending limb of loop of Henle

089. The net effect of infusing intravenous 5% Glucose is that of infusing a

(A) Isotonic solution (B) Hypotonic solution

(C) Hypertonic solution (D) None of the above

090. Inability of the kidney to concentrate or dilute the urine is called as

(A) Azotemia (B) Uremia

(C) Isosthenuria (D) Aminoaciduria

091. The diuretic that acts by inhibiting Carbonic anhydrase activity exerts its effect in

(A) Proximal tubule (B) Loop of Henle

(C) Distal tubule (D) Collecting duct

092. Destruction of sensory nerve fibers to the bladder leads to

(A) Atonic bladder (B) Neurogenic bladder

(C) Hypertonic bladder (D) Automatic bladder

093. All are conditions associated with high levels of circulating ADH except

(A) Hemorrhage

(B) Nephrogenic Diabetes Insipidus

(C) Central Diabetes Insipidus

(D) Syndrome of inappropriate antidiuretic hormone

094. Normal peritubular capillary pressure is

(A) 40 mmHg (B) 8 mmHg

(C) 25 mmHg (D) 45 mmHg

095. The 'diluting segment' of the nephron is

(A) Proximal tubule (B) Descending limb of loop of Henle

(C) Thick ascending limb of loop of Henle (D) Cortical collecting duct

096. Which of the following is a branch of anterior internodal tract which connects right atrium and left atrium?

(A) Tract of Wenckebach (B) Tract of Thorel

(C) Bachman bundle (D) None of the above

097. The type of pulse that occurs in Aortic Regurgitation is

(A) Pulsus paradoxus (B) Water-hammer pulse

(C) Pulsus alternans (D) Pulsus bisferiens

098. The resting membrane potential of individual mammalian cardiac muscle cells is about

(A) –65 mV (B) –70 mV

(C) –90 mV (D) –110 mV

099. Initial rapid repolarization in the membrane potential of myocardial fibres is due to

(A) Opening of voltage gated Na+ channels (B) Opening of T type Ca2+ channels

(C) Opening of L type Ca2+ channels (D) Inactivation of voltage gated Na+ channels

100. Which of the following statement is true regarding digitalis?

(A) Originally derived from foxglove plant (B) Used in the treatment of systolic heart failure

(C) Inhibitor of Na+ K+ ATPase pump (D) All of the above

101. Which of the following interval in the ECG correlates with atrioventricular conduction?

(A) PR interval (B) RR interval

(C) QT interval (D) ST interval

102. Which of the following statements regarding sinus arrhythmia is false?

(A) Normal phenomenon

(B) Due to fluctuations in sympathetic output to heart

(C) Heart rate increases during inspiration

(D) Inhibition of cardioinhibitory area in medulla

103. All of the following statement regarding Stokes Adams syndrome are true except

(A) Idioventricular rhythm (B) Cerebral ischemia

(C) Periods of asystole (D) Heart rate is >45/min

104. Which of the following is a ECG feature in hyperkalemia?

(A) Prolonged PR interval (B) Prominent U wave

(C) Tall T wave (D) ST segment depression

105. The percentage of fetal cardiac output that goes through placenta is

(A) 25% (B) 55%

(C) 80% (D) 100%

106. Total electromechanical systole refers to

(A) Period from the onset of QRS complex to the closure of aortic valve (S2)

(B) Period from the beginning of carotid pressure rise to the dicrotic notch

(C) Time for the electrical and mechanical events that precede ventricular ejection

(D) All of the above

107. Cardiac muscle act as syncytium due to the presence of

(A) Tight junctions (B) Gap junctions

(C) Zonula occludens (D) Desmosomes

108. All of the following are features of the second heart sound except

(A) Duration is 0.12 sec (B) Loud sound

(C) Frequency is 25 Hz (D) Split present

109. Which of the following statement is true regarding Jugular venous pressure?

(A) 'a' wave occurs during last rapid active filling phase

(B) 'c' wave occurs during isovolumetric relaxation phase

(C) 'v' wave is due to rise in atrial pressure after opening of tricuspid valve

(D) All of the above

110. All of the following are causes of increase in cardiac output except

(A) Pregnancy (B) High environmental temperature

(C) Eating (D) Lying to standing

111. Average cardiac index is about

(A) 5 L/min/m^2 (B) 2.3 L/min/m^2

(C) 3.2 L/min/m^2 (D) 1.2 L/min/m^2

112. Cardioaccelerator action of the catecholamines is referred to as

(A) Chronotropic action (B) Inotropic action

(C) Bathmotropic action (D) Lusitropic action

113. Hypovolemic shock is characterised by all of the following features except

(A) Rapid thready pulse (B) Cold extremities

(C) Depressed respiration (D) Intense thirst

114. Which of the following statement is true regarding circulatory changes in exercise?

(A) In isotonic exercise there is a prompt increase in both heart rate and stroke volume

