

**AME**  
**PROVISIONAL ANSWER KEY (CBRT)**

<b>Name of The Post</b>	<b>Professor, Physiology, General State Service, Class-1</b>
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<b>Suggestion (S)</b>	

**Instructions / સૂચના**

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

- (1) All the suggestion should be submitted Physically in prescribed format of suggestion sheet.
- (2) Question wise suggestion to be submitted in the prescribed format of Suggestion Sheet published on the website.
- (3) All suggestions are to be submitted with reference to the Master Question Paper with provisional answer key, 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 /response sheet. Objections shall not be considered, in case, if responses given in the answer sheet /response sheet and submitted suggestions are differed. For the purpose, the candidate shall attach a copy of his answersheet/ Response sheet along with his application(s).
- (6) Objection for each question shall be made on separate Suggestion sheet. Objection for more than one question in single Suggestion sheet shall not be considered & treated as cancelled.

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

- (1) ઉમેદવારે વાંધા-સૂચનો નિયત કરવામાં આવેલ વાંધા-સૂચન પત્રકથી રજૂ કરવાના રહેશે.
- (2) ઉમેદવારે પ્રશ્નપ્રમાણે વાંધા-સૂચનો રજૂ કરવા વેબસાઈટ પર પ્રસિધ્ધ થયેલ નિયત વાંધા-સૂચન પત્રકના નમૂનાનો જ ઉપયોગ કરવો.
- (3) ઉમેદવારે 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) ઉમેદવારે જે પ્રશ્નના વિકલ્પ પર વાંધો રજૂ કરેલ છે અને વિકલ્પ રૂપે જે જવાબ સૂચવેલ છે એ જવાબ ઉમેદવારે પોતાની ઉત્તરવહીમાં આપેલ હોવો જોઈએ. ઉમેદવારે સૂચવેલ જવાબ અને ઉત્તરવહીનો જવાબ ભિન્ન હશે તો ઉમેદવારે રજૂ કરેલ વાંધા-સૂચન ધ્યાનમાં લેવાશે નહીં. આ હેતુ માટે, ઉમેદવારે પોતાની અરજી(ઓ) સાથે પોતાની જવાબવહીની એક નકલનું બિડાણ કરવાનું રહેશે.
- (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. All of the following are true about Na, K-ATPase except that it  
 (A) Is an Electrogenic pump (B) Has coupling ratio of 3:2  
 (C) Is not inhibited by Ouabain (D) Is an Antiport
002. All of the following are true about apoptosis except that it is  
 (A) Called Programmed cell death (B) Called cell suicide  
 (C) Same as cell necrosis (D) Brought about by activation of caspases
003. Which of the following is not a  $Ca^{2+}$  binding protein?  
 (A) Troponin (B) Calmodulin  
 (C) Calbindin (D) Tropomyosin
004. In peripheral nervous system, myelin around axon is formed by  
 (A) Microglia (B) Oligodendrocytes  
 (C) Schwann cells (D) Astrocytes
005. In Central nervous system, myelin around axon is formed by  
 (A) Microglia  (B) Oligodendrocytes  
 (C) Schwann cells (D) Astrocytes
006. In Neurons, the RMP is close to the equilibrium potential for  
 (A)  $K^+$  (B)  $Na^+$   
 (C)  $Cl^-$  (D)  $Ca^{2+}$
007. Decreasing the  $Na^+$  concentration in ECF of a nerve  
 (A) Makes the RMP more negative  (B) Reduces the size of the AP  
 (C) Increases the size of the AP (D) Makes the RMP more positive.
008. If the extra cellular level of  $K^+$  is increased  
 (A) RMP becomes more positive (B) RMP becomes more negative  
 (C) Neuron is less excitable (D) There is no effect on neuron
009. If the extra cellular level of  $K^+$  is decreased.  
 (A) RMP becomes more positive  (B) RMP becomes more negative  
 (C) Neuron is more excitable (D) There is no effect on neuron.
010. A decreased in extracellular  $Ca^{2+}$  concentration  
 (A) Decreases the excitability of nerve  (B) Increases the excitability of nerve  
 (C) Stabilizes the membrane (D) Does not cause much effect on neuron
011. The number of  $Na^+$  channels in myelinated neurons are highest  
 (A) On cell body (B) In Initial segment  
 (C) On surface of myelin (D) At node of Ranvier
012. Nerve fibers with the largest diameter are those of  
 (A) Somatic motor (B) Pain  
 (C) Temperature (D) Pressure
013. Nerve fibers with lowest conduction velocity are  
 (A)  $A\alpha$  (B)  $A\beta$   
 (C) B (D) C
014. Nerve fibers most susceptible to hypoxia are  
 (A) B (B)  $A\beta$   
 (C) C (D)  $A\alpha$

