

001/23

**The West Bengal University of Health Sciences**  
**MBBS 1<sup>st</sup> Professional Examination (New Regulation), Nov-Dec 2023**

Subject: Physiology  
 Paper: I

Full Marks: 100  
 Time: 3 hours

*Attempt all questions. The figures in the margin indicate full marks.*

1. a) A 65 year old patient is admitted with severe shortness of breath which increases in recumbent position. He gives history of weakness and exercise intolerance. On examination his blood pressure is 180/110 mm of Hg, heart rate is 120 beats/min and bilateral basal crackles are present. ECG is showing left ventricular hypertrophy but no ischaemic changes. 1+3+5+6
  - i) What is your diagnosis?
  - ii) What is the cause of shortness of breath in this patient?
  - iii) Explain with diagram the pressure and volume changes in the left ventricle in different phases of cardiac cycle in this patient.
  - iv) Illustrate the short term and long term compensatory mechanisms activated in the body of this patient.
  
- b) A group of third year medical students accompanied a medical mission team to Peru. After arrival at the airport, they hiked quickly towards a remote mountain village in the Andes at a height of 18000 ft. They started suffering from headache, dizziness, nausea and shortness of breath. What is your diagnosis? What are the causes of the above mentioned symptoms? What is acclimatization? What are the compensatory changes of acclimatization? What is Monge's disease? 1+3+2+8+1
  
2. a) What are the constituents of pancreatic secretion? Explain the role of enteric hormones in controlling pancreatic secretion. Why 'Acute pancreatitis' is an emergency medical condition and can be fatal? 4+4+2
- b) What is Lymph? Write about the formation and composition of lymph. What are the functions of lymph? 2+4+4
- c) Discuss the etiology, clinical features and treatment of Myaesthesia Gravis. How does it differ from Eaton-Lambert syndrome? 3+2+2+3
  
3. Write short notes on the following: 2x5
  - a) Significance of empathy.
  - b) Resting membrane potential.
  
4. Explain the following statements: 5x4
  - a) Atropine does not inhibit vagus induced gastrin release.
  - b) Calcium is a membrane stabilizer.
  - c) Digitalis act as a positive inotropic agent.
  - d) Tight cervical collar can result in a syncopal attack.
  - e) Coagulation disorder occurs in obstructive jaundice.

**P.T.O**

5. Choose the correct answer of each of the following:

- i) Which of the following are also known as Exchange Vessels?  
a) Precapillary sphincters  
b) ~~Capillaries~~  
c) Arterioles  
d) Venules
- ii) All are true about T-wave inversion except:  
a) Indicates myocardial ischemia.  
b) May be present in Leads V1 and V2 in normal persons.  
c) ~~It is the earliest change seen following Myocardial infarction.~~  
d) May occur with bundle branch blocks.
- iii) All are true of enteric nervous system except:  
a) ~~The Meissner's plexus is located between the circular muscle layer and mucosa.~~  
b) Myenteric plexus situated between the circular and longitudinal muscles control the intestinal secretions.  
c) In Hirschsprung's disease there is absence of both the Myenteric and Meissner's plexus.  
d) ~~Neurotransmitters of enteric nervous system are ATP, NO and GABA.~~
- iv) Regarding spirometry tests done to assess lung function, all are true except:  
a) Measuring timed vital capacity can help diagnose obstructive disorders.  
b) Residual volume is difficult to measure by this method.  
c) ~~Flow-volume loop shows no change in restrictive disorders.~~  
d) Vital capacity changes with posture.
- v) RBC count is less in young females compared to males of same age because:  
a) Increased blood loss during menstruation.  
b) Females are less active and less muscular than the males.  
c) ~~Oestrogen inhibits erythropoiesis.~~  
d) Low thyroxine levels.
- vi) Wolff Parkinson White syndrome is characterized by:  
a) Prolongation of PR interval.  
b) ~~QRS deflection shortens with slurred up stroke.~~  
c) Presence of irritable ectopic focus in the ventricle.  
d) Normal PJ interval.
- vii) Dysbarism is caused by:  
a) Increased partial pressure of carbon dioxide in blood.  
b) Decreased partial pressure of carbon dioxide in blood.  
c) ~~Decreased partial pressure of nitrogen in blood.~~  
d) Increased partial pressure of nitrogen in blood.
- viii) Following are the graded potentials except:  
a) ~~End plate potential.~~  
b) Pacemaker potential.  
b) Receptor potential.  
d) Action potential.
- ix) Chologogues are the substances which cause-  
a) Increased secretion of bile.  
b) ~~Contraction of gall bladder.~~  
c) Increased concentration of bile.  
d) ~~Solubility of fats in micelles.~~
- x) Carotid body has a blood flow of:  
a) 500ml/100gm/min  
b) 1000ml/100gms/min  
c) ~~1500ml/100gms/min~~  
d) 2000ml/100gms/min