(B) In isometric exercise, total peripheral resistance increases

(C) Trained athletes have a larger stroke volume and lower heart rate

(D) All of the above

115. Pre-capillary sphincters are

(A) Not innervated

(B) Not affected by circulating vasoconstrictors

(C) Present on both arterial & venous side of capillaries

(D) All are true

116. Sinusoidal capillaries in which endothelium is discontinuous and gaps between endothelial cells are not closed by membrane in

(A) Brain (B) Liver

(C) Muscle (D) Intestinal villi

117. All of the following statements are true regarding arterio-venous anastomoses except

(A) Have thin walls (B) Abundantly innervated

(C) Bypasses capillaries (D) Present in earlobes

118. Hydraulic conductivity of capillaries is lowest in

(A) Brain (B) Intestinal mucosa

(C) Glomerulus of kidneys (D) Heart

119. Average normal arm-to-tongue circulation time is

(A) 5 sec (B) 15 sec

(C) 30 sec (D) 45 sec

120. In smaller blood vessels, the change in viscosity per unit change in hematocrit is much less compared to larger blood vessels. This is called

(A) Fahreus Lindquist effect (B) Windkessel effect

(C) Bernoulli principle (D) Henry's law

121. Which of the following part of the respiratory passage does not form part of the "respiratory zone"?

(A) Terminal bronchiole (B) Respiratory bronchiole

(C) Alveolar duct (D) Alveolar sac

122. True statement regarding Cushings reflex

(A) Caused by increased blood supply to neurons in rostral ventrolateral medulla

(B) Occurs in patients with raised intracranial tension

(C) Reflex tachycardia occurs

(D) All are true

123. All of the following statements regarding "mucociliary escalator" is true except?

(A) Ciliated epithelium is present from nose to alveoli

(B) Cilia beat at a rate of 10 to 15 Hz

(C) Ciliary mechanism moves particles away from lungs at a rate of 16mm/min

(D) Ciliary motility is defective in smokers

124. Which of the following statement is true regarding alveolar surface tension?

(A) Alveolar surface tension increases as the alveoli enlarge during inspiration

(B) Alveolar surface tension is inversely proportional to surfactant concentration per unit area

(C) Surfactant decreases the alveolar surface tension

(D) All of the above

125. Cystic Fibrosis Transmembrane conductance Regulator (CFTR) gene codes for

(A) Na^+ channel (B) Cl^- channel

(C) K^+ channel (D) Ca^{2+} channel

126. Functional Residual Capacity is about

(A) 1300 ml (B) 2500 ml

(C) 4600 ml (D) 5800 ml

127. Pulmonary function test in a 35 year old male reveals the following findings.
FVC – 4.0 L.min, FEV_1 – 3.3 L.min.
The probable diagnosis could be