015. Nerve fibers least susceptible to pressure are  
 (A) B (B) A $\beta$   
 (C) C (D) A $\alpha$
016. Nerve fiber most susceptible to local anesthetics are  
 (A) B (B) A $\beta$   
 (C) C (D) A $\alpha$
017. Type I skeletal muscle fibers are  
 (A) Fast type  (B) Slow type  
 (C) White in colour (D) Glycolytic type
018. Resting length is the length of the muscle at which  
 (A) Passive tension is maximal  (B) Active tension is maximal  
 (C) Active tension minimal (D) Passive tension is minimal
019. Depolarisation of the T tubule membrane activates the sarcoplasmic reticulum via  
 (A) Ryanodine receptors  (B) Dihydropyridine receptors  
 (C) Muscarinic receptors (D) Nicotinic receptors
020. In Myasthenia Gravis, antibodies are formed to  
 (A) Muscarinic acetyl choline receptors  (B) Nicotinic acetyl choline receptors  
 (C) Adrenergic receptors (D) Nor adrenergic receptors
021. The principal cells in the epithelium of the collecting ducts are involved in  
 (A) K<sup>+</sup> reabsorption (B) Ca<sup>++</sup> reabsorption  
 (C) Na<sup>+</sup> reabsorption (D) HCO<sub>3</sub><sup>-</sup> reabsorption
022. The intercalated cells in the epithelium of the collecting duct are involved in  
 (A) K<sup>+</sup> reabsorption (B) Na<sup>+</sup> reabsorption  
 (C) Acid secretion (D) Water reabsorption
023. Renal blood flow can be estimated using  
 (A) p- aminohippuric acid (B) Inulin  
 (C) Urea (D) Creatinine
024. Glomerular Filtration Rate can be estimated by using  
 (A) p-aminohippuric acid  (B) Inulin  
 (C) Urea (D) Glucose
025. In resting adult, the Kidney receives  
 (A) 1 L of blood/min  (B) 1.2 L of blood/min  
 (C) 1.4 L of blood/min (D) 1.5 L of blood/min
026. The GFR in a healthy adult is  
 (A) About 100 ml/min  (B) About 125 ml/min  
 (C) About 90 ml/min (D) About 150 ml/min
027. Autoregulation of renal blood flow occurs at pressure of  
 (A) 100-180 mmHg (B) 150-250 mmHg  
 (C) 90-220 mmHg (D) 70-200 mmHg
028. Relaxation of mesangial cells in kidney is caused by  
 (A) Endothelin (B) Vasopressin  
 (C) Dopamine (D) Angiotensin II

029. Contraction of mesangial cells in kidney is caused by  
 (A) cAMP (B) Dopamine  
 (C) ANP (D) Vasopressin
030. The renal threshold for glucose in arterial plasma is about  
 (A) 300 mg/dl (B) 180 mg/dl  
 (C) 375 mg/dl (D) 200 mg/dl
031. Glucose is reabsorbed along with Na<sup>+</sup> in  
 (A) Early portion of PCT (B) Loop of Henle  
 (C) Early portion of DCT (D) Collecting tubule
032. About 60% of the filtered Na<sup>+</sup> is reabsorbed in  
 (A) PCT (B) DCT  
 (C) Loop of Henle (D) Collecting tubule
033. Water moves rapidly out of PCT via  
 (A) Aquaporin - I (B) Aquaporin - 2  
 (C) Aquaporin - 3 (D) Aquaporin - 4
034. Vasopressin causes reabsorption of water in collecting ducts via  
 (A) Aquaporin - I (B) Aquaporin - 2  
 (C) Aquaporin - 3 (D) Aquaporin - 4
035. In counter current mechanism, loop of Henle is the  
 (A) Counter current multiplier (B) Counter current exchanger  
 (C) Both (A) and (B) (D) None of the above
036. In counter current mechanism, vasa recta is the  
 (A) Counter current multiplier (B) Counter current exchanger  
 (C) Both (A) and (B) (D) None of the above
037. The sympathetic nerves to the urinary bladder  
 (A) Contract the detrusor muscle (B) Relax the internal urethral sphincter  
 (C) Relax the external urethral sphincter (D) Play no part in micturition
038. Renin is secreted by  
 (A) Juxtaglomerular Cells (B) Lacis cells  
 (C) Mesangial cells (D) Macula densa
039. Renin secretion is stimulated by  
 (A) Increased circulating catecholamines  
 (B) Increased Na<sup>+</sup> reabsorption across Macula densa  
 (C) Angiotensin II  
 (D) Vasopressin
040. Renin secretion is increased by  
 (A) Hypotension (B) Hypertension  
 (C) Na<sup>+</sup> excess (D) Overhydration

