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BMC-9

**Brahmanbaria Medical College**  
**Department of Physiology**  
**1<sup>st</sup> Card Final Examination**  
**MBBS 1<sup>st</sup> Year, BMC-09, Session: 2021-22**  
**Subject – GP & Blood System**  
**Short Answer Question (SAQ)**

22/10/22

Full marks – 35  
Duration – 1 hrs & 20 mins

Date: 22-10-2022  
Time: 10:10 AM

Answer any seven questions  
All questions carry equal marks

1. Define homeostasis. Name systems regulated homeostasis. Give to example of each. (1+2+2)
2. What do you mean by  $\text{Na}^+\text{-K}^+$  pump? Give the importance of it. How can this pump be blocked? (1+2+2)
3. Mention the steps of skeletal muscle contraction & relaxation (3+2)
4. Draw & label a typical action potential. How is it propagated through a nerve fiber? (3+2)
5. Name the plasma proteins with their blood values. List the functions of each specific plasma proteins. (2+3)
6. What is Leucopoiesis? Briefly describe the properties of WBC. (1+4)
7. Discuss the basic steps of hemostasis. Name the substances that release from platelet. (3+1)
8. Short not : (2.5+2.5)
  - a) Lysosome
  - b) Mismatch blood transfusion

~~Physiology~~  
**BMC-9**

**Brahmanbaria Medical College**

Department of Physiology  
1<sup>st</sup> Card Final Examination  
MBBS 1<sup>st</sup> Year BMC-09 Session 2021-22  
Subject GP & Blood system  
Multiple Choice Questions (MCQ)

22/10/22

Total Marks - 10  
Duration - 10 mins

Date: 22-10-2022  
Time: 10:00 AM

Page No. .... Session ..... Roll No. ....

Fill up the circle under T for True and F for False answers

Q01. Organelle concerned with production of functional protein includes-

- T F  
  a) Mitochondria  
  b) Peroxisome  
  c) Lysosome  
  d) Nucleus  
  e) ribosome

Q02. Excitation of a muscle fiber most directly causes-

- T F  
  a) movement of tropomyosin  
  b) attachment of cross bridges to actin  
  c) release of Ca<sup>2+</sup> from the sarcoplasmic reticulum  
  d) splitting of ATP  
  e) pulling of action

Q03. Substance that can diffuse easily through cell membrane is

- T F  
  a) Steroid  
  b) Na<sup>+</sup>  
  c) Glucose  
  d) Protein  
  e) Insulin

Q04. Propagation of action potential is responsible for

- T F  
  a) nerve impulse  
  b) muscle contraction  
  c) cardiac impulse  
  d) muscle relaxation  
  e) glandular secretion

Q05. Actin filaments are present in

- T F  
  a) all cell membrane  
  b) in platelets  
  c) in endothelial cell  
  d) in fibroblast  
  e) in smooth muscle cell

Q06. Intracellular Ferritin content is increased in-

- T F  
  a) excess iron intake  
  b) iron deficiency  
  c) high protein diet  
  d) hemorrhagic condition  
  e) prolonged illness

Q07. Most of the Hb is synthesis during the developmental stage of

- T F  
  a) erythroblast  
  b) normoblast  
  c) reticulocyte  
  d) proerythroblast  
  e) erythrocyte

Q08. Maturation of RBC means-

- T F  
  a) cells are larger in size  
  b) synthesis of Hb  
  c) cells are old  
  d) cytoplasm transforming from basic to acidic stain  
  e) presence of mitochondria in the cytoplasm

Q09. Blood group antigens are

- T F  
  a) carried on the Hb molecules  
  b) immunoglobulins  
  c) regularly immunogenic  
  d) present in fetal blood  
  e) present in red cell membrane

Q10. In normocytic normochromic anemia

- T F  
  a) MCV is increased  
  b) MCH is normal  
  c) iron deficiency is present  
  d) there may be bone marrow aplasia  
  e) intrinsic factor secretion may be reduced

**Brahmanbaria Medical College**  
**Department of Physiology**  
**2<sup>nd</sup> Card Final Examination**  
MBBS 1<sup>st</sup> Year, BMC-09, Session: 2021-22  
Subject: Cardiovascular system  
Multiple Choice Questions (MCQ) & Single best answer (SBA)

17/12/22

Date: 17-12-2022  
Time: 10:00 AM

Marks - 10  
Duration - 10 mins

Use an OMR sheet as answer script. Select "T" for true and "F" for false statements for Question 1 to 5 & select one best correct answer for question 6 to 10.