(A) Normal study (B) Bronchial Asthma

(C) Pulmonary fibrosis (D) Chronic Obstructive Pulmonary Disease

128. Impedance matching is a function of

(A) Scala media

(B) Endolymph

(C) Tympanic membrane and ossicular system

(D) Cochlear nucleus

129. Which of the following statement is false?

(A) Ventilation is greater at the base of lungs

(B) Perfusion is greater at the base of lungs

(C) Ventilation perfusion ratio is greater at the base

(D) Ventilation perfusion ratio is less at the base than the apex

130. Overproduction of surfactant proteins leads to

(A) Infant Respiratory Distress Syndrome

(B) Pulmonary Alveolar Proteinosis

(C) Emphysema due to α1-antitrypsin deficiency

(D) All of the above

131. Work performed by the respiratory muscles is maximum for

(A) Elastic work (B) Viscous resistance

(C) Airway resistance (D) Diffusion

132. Which of the following protein mediates the movement of $HCO3^-$ formed in the red cells?

(A) Anion exchanger 1 (AE1) (B) Glycophorin A

(C) Spectrin (D) Ankyrin

133. Which of the following is a typical polysynaptic reflex?

(A) Stretch reflex (B) Axon reflex

(C) Inverse stretch reflex (D) Withdrawal reflex

134. Which of the following is not true regarding Type I skeletal muscle fibers ?

(A) They are slow muscle fibers (B) They have high glycolytic capacity

(C) They contain myoglobin (D) There are numerous mitochondria

135. Volume of air that moves out of the lungs with each expiration during normal quiet breathing is about

(A) 150 ml (B) 500 ml

(C) 1200 ml (D) 2300 ml

136. The gene coding which of the following proteins is the largest?

(A) Titin (B) Dystrophin

(C) Gigantin (D) Nebulin

137. Oxygen diffuses across the alveolo-capillary membrane and reaches equilibrium in about

(A) 0.1 sec (B) 0.3 sec

(C) 0.75 sec (D) 0.5 sec

138. Pulmonary capillary pressure at which pulmonary congestion and edema occurs is about

(A) 7 mmHg (B) 10 mmHg

(C) 25 mmHg (D) 80 mmHg

139. Partial Pressure of Carbon Dioxide (PCO2) of the blood leaving the lungs is about

(A) 40 mmHg (B) 46 mmHg

(C) 97 mmHg (D) 104 mmHg

140. Retrolental fibroplasia is a manifestation of

(A) Hypoxia (B) O_2 toxicity

(C) Hypocapnia (D) CO_2 narcosis

141. During voluntary hyperventilation, lowering of pCO_2 below 35mmHg results in

(A) Metabolic acidosis (B) Metabolic alkalosis

(C) Respiratory acidosis (D) Respiratory alkalosis

142. Partial pressure of O_2 in the atmospheric air at an altitude of 10000 feet with a barometric pressure of 523 mmHg is about

(A) 760 mmHg (B) 150 mmHg

(C) 110 mmHg (D) 210 mmHg

143. Which of the following is not the response of Rapidly adapting airway and lung receptors to lung hyperinflation?

(A) Hyperpnea (B) Cough

(C) Bronchoconstriction (D) Mucus secretion

144. Which of the following statement is true regarding oxygenation of hemoglobin?

(A) Iron in the heme stays as ferrous iron after oxygenation

(B) Oxygenation reaction is rapid requiring less than 0.01 sec

(C) Quarternary structure of Hb determines its affinity for O_2

(D) All of the above

145. All of the following conditions decreases the affinity of hemoglobin for O_2 except

(A) Acidosis

(B) Hypothermia

(C) Increase in 2, 3-Bisphosphoglyceric acid (2, 3-DPG)

(D) Exercise

146. Glomus cells have

(A) O2 sensitive K^+ channels (B) ATP sensitive K^+ channels

(C) Voltage gated K^+ channels (D) All of the above

147. Centre for light reflex is located in

(A) Cerebral cortex (B) Midbrain

(C) Pons (D) Medulla

148. Which of the following is the function of the Spino cerebellum?

(A) Control of eye movements and equilibrium

(B) Coordination of movements

(C) Planning and programming of movements

(D) All of the above

149. Two point discrimination is used to test the integrity of

(A) Anterolateral column (B) Dorsal column

(C) Spinocerebellar tracts (D) Vestibulospinal tract

150. Pallesthesia is

(A) Ability to identify objects by touch (B) Ability to identify joint position

(C) Ability to detect vibration (D) Ability to identify numbers

151. Vibration sense is tested by using a tuning fork with a frequency of

(A) 128 Hz (B) 256 Hz

(C) 512 Hz (D) 1024 Hz

152. Spontaneous burning pain after a seemingly trivial injury is

(A) Allodynia (B) Hyperalgesia

(C) Causalgia (D) Referred pain

153. All of the following statements are true regarding Valsalva maneuver except

(A) Forced expiration against closed glottis (B) Occurs during defecation

(C) Intrathoracic pressure increases (D) Blood pressure falls at the onset of straining