041. The initial rapid depolarization and the overshoot (phase O) in action potential of a cardiac muscle fiber are due to  
 (A) Opening of voltage gated  $\text{Na}^+$  channels  
 (B) Opening of voltage gated  $\text{K}^+$  channels  
 (C) Opening of voltage gated T type  $\text{Ca}^{++}$  channels  
 (D) Opening of voltage gated L type  $\text{Ca}^{++}$  channels
042. The plateau phase of action potential in a cardiac muscle fiber is due to  
 (A) Opening of voltage gated  $\text{Ca}^{++}$  channels  
 (B) Closing of voltage gated  $\text{Ca}^{++}$  channels  
 (C) Opening of voltage gated  $\text{Na}^+$  channels  
 (D) Closing of voltage gated  $\text{Na}^+$  channels
043. A V nodal delay is about  
 (A) 0.1 S  
 (B) 0.1 m sec  
 (C) 0.01 sec  
 (D) 1 m sec
044. Atrial repolarization normally occurs during  
 (A) P wave  
 (B) Q RS Complex  
 (C) T wave  
 (D) S T segment
045. The ventricles are depolarized during  
 (A) QRS complex  
 (B) T wave  
 (C) P wave  
 (D) U wave
046. P wave, QRS complex & T wave are all negative deflections in  
 (A) aVL  
 (B) aVR  
 (C) aVF  
 (D) None of the above
047. Acceleration of heart rate during inspiration & deceleration of heart during expiration is called  
 (A) Marey's law  
 (B) Starling's law  
 (C) Sinus arrhythmia  
 (D) Bainbridge reflex
048. During each cardiac cycle the atrial contraction usually causes an additional  
 (A) 20% filling of the ventricles  
 (B) 10% filling of the ventricles  
 (C) 5% filling of the ventricles  
 (D) 40% filling of the ventricles
049. The peak systolic pressure in right ventricle is about  
 (A) 120 mm Hg  
 (B) 25 mm Hg  
 (C) 50 mm Hg  
 (D) 80 mm Hg
050. Jugular venous pulse record of a patient having complete heart block will show  
 (A) A giant "a" wave  
 (B) A giant "c" wave  
 (C) Absence of "a" wave  
 (D) Absence of "c" wave
051. "a" wave of Jugular venous pulse record is due to  
 (A) Atrial diastole  
 (B) Atrial systole  
 (C) Ventricular systole  
 (D) Ventricular diastole

052. 'c' wave of jugular venous pulse record is due to  
 (A) Atrial systole  
 (B) Bulging of tricuspid valve into atria during Isovolumetric ventricular contraction  
 (C) Rise in atrial pressure before tricuspid valve opening during systole  
 (D) Pulling of AV valves with onset of ventricular systole proper
053. First heart sound is caused due to  
 (A) Sudden closure of the mitral & tricuspid valves  
 (B) Sudden closure of the aortic & pulmonary valves  
 (C) Sudden opening of the mitral & tricuspid valves  
 (D) Sudden opening of the aortic & pulmonary valves
054. Second heart sound is caused due to  
 (A) Sudden closure of mitral & tricuspid valves  
 (B) Sudden closure of aortic & pulmonary valves  
 (C) Sudden opening of aortic & pulmonary valves  
 (D) Sudden opening of mitral & tricuspid valves
055. Third heart sound coincides with  
 (A) Closure of atrioventricular valve (B) Closure of semilunar valve  
 (C) Phase of ventricular ejection (D) Period of rapid ventricular filling
056. Intraventricular pressure rises sharply during  
 (A) Isovolumetric ventricular contraction (B) First rapid ventricular filling phase  
 (C) Rapid ejection phase (D) Last rapid ventricular filling phase
057. Range of operation of carotid sinus baroreceptors is between  
 (A) 40-150 mm Hg (B) 0-60 mm Hg  
 (C) 60-200 mm Hg (D) 50-100 mm Hg
058. Increased baroreceptors discharge  
 (A) Stimulates the tonic discharge of vasoconstrictor nerves  
 (B) Excites vagal innervation to the heart  
 (C) Inhibits vagal innervation to the heart  
 (D) Stimulates sympathetic nerves to the heart
059. Total pulmonary vascular resistance is about  
 (A) 0.14 PRU (B) 1 PRU  
 (C) 0.22 PRU (D) 3 PRU
060. Total cross sectional area is highest in  
 (A) Arteries (B) Arterioles  
 (C) Capillaries (D) Veins
061. Total peripheral resistance of entire systemic circulation at rest is  
 (A) 1 PRU (B) 2 PRU  
 (C) 0.14 PRU (D) 0.22 PRU
062. The windkessel effect is seen in  
 (A) Large arteries (B) Arterioles  
 (C) Capillaries (D) Veins

063. Veins are called as  
 (A) Capacitance vessels (B) Resistance vessels  
 (C) Windkessel vessels (D) Exchange vessels
064. Resistance vessels are  
 (A) Small arteries and arterioles (B) Veins and venules  
 (C) Capillaries (D) Large arteries
065. In a long narrow tube the resistance varies inversely with  
 (A) The fourth power of the radius (B) The fourth power of the length  
 (C) Square of the radius (D) Square of the length
066. The rate of blood flow through a vessel is directly proportional to the  
 (A) Square of radius  
 (B) Square root of the length  
 (C) The fourth power of the radius of the vessel  
 (D) Square root of the radius
067. Coronary blood flow in the left coronary artery is maximum during  
 (A) Isovolumetric contraction phase  (B) Isovolumetric relaxation phase  
 (C) Rapid ejection phase (D) Slow ejection Phase
068. In first degree incomplete heart block  
 (A) PR interval increases to greater than 0.2 sec  
 (B) PR interval increases to greater than 0.12 sec  
 (C) PR interval increases to greater than 0.14 sec  
 (D) PR interval increases to greater than 0.16 sec
069. In left coronary artery blood flow falls for almost to zero level during  
 (A) Isovolumetric ventricular contraction (B) Isovolumetric ventricular relaxation  
 (C) Diastases (D) Rapid filling phase
070. Compared to untrained individual the trained athletes have  
 (A) Larger stroke volume (B) Lower heart rate  
 (C) Larger heart  (D) All of the above
071. Increase in conductivity of conduction tissue in the heart caused by sympathetic nerve stimulation is called  
 (A) Positive bathmotropic action  (B) Positive dromotropic action  
 (C) Positive chronotropic action (D) Positive inotropic action
072. Increase in the excitability of the heart caused by sympathetic nerve stimulation is called  
 (A) Positive inotropic action (B) Positive chronotropic action  
 (C) Positive dromotropic action  (D) Positive bathmotropic action
073. In normal human being with heart rate 72 beats/min the duration of cardiac cycle is around  
 (A) 0.4 sec per beat (B) 0.2 sec per beat  
 (C) 0.8 sec per beat (D) 0.6 sec per beat
074. The pressure difference between aorta and left ventricles during systole is  
 (A) -1 mm Hg (B) +1 mm Hg  
 (C) 80 mm Hg (D) 98 mm Hg