Q 01. Characteristics of 2<sup>nd</sup> heart sound are

- T F
- a) it is mainly related to turbulence set up by closure of semilunar valves
  - b) its duration is longer than the 1<sup>st</sup> heart sound
  - c) it is heard when ventricles are relaxing
  - d) it has higher frequency
  - e) it is best heard in mitral area

Q 06. Cardiac output increases

- T F
- a) when heart rate of about 200 beats/min
  - b) during expiration
  - c) in lying posture
  - d) with stimulation of baroreceptors
  - e) with increased systolic pressure

Q 07. Sino-Atrial nodal cells are

- T F
- a) called reverse pacemaker
  - b) found in both atria
  - c) innervated by the vagus nerves
  - d) unable to generate impulses when heart is completely denervated
  - e) connected to the A-V node by fine bundles of purkinje fibres

Q 08. Pressure on carotid sinus leads to

- T F
- a) tachycardia
  - b) increased cardiac output
  - c) increased blood pressure
  - d) reflex bradycardia
  - e) Brain bridge reflex

Q 09. Increased vagal tone leads to

- T F
- a) increased refractory period of atria
  - b) increased ventricular contractility
  - c) increased ectopic beats
  - d) decreased AV conduction
  - e) increased heart rate

Q 10. The portion of the heart with the fast conduction velocity for action potential is the

- T F
- a) left atrium
  - b) right atrium
  - c) the ventricles
  - d) bundle of His
  - e) purkinje fibers

Q 02. Force of contraction of heart

- T F
- a) is decreased with parasympathetic stimulation
  - b) is increased by athletic training
  - c) is not related to nutrition
  - d) is decreased by increased ventricular filling
  - e) is increased in anemia

Q 03. Resistance to blood flow is

- T F
- a) directly proportional to diameter
  - b) inversely proportional to diameter
  - c) directly proportional to haematocrit
  - d) determined by arterial pressure
  - e) the lowest in capillary

Q 04. Factors causing hypoeffective heart are

- T F
- a) cardiac hypoxia
  - b) hypertrophy of heart muscle
  - c) hypertension
  - d) diphtheritic damage
  - e) nervous stimulation

Q 05. Cardiac cycle time is

- T F
- a) directly proportional to the heart rate
  - b) inversely proportional to the heart rate
  - c) affected mostly in systole
  - d) affected mostly in diastole
  - e) eight seconds

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17/12/22

**Brahmanbaria Medical College**

**Department of Physiology**

**2<sup>nd</sup> Card Final Examination**

**MBBS 1<sup>st</sup> Year, BMC-09, Session: 2021-22**

**Subject – Cardiovascular system**

**Short Answer Question (SAQ) & Structured Essay Question (SEQ)**

Full marks – 35  
Duration – 1 hrs & 20 mins

Date: 17-12-2022  
Time: 10:10 AM

Answer any five questions for SAQ for question no. 1 to 6. All questions carry equal marks. Answer any one question for SEQ for question no. 7 to 8.

1. Name the junctional tissues of the heart. State the Frank Starling law with its importance. (2+3)
2. Define and classify shock with example. What are the compensatory reactions activated by haemorrhage? (1+2+2)
3. What is cardiac output and venous return? What are the factors affecting both cardiac output and venous return? (2+3)
4. Define the microcirculation. Classify blood vessel on physiological point of view with example. (1+4)
5. Define ECG. Name the waves present in a normal ECG. What is P-R interval? (1+2+2)
6. Define pulse. Write the characteristics of pulse. Name five abnormal pulses. (1+2+2)
7. Define cardiac cycle. Describe the volume and pressure changes in a cardiac cycle. (10)
8. What are the regulatory mechanisms of blood pressure? Describe short term regulation of blood pressure. (10)

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Brahmanbaria Medical College  
Department of Physiology  
1<sup>st</sup> Term Final Examination  
MBBS 1<sup>st</sup> Year, BMC-09, Session: 2021-22  
Subject: GP, Blood & Cardiovascular System  
Multiple Choice Questions (MCQ) & Single best answer (SBA)

4/1/22

All marks - 20  
Duration - 20 mins

Date: 04-01-2023  
Time 10:00 AM

Use OMR sheet as answer script. Select "T" for true and "F" for false statements for Question 1 to 10. Select one best answer for question 11 to 20.