154. Which of the following type of the glial cells is involved in formation of blood brain barrier?

(A) Microglial cells (B) Schwann cells

(C) Oligodendrocytes (D) Astrocytes

155. All of the following sensations are carried by dorsal column-medial lemniscal pathway except

(A) Fine touch (B) Cold

(C) Proprioception (D) Vibration

156. Dorsal root ganglion of the spinal cord belongs to

(A) Unipolar neuron type (B) Pseudo unipolar neuron type

(C) Bipolar neuron type (D) Multipolar neuron type

157. A chemical synapse

(A) can conduct impulse in one direction only

(B) can conduct impulse in both directions

(C) cannot conduct impulse

(D) made up of gap junctions

158. In Saturday night palsy, pressure on a nerve can cause loss of conduction in large-diameter motor, touch and pressure fibers while pain sensation remains relatively intact. This is due to involvement of

(A) Type A fibres (B) Type B fibres

(C) Type C fibres (D) All of the above

159. First order neurons of the dorsal column synapse in

(A) Nucleus Tractus Solitarius (B) Red nucleus

(C) Cuneate nucleus (D) All of the above

160. Simple scratching relieves itching because

(A) Activation of fast conducting afferents gates transmission in the dorsal horn

(B) Release of endogenous antihistamines

(C) Itching is suppressed by descending pathways

(D) All of the above

161. All of the following statements are true regarding triple reflex except

(A) Normal reaction to injury

(B) Persists after total sympathectomy

(C) Wheal is due to arteriolar dilatation

(D) Flare is absent in locally anesthetised skin

162. An example of deep tendon reflex is

(A) Withdrawal reflex

(B) Plantar reflex

(C) Knee jerk

(D) Abdominal reflex

163. Cherry red discoloration of the skin and mucous membrane is due to

(A) CO poisoning

(B) Cyanide poisoning

(C) CO_2 poisoning

(D) All of the above

164. All of the following are true about gamma motor neuron except?

(A) Supplies the contractile ends of the muscle spindle

(B) Constitutes 30% of neurons in the ventral horn of spinal cord

(C) Fast conducting fibres carrying information at a rate of 70 to 120 m/sec

(D) 2 types of gamma motor neurons are present – dynamic and static

165. Which part of the body is represented bilaterally in the primary motor cortex?

(A) Face

(B) Finger tips

(C) Genitalia

(D) Abdomen

166. Lesion in which of the following area causes difficulty with bimanual coordination?

(A) Primary motor cortex

(B) Premotor cortex

(C) Supplementary motor cortex

(D) Somatosensory cortex

167. Inability to execute learned movements like eating with a knife and fork is due to lesion in

(A) Primary motor cortex

(B) Premotor cortex

(C) Supplementary motor cortex

(D) Somatosensory cortex

168. All of the following are true regarding corticospinal tract except

(A) About 1 million fibres are present

(B) 80% of the fibres remain uncrossed

(C) Lateral corticospinal tract is concerned with distal muscle control

(D) Corticospinal fibres can terminate directly on spinal motor neurons or on spinal interneurons

169. Which of the following is a Rapidly adapting receptor?

(A) Pacinian corpuscle

(B) Merkel's disc

(C) Ruffini's endings

(D) Muscle spindle

170. Which of the following tract is concerned with distal muscle control?

(A) Reticulospinal tract

(B) Rubrospinal tract

(C) Vestibulospinal tract

(D) All of the above

171. All of the following are features of Horner's syndrome except

(A) Ptosis (B) Mydriasis

(C) Anhidrosis (D) Vasodilation

172. Climbing fibres carry proprioceptive input to cerebellum through

(A) Ventral spinocerebellar tract (B) Cuneocerebellar tract

(C) Vestibulocerebellar tract (D) Olivospinal tract

173. Typical spike and wave pattern in the EEG is present in

(A) Grand mal seizures (B) Petit mal seizures

(C) Simple partial seizures (D) Complex partial seizures

174. Calcitriol increases Ca2+ absorption in the intestine by increasing the number of

(A) Calbindins

(B) Ca2+ ATPase

(C) TRPV-6 (Transient receptor potential channels of the vanilloid subtype)