075. The extent of the preload of the heart is proportional to  
 (A) EDV (B) ESV  
 (C) Systemic vascular resistance (D) Stroke Volume
076. An action not seen of parathyroid hormone  
 (A) Increase plasma  $\text{Ca}^{2+}$  and decrease plasma  $\text{Po}_4$   
 (B) Increase both plasma  $\text{Ca}^{2+}$  and plasma  $\text{Po}_4$   
 (C) Increase  $\text{Ca}^{2+}$  and  $\text{Po}_4$  absorption from the bone  
 (D) Increase  $\text{Ca}^{2+}$  reabsorption from DCT
077. The feature not seen with osteoporosis  
 (A) Diminished organic bone matrix  
 (B) Osteoblastic activity less than normal  
 (C) Occurs due to increase in bone formation and decrease in bone resorption  
 (D) Predisposes to fracture
078. For calcium metabolism all of the following are required except  
 (A) Vitamin D (B) Parathyroid  
 (C) Calcitonin  (D) Oxytocin
079. Tetany features include all of the following except  
 (A) Neuromuscular hyper excitability (B) Carpopedal spasm  
 (C) Trousseau's sign  (D) Clotting defects
080. Rickets may be associated by all of the following except  
 (A) Vitamin D deficiency (B) Bone deformities in young children  
 (C) Liver dysfunction  (D) Solubility product is normal
081. Effects not seen with activation of Myenteric plexus in GIT  
 (A) Increase tone of gut wall  
 (B) Increased secretion  
 (C) Increased peristalsis  
 (D) Increased intensity of the rhythmical contraction of gut wall
082. Not true about submucous (Meissner's) plexus  
 (A) Lies between submucous and inner circular muscle layer  
 (B) Mainly sensory in function  
 (C) Controls exocrine secretions  
 (D) Controls tone of the gut wall
083. Salivary component that does not contribute to minimize risk of buccal infection and dental caries  
 (A) Ptyalin (B) Lysozymes  
 (C) Thiocyanate ions (D) Antibodies
084. Which phase of swallowing / deglutition is involuntary?  
 (A) Oral and Oesophageal  (B) Pharyngeal and oesophageal  
 (C) Only oesophageal (D) Oral and Pharyngeal

085. Not a true statement with reference to deglutition apnea is  
 (A) Refers to momentary inhibition of breathing during swallowing  
 (B) Lasts until bolus reaches the oesophagus  
 (C) Prevents aspiration of food into larynx  
 (D) A voluntary reflex
086. Achalasia cardia is characterized by all except  
 (A) Lower esophageal sphincter fails to relax during swallowing  
 (B) Accumulation of food in the oesophagus  
 (C) Increased in number of nitric oxide neurons in the lower oesophagus  
 (D) Damage in the neural network of the myenteric plexus in lower two thirds of oesophagus
087. Which of the following is not a function of stomach?  
 (A) Reservoir for the food ingested  
 (B) Provide HCL for initial digestion of protein  
 (C) Release of food at a controlled rate into the duodenum  
 (D) Absorbs vitamin B<sub>12</sub>
088. Post Prandial alkaline tide caused by  
 (A) Rise in HCO<sub>3</sub> in systemic blood pH following a meal  
 (B) Loss of HCO<sub>3</sub> in urine  
 (C) Depressed breathing  
 (D) Rise in alveolar PCO<sub>2</sub>
089. Intestinal factor that promotes gastric emptying  
 (A) Hyperosmolarity of the duodenal chyme (B) Presence of protein in the duodenum  
 (C) Distention of duodenum (D) Decreased secretion of CCK
090. Total gastrectomy may lead to all except  
 (A) Protein indigestion (B) Severe Anemia  
 (C) Giddiness (D) Dizziness, pallor and sweating after meals
091. Pepsinogen is secreted from  
 (A) Parietal (or oxyntic cells) (B) Chief (or peptic cells)  
 (C) G-cells (D) Mucous neck cells
092. True about Trypsin inhibitor  
 (A) Secreted as inactive proenzyme  
 (B) Powerful protein splitting enzymes  
 (C) Protects the pancreas from auto – digestion  
 (D) helps raising pH of duodenal contents
093. Pancreatic juice rich in water and electrolytes but poor in enzymes is secreted in response to  
 (A) Pancreozymin (B) CholecystoKinin  
 (C) Secretin (D) Gastrin
094. The hormone generally considered to be the major stimulus for enzyme secretion by the pancreas is  
 (A) CholecystoKinin (B) Secretin  
 (C) Trypsin (D) Gastrin

095. Most potent stimulus for bile secretion from the liver is  
 (A) CholecystoKinin (B) Secretin  
 (C) Bile pigments (D) Bile salts
096. Cholterics are the substance which causes  
 (A) Contraction of the gall bladder (B) Increase biliary secretion from the liver  
 (C) Neutralization of acid from the stomach (D) Solubility of fats in micelles
097. Cholegogues are the substance which cause  
 (A) Contraction of the gall bladder (B) Increase concentration of bile  
 (C) Increase Secretion of bile (D) Favours acidification of bile
098. Cholelithiasis means  
 (A) Substance that causes contraction of gall bladder  
 (B) Substance that increases biliary secretion from the liver  
 (C) Stones in gall bladder  
 (D) Bile salts and bile pigments
099. In infant, defecation often follows a meal, most likely cause will be  
 (A) Increased circulating levels of CCK (B) Gastro-ileal reflex  
 (C) Gastro- colic reflex (D) Entero-gastric reflex
100. Not a function of Gall bladder  
 (A) Storage of bile  
 (B) Regulates equalization of pressure in biliary system  
 (C) Increases alkalinity of stored bile  
 (D) Actively absorbs fluid and electrolytes of stored bile
101. Surfactant lining the alveoli  
 (A) Helps prevent alveolar collapse  
 (B) Is produced by type I alveolar cells  
 (C) Is increased in the lungs of heavy smokers  
 (D) Is a glycolipid complex
102. On the summit of Mt. Everest, where the barometer pressure is about 250 mm Hg the partial pressure of O<sub>2</sub> in mm Hg is about  
 (A) 0.1 (B) 5  
 (C) 50 (D) 100
103. The main respiratory control neurons  
 (A) Sends out regular bust of impulses to expiratory muscles during quiet respiration  
 (B) Are unaffected by stimulation of pain receptors  
 (C) Are located in the pons  
 (D) Send out regular burst of impulses to Inspiratory muscles during quiet respiration
104. Most of CO<sub>2</sub> transported in the blood is  
 (A) Dissolved in plasma  
 (B) In Carbamino compound formed from plasma proteins  
 (C) In Carbamino compound formed from Hemoglobin  
 (D) In HCO<sub>3</sub><sup>-</sup>

105. Which of the following has the greatest effect on the ability of blood to transport oxygen?  
 (A) Capacity of the blood to dissolve oxygen  
 (B) Amount of hemoglobin in the blood  
 (C) pH of plasma  
 (D) CO<sub>2</sub> content of RBC
106. I.V Lactic acid increases ventilation. The receptors responsible for this effect are located in the  
 (A) Medulla oblongata  
 (B) Carotid bodies  
 (C) Lung Parenchyma  
 (D) Trachea and large bronchi
107. Spontaneous respiration ceases after  
 (A) Transection of the brainstem above the pons  
 (B) Transection of the brainstem at the caudal end of the medulla  
 (C) Bilateral vagotomy  
 (D) Bilateral vagotomy combined with transection of the brainstem at the superior border of the pons
108. Events which occurs in the carotid bodies when exposed to hypoxia are listed in random order  
 1. Depolarization of type I glomus cells  
 2. Excitation of afferent nerve ending  
 3. Reduced Conductance of hypoxia- sensitive k<sup>+</sup> channels in type I glomus cells  
 4. Ca<sup>2+</sup> entry into type I glomus cells  
 5. Decreased K<sup>+</sup> efflux  
 Arrange in sequence in which they occur  
 (A) 1, 3, 4, 5, 2 (B) 1, 4, 2, 5, 3  
 (C) 3, 4, 5, 1, 2 (D) 3, 5, 1, 4, 2
109. Injection of a drug that stimulates the carotid bodies would be expected to cause  
 (A) A Decrease in the pH of arterial blood  
 (B) A Decrease in the PCO<sub>2</sub> of arterial blood  
 (C) An increase in the HCO<sub>3</sub><sup>-</sup> concentration of arterial blood  
 (D) A increase in urinary Na<sup>+</sup> excretion
110. Variation in which of the following components of blood or CSF do not affect respiration?  
 (A) Arterial HCO<sub>3</sub><sup>-</sup> concentration (B) Arterial H<sup>+</sup> concentration  
 (C) Arterial Na<sup>+</sup> concentration (D) CSF H<sup>+</sup> concentration
111. APUD cells in the lung alveoli secrete  
 (A) Surfactant (B) Immunoglobulin  
 (C) VIP (D) Heparin
112. Sympathetic stimulation of the bronchus causes  
 (A) Bronchial contraction (B) Increased secretion from glands  
 (C) No effect  (D) Bronchial dilatation
113. Mark the correct response  
 (A) Arterial PO<sub>2</sub>: 104 mm Hg (B) Venous PCO<sub>2</sub>: 40 mm Hg  
 (C) Arterial PCO<sub>2</sub>: 40 mm Hg (D) Venous PO<sub>2</sub>: 46 mm Hg