(D) All of the above

175. Which of the following regulates aldosterone secretion?

(A) Angiotensin II (B) ACTH

(C) Hyperkalemia (D) All of the above

176. Apparent Mineralocorticoid Excess is due to absence of

(A) 3β-hydroxysteroid dehydrogenase (B) 21-hydroxylase

(C) 11β-hydoxysteroid dehydrogenase 2 (D) 11-hydroxylase

177. Which of the following blood cell is increased by Glucocorticoids?

(A) Eosinophil (B) Lymphocyte

(C) Basophil (D) Neutrophil

178. "Glucose fever" occurs in

(A) Cushing's syndrome (B) Adrenal insufficiency

(C) Diabetes mellitus (D) Hypoglycemia

179. Which of the following actions of catecholamines requires the permissive action of Glucocorticoids?

(A) Calorigenic effect (B) Lipolysis

(C) Vasopressor response (D) All of the above

180. Which of the following enzymes involved in cortisol synthesis is not a cytochrome P450 enzyme?

(A) Cholesterol desmolase (B) 3β-hydroxysteroid dehydrogenase

(C) 17α-hydroxylase (D) 11β-hydroxylase

181. Which of the following Glucose transporter is a B-cell glucose sensor?

(A) GLUT 1 (B) GLUT 2

(C) GLUT 3 (D) GLUT 4

182. Which of the following drug inhibits peripheral conversion of T4 to T3?

(A) Propylthiouracil (B) Methimazole

(C) Carbimazole (D) All of the above

183. Wolff-Chaikoff effect is

(A) Feedback inhibition of TSH by T3

(B) Transient inhibition of thyroid hormone synthesis by large doses of iodide in normal people

(C) Movement of iodine into the colloid for organification

(D) Endocytosis of colloid during release of thyroid hormones

184. Sheehan syndrome is post partum necrosis of

(A) Pancreas (B) Pineal gland

(C) Pituitary gland (D) Adrenal gland

185. In females, the first event during puberty is

(A) Thelarche (B) Pubarche

(C) Menarche (D) Adrenarche

186. Kasper Hauser syndrome is stunted growth due to

(A) Chronic abuse and neglect

(B) Loss of function mutation in growth hormone receptors

(C) Mutation in fibroblast growth factor3

(D) Isolated growth hormone deficiency

187. Bezold jarisch reflex can be elicited by all the substances except

(A) Capsaicin (B) Endothelin

(C) Phenylbiguanide (D) Veratridine

188. High output cardiac failure occurs in all the following conditions except

(A) Anemia (B) Beriberi

(C) Arteriovenous fistula (D) Myxedema

189. Secondary hypertension is associated with all of the following except

(A) Cushing's syndrome (B) Pheochromocytoma

(C) Hypoaldosteronism (D) Renal artery stenosis

190. Which of the following organs has the greatest blood flow per 100g of tissue?

(A) Brain (B) Cardiac Muscle

(C) Liver (D) Kidneys

191. True about Kallmann Syndrome is

(A) Characterized by increased levels of FSH & LH

(B) Defective hypothalamic GnRH synthesis

(C) Due to tumor of anterior pituitary

(D) Associated with hyperphagia & obesity

192. All the following increases Growth hormone secretion Except

(A) Stress (B) Fasting

(C) Exercise (D) REM sleep

193. Umbilical cord has

(A) 2 veins and 1 artery (B) 2 arteries and 1 vein

(C) 2 arteries and 2 veins (D) 1 artery and 1 vein

194. Metyrapone test is used to assess

(A) Thyroid function (B) Kidney function

(C) Adrenocortical function (D) Gonodal function

195. Which of the following inhibits synthesis and secretion of prolactin by lactotropes ?

(A) somatostatin (B) dopamine

(C) oestrogen (D) oxytocin

196. All the following are components of 'FINER ' criteria for a research question except

(A) Feasible (B) Reliable

(C) Novel (D) Ethical

197. Which of the following actions can be termed as breach of 'Professional Ethics'?

(A) A physician who refers patients to a specialist in return for monetary favours

(B) A scientist who exaggerates the importance of his discoveries to encourage investors in his biotech company

(C) A lawyer who lies to the Judge

(D) All of the above

198. In which type of shock, sympathomimetic drugs are not useful?

(A) Neurogenic shock (B) Anaphylactic shock

(C) Hemorrhagic shock (D) All of the above

199. The mean electrical axis of the heart is shifted to the left in

(A) End of deep expiration (B) Supine position

(C) Obese person (D) All of the above

200. Which of the following vitamin helps to reduce the blood concentration of the amino acid homocysteine which exerts several proatherosclerotic effects?

(A) Vitamin A (B) Vitamin C

(C) Vitamin D (D) Folic acid