114. Which of the following is the best known metabolic function of the lung  
 (A) Inactivation of 5-HT  
 (B) Conversion of Angiotensin I to Angiotensin II  
 (C) Inactivation of bradykinin  
 (D) Activation of prostaglandins
115. For each 1 cm descent of diaphragm, the amount of air sucked into the lungs is  
 (A) 100-200 ml  
 (B) 200-300 ml  
 (C) 300-400 ml  
 (D) 400-500 ml
116. Intrapleural pressure is negative both during inspiration and expiration because  
 (A) Intrapulmonary pressure is always negative  
 (B) Thoracic cage and lungs are elastic structure and recoil in opposite direction  
 (C) Transpulmonary pressure determines the negativity  
 (D) Surfactant prevents the collapse of the lung
117. Volent pressure can cause Intrapleural pressure to rise to  
 (A) The level of atmospheric pressure  
 (B) +40 mm Hg  
 (C) +50 mm Hg  
 (D) +60 to 70 mm Hg
118. Spirometry measures all except  
 (A) VC  
 (B) IRV  
 (C) FRC  
 (D) Tidal volume
119. Inspiratory capacity is total of  
 (A) RV + IRV  
 (B) IRV + TV  
 (C) IRV + ERV  
 (D) ERV + RV
120. VC is decreased but timed VC is normal in  
 (A) Bronchial asthma  
 (B) Scoliosis  
 (C) Chronic bronchitis  
 (D) Emphysema
121. Closing volume of lung determines  
 (A) Transmural pressure  
 (B) RV  
 (C) Small air way resistance  
 (D) Dead space
122. Calculate alveolar ventilation per min, given respiratory rate is 14/min, T.V of 500ml, VC of 4 L & Dead space of 150 ml  
 (A) 4900 ml  
 (B) 2000 ml  
 (C) 7000 ml  
 (D) 7700 ml
123. V/P ratio is maximum at apex of lung due to  
 (A) Blood flow is increased considerably more than ventilation  
 (B) Blood flow is decreased considerably more than ventilation  
 (C) Base of lung has high ventilation in relation to blood flow  
 (D) Direct connection with Trachea
124. Oxygen dissociation curve is shifted to the right in all except  
 (A) Fall in pH  
 (B) Rise in temperature  
 (C) Increase in 2, 3 BPG  
 (D) HbF

125. Not a feature of a trained athlete  
 (A) Psychic stimuli are less  
 (B) Cardio respiratory responses do not reach a steady state level  
 (C) Optimal blood flow distribution  
 (D) Mobilization of free fatty acids occurs rapidly
126. Oxygen helium mixture is used for deep sea diving because of all the following except  
 (A) Helium is less soluble in fats than N<sub>2</sub>  
 (B) Helium diffuses out quickly  
 (C) High density Helium keeps airway resistance at minimum.  
 (D) Such a gas mixture is safe
127. Nitrogen narcosis is caused due to  
 (A) Nitrogen inhibiting dismutase enzyme  
 (B) Increased production of nitrous oxide  
 (C) Increased solubility of nitrogen in nerve cell membrane  
 (D) Decrease in O<sub>2</sub> free radicals
128. Which of the following does not occur in high altitude acclimatization  
 (A) Hyperventilation  
 (B) Polycythemia  
 (C) O<sub>2</sub> dissociation curve shift to right  
 (D) Decreased density of systemic capillaries
129. Which of the following in the body does not vary with increase in altitude  
 (A) PO<sub>2</sub> (B) PCO<sub>2</sub>  
 (C) PN<sub>2</sub>  (D) PH<sub>2</sub>O
130. Oxygen debt  
 (A) Is impossible to incur when breathing pure oxygen  
 (B) Can never occur in healthy individual  
 (C) Is often evidenced by an increase in lactic acid  
 (D) Is caused by lack of anaerobic metabolism
131. Total blood volume is approximately:  
 (A) 8% (or 80 ml/kg) of body weight (B) 15% (or 150 ml/kg) of body weight  
 (C) 25 % (or 250 ml/kg) of body weight (D) 30% (or 300 ml/kg) of body weight
132. In premature and newborn babies, the total body water ranges from \_\_\_\_\_ of body weight:  
 (A) 55-65% (B) 65-70%  
 (C) 70-75% (D) Above 80%
133. Dehydration develops more rapidly and is frequently more severe in children than adults because in children:  
 (A) ECF/ICFV ratio is smaller (B) ECF/ICFV ratio is same  
 (C) Total body water is larger  (D) Total ECFV is smaller
134. Synovial, peritoneal, intraocular and pericardial fluids are examples of:  
 (A) Lymph (B) Interstitial fluid  
 (C) Transcellular fluid (D) Intracellular fluid

135. 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 proteins are higher in infants as compared to adults
136. Oncotic pressure of plasma is due to:  
(A) Albumin (B) Prealbumin  
(C) Electrolytes (D) Fibrinogen
137. Albumin is important for maintaining colloidal osmotic pressure because of its:  
(A) Low molecular weight and high blood concentration  
(B) Low molecular weight and low blood concentration  
(C) High molecular weight and low blood concentration  
(D) High molecular weight and high blood concentration
138. Increased capillary permeability will often cause :  
(A) Decreased interstitial fluid protein concentration  
(B) Increased lymph flow  
(C) Increased capillary hydrostatic pressure  
(D) Interstitial edema
139. Haemoglobin is a good buffer because of:  
(A) Porphyrin (B) Protein nature  
(C) Acidic nature (D) Iron molecule
140. Normal reticulocyte count at birth is:  
(A) 1-2% (B) 2-6%  
(C) 6-10% (D) 30-40%
141. Which of these is not a function of the Red blood cells:  
(A) Helps in identifying blood groups  
(B) Helps in transport of gases  
(C) Provides stability to blood  
(D) Helps in maintaining acid base balance in the body
142. In chronic blood loss, the type of anaemia is:  
(A) Normocytic normochromic (B) Normocytic hypochromic  
(C) Microcytic hypochromic (D) Macrocytic hypochromic
143. All of the following help in the maturation of the Red blood cells, except:  
(A) Castle's intrinsic factor (B) Iron  
(C) Vitamin B<sub>12</sub> (D) Folic acid
144. Which statement is not true about phagocytosis by a neutrophil:  
(A) Optimal pH ranges from 6-8  
(B) Not dependent on oxygen  
(C) Can phagocytose 5-20 bacteria  
(D) Neutrophils are more powerful phagocytes than macrophages.

145. Chemical mediator of immediate hypersensitivity reaction is contained in the granules of:  
 (A) Neutrophils (B) Eosinophils  
 (C) Basophils (D) Mast cells
146. Neutrophil count tends to fall in all except:  
 (A) During acute bacterial infections (B) Typhoid fever  
 (C) In pernicious anaemia (D) Bone marrow depression
147. A reliable screening test for platelet function is:  
 (A) Clotting time (B) Prothrombin time  
 (C) Thrombin time  (D) Clot retraction time
148. Aspirin inhibits:  
 (A) Platelet activating factor (B) Prostacyclin synthesis  
 (C) Thromboxane A<sub>2</sub> (D) Phospholipase A<sub>2</sub>
149. Thrombosthenin is a :  
 (A) Coagulation protein (B) Thrombosis preventing protein  
 (C) Contractile protein (D) Protein for regulating platelet production
150. Constriction of blood vessel following injury is due to:  
 (A) Anoxia  (B) Serotonin  
 (C) Endothelin (D) Prostacyclin
151. Platelet derived growth factor (PDGF):  
 (A) Also called platelet factor 3 and 4  (B) Stimulate wound healing  
 (C) Inhibit mitosis in the vascular wall (D) Helps in clot retraction
152. Vitamin K is required for the synthesis of:  
 (A) Prothrombin, factor V, factor IX, factor XI, Protein S  
 (B) Prothrombin, factor VII, factor IX, factor X, Protein C  
 (C) Factor I, factor VII, factor VIII, factor IX  
 (D) Prothrombin, factor VIII, factor IX, factor X, Factor XI
153. With respect to ABO blood groups, maximum titer of agglutinins is usually reached:  
 (A) At birth (B) 1-3 years of age  
 (C) 4-7 years of age  (D) 8-10 years of age
154. Prevention of erythroblastosis fetalis is possible when Rh immunoglobulin globin is administered:  
 (A) To the expectant Rh- negative mother starting at 28-30 weeks gestation  
 (B) To the Rh- negative mother who has delivered a Rh-positive baby  
 (C) To a non-expectant Rh-negative lady trying to conceive  
 (D) Both (A) and (B)
155. A man with the blood group B cannot be the biological father of a child with blood group AB blood type if :  
 (A) The mother is type O (B) The mother is type A  
 (C) The mother is type AB (D) The mother is Rh-positive



166. Insulin increases the entry of glucose into:
- (A) All tissues (B) Renal tubular cells  
 (C) Skeletal muscle (D) The mucosa of the small intestine
167. A meal rich in proteins containing the amino acids that stimulate insulin secretion but low in carbohydrates does not cause hypoglycemia because
- (A) The meal causes a compensatory increase in T<sub>4</sub> secretion  
 (B) Glucagon secretion is also stimulated by the meal  
 (C) Cortisol in the circulation prevents glucose from entering the muscle  
 (D) Insulin does not bind to insulin receptors if the plasma concentration of amino acids is elevated
168. Glucagon secretion is more after oral administration of amino acids than after its intravenous infusion because oral amino acids increase release of:
- (A) CCK-PZ (B) Gastrin  
 (D) Both (A) and (B)  
 (C) Somatostatin
169. Islet cells of pancreas secrete all of the following except:
- (A) Insulin (B) Somatostatin  
 (D) CCK-PZ  
 (C) Glucagon
170. The primary physiological effect of insulin is:
- (A) Increase the number of glucose transporters in the cell membrane of certain tissues  
 (B) Increased glycogen synthesis in the liver  
 (C) Increased lipid synthesis in the liver  
 (D) Decreased glycogen synthesis in the muscle
171. Effect of insulin on the liver is decreased glucose output due to:
- (A) Decreased gluconeogenesis, increased glycogen synthesis and increased glycolysis  
 (B) Increased gluconeogenesis, decreased glycogen synthesis and decreased glycolysis  
 (C) Decreased gluconeogenesis, decreased glycogen synthesis and decreased glycolysis  
 (D) Increased gluconeogenesis, increased glycogen synthesis and increased glycolysis
172. A better indicator of the severity of the diabetic state is:
- (A) Estimation of blood glucose (B) Estimation of Ketone bodies  
 (C) Estimation of FFA level (D) Estimation of Hemoglobin A<sub>1C</sub>
173. Impaired glucose tolerance test (GTT) is one in which:
- (A) Fasting venous blood glucose level is less than 80mg/dL  
 (B) After 2 hours of glucose administration (post-prandial), blood glucose returns to normal fasting value  
 (C) Fasting venous blood glucose level is more than 115mg/dL, and one of the post prandial values is more than 200mg/dL  
 (D) Fasting and post-prandial values are above the upper limits of normal but below the values diagnostic of diabetic GTT
174. Exercise increases the entry of glucose into the skeletal muscle in the absence of insulin by:
- (A) Increasing the GLUT4 transporters in the muscle cell membranes  
 (B) Increasing facilitated diffusion in the muscle cell membranes  
 (C) Increasing SGLT<sub>1</sub> transporters in the muscle cell membranes  
 (D) Increasing SGLT<sub>2</sub> transporters in the muscle cell membranes

175. Increase in insulin receptors is seen in:  
 (A) Acromegaly (B) Starvation  
 (C) Obesity (D) Diabetes Mellitus
176. Visual accommodation involves  
 (A) Increased tension on lens ligaments (B) Decrease in curvature of the lens  
 (C) Relaxation of sphincter muscle of iris (D) Contraction of ciliary muscle
177. Vitamin A is a precursor for the synthesis of  
 (A) Rods and cones (B) Retinal  
 (C) Rod transducin (D) Opsin
178. Colour blindness is most commonly caused by an abnormal  
 (A) Dominant gene on Y chromosome (B) Dominant gene on X chromosome  
 (C) Recessive gene on X chromosome (D) Recessive gene on chromosome 22
179. Argyll Robertson pupil is observed when  
 (A) The pupillary light reflex remains intact but the response to accommodation is lost  
 (B) The pupillary light reflex is lost but the response to accommodation remains intact  
 (C) Both pupillary light reflex and response to accommodation are lost  
 (D) Neither pupillary light reflex nor response to accommodation are lost
180. The neurons in the primary visual cortex which respond maximally when a linear stimulus is moved laterally without a change in its orientation are called  
 (A) Simple cells (B) Complex cells  
 (C) Horizontal cells (D) Ganglion cells
181. Loudness of a sound is  
 (A) Directly correlated with the frequency of a sound wave  
 (B) Directly correlated with the amplitude of a sound wave  
 (C) Inversely correlated with the amplitude of a sound wave  
 (D) Inversely correlated with the frequency of a sound wave
182. The reflex contraction of the tensor tympani and stapedius muscles of the middle ear initiated by loud sounds is called  
 (A) Impedance reflex (B) Attenuation reflex  
 (C) Ossicular reflex (D) Cochlear reflex
183. The electrical potential that exists all the time between endolymph & perilymph with positivity inside the scala media and negativity outside is called  
 (A) Exocochlear potential (B) Action potential  
 (C) Receptor potential (D) Endocochlear potential
184. The sour sensation of taste is caused mainly by  
 (A) Organic chemicals (B) Sodium ions  
 (C) Hydrogen ions (D) L- glutamate
185. Distorted sense of smell is called  
 (A) Dysosmia (B) Parageusia  
 (C) Hyposmia (D) Hypogeusia
186. Storage of sensory information occurs in:  
 (A) Spinal cord (B) Basal regions of the brain  
 (C) Cerebral cortex (D) All of the above

187. The normal volume of cerebrospinal fluid is (ml):  
 (A) 50 (B) 150  
 (C) 250 (D) 350
188. Major portion of cerebrospinal fluid is secreted by:  
 (A) Arachnoidal villi (B) Perivascular space  
 (C) Choroid plexuses (D) Cisterna magna
189. The glial cell providing myelination in the CNS is:  
 (A) Schwann cell (B) Oligodendrocyte  
 (C) Astrocyte (D) Microglia
190. The glial cell participating in blood brain barrier is:  
 (A) Schwann cell (B) Oligodendrocyte  
 (C) Astrocyte (D) Microglia
191. The terminals of the large pyramidal cells of the motor cortex secrete:  
 (A) Nor epinephrine (B) Dopamine  
 (C) Acetylcholine (D) Glycine
192. Presynaptic inhibition is most often caused by:  
 (A) Acetylcholine (B) Glutamate  
 (C) Dopamine (D) GABA
193. The most common type of synapse is:  
 (A) Axo-somatic (B) Axo-dendritic  
 (C) Axo-axonal (D) Dendro-dendritic
194. One-way conduction occurs in:  
 (A) Chemical Synapses only (B) Electrical synapses only  
 (C) Chemical as well as electrical synapses (D) Gap junctions
195. The duration of synaptic delay is (milliseconds):  
 (A) 0.1 (B) 0.3  
 (C) 0.5 (D) 0.7
196. Neuronal excitability is increased by:  
 (A) Acidosis (B) Fatigue  
 (C) Alkalosis (D) Most anesthetics
197. The maximum amplitude of sensory receptor potentials is (millivolts):  
 (A) 80 (B) 100  
 (C) 120 (D) 140
198. The most rapidly adapting receptor among the following is:  
 (A) Hair receptor (B) Muscle spindle  
 (C) Joint capsule receptor (D) Pacinian corpuscle
199. Perception of pain, regardless of the type of stimulus exciting the pain fiber, is explained by:  
 (A) Differential sensitivity of receptors (B) Law of projection  
 (C) Law of intensity discrimination (D) The labeled line principle
200. Intensity of sensory signal is conveyed by:  
 (A) Spatial summation only (B) Temporal summation only  
 (C) Lateral inhibition (D) Spatial summation & temporal summation