Q 01. Lipid barrier of cell membrane-

T F

- a) prevents passage of water soluble substances  
  b) is fluid in nature  
  c) does not allow passage of N<sub>2</sub>, O<sub>2</sub>, CO<sub>2</sub>  
  d) contains cholesterol  
  e) is a film of one molecule thick

Q 02. Force of contraction of heart

T F

- a) is decreased with parasympathetic stimulation  
  b) is increased by athletic training  
  c) is not related to nutrition  
  d) is decreased by increased ventricular filling  
  e) is increased in anemia

Q 03. Bleeding time is

T F

- a) the time required for coagulation of blood in a wound after injury  
  b) prolonged in low platelet count  
  c) an indicator of natural hemostatic mechanism  
  d) normal in hemophilia  
  e) 1-6 minutes in normal person

Q 04. Plasminogen is

T F

- a) activated by tissue plasminogen activator  
  b) produced in plasma cell  
  c) associated with clot lysis  
  d) a vasodilator  
  e) concerned with platelet activator

Q 05. Platelet plug

T F

- a) stops bleeding from tiny vessels  
  b) formation is facilitated by ADP  
  c) is induced by calcium ion  
  d) is composed of swollen & aggregated platelets  
  e) forms platform for deposition of fibrin thread

Q 06. Erythropoiesis is regulated by

T F

- a) rate of erythrocyte destruction  
  b) Erythropoietin  
  c) vitamin- B<sub>12</sub>  
  d) androgen  
  e) blood pressure

Q 07. Cardiac cycle

T F

- a) begins with the atrial systole  
  b) begins with the ventricular systole  
  c) is composed of systole and diastole  
  d) time is directly proportional to heart rate  
  e) time is inversely proportional to heart rate

Q 08. Blood flow (velocity) is-

T F

- a) the greatest in the aorta  
  b) increased if resistance is decreased  
  c) inversely proportional to the cross-sectional area of vessel  
  d) inversely proportional to the hematocrit value  
  e) not a major determinant of blood pressure

Q 09. Secretory substances in cell are produced by

T F

- a) golgi apparatus  
  b) rough endoplasmic reticulum  
  c) smooth endoplasmic reticulum  
  d) Ribosome  
  e) Lysosome

Q 10. Buffy coat contains

T F

- a) myelin  
  b) actin myosin

- c) platelets
- d) glycocalyx
- e) leukocytes

Q 11. Excitation of a muscle fiber most directly causes-

- T F
- a) movement of tropomyosin
  - b) attachment of cross bridges to actin
  - c) release of  $Ca^{++}$  from the sarcoplasmic reticulum
  - d) splitting of ATP
  - e) pulling of action

Q 12. Fusion of vesicle with cell membrane occurs in

- T F
- a) Pinocytosis
  - b) endocytosis
  - c) phagocytosis
  - d) Exocytosis
  - e) internalization

Q 13. Most of the ATP in red muscle is produced in

- T F
- a) myofibrils
  - b) mitochondria
  - c) Cytosol
  - d) Nucleus
  - e) golgi apparatus

Q 14. Action potential consists of

- T F
- a) depolarization only
  - b) repolarization only
  - c) both depolarization and repolarization
  - d) repolarization and hyperpolarization
  - e) either depolarization or repolarization

Q 15. Ventricular muscle receives impulses directly from the

- T F
- a) purkinje system
  - b) bundle of His
  - c) right and left bundle branches
  - d) AV node
  - e) SA node

Q 16. Plasmin is

- T F
- a) involved in intrinsic clotting system
  - b) involved in extrinsic clotting system
  - c) causing fibrinolysis
  - d) promoting formation of emboli
  - e) found in serum

Q 17. The T wave of the ECG is related to

- T F
- a) atrial repolarization
  - b) atrial depolarization
  - c) bundle of His conduction
  - d) ventricular depolarization
  - e) ventricular repolarization

Q 18. Sino- Atrial nodal cells are

- T F
- a) called reserve pacemaker
  - b) found in both atria
  - c) innervated by the vagus nerves
  - d) unable to generate impulses when heart is completely denervated
  - e) connected to the A-V node by fine bundles of purkinje fibres

Q 19. During protodiastolic period there is

- T F
- a) closure of semilunar valve
  - b) opening of A-V valve
  - c) production of 2<sup>nd</sup> heart sound
  - d) isometric relaxation of ventricle
  - e) isometric contraction of ventricle

Q 20. Blood pressure increases and heart rate decreases in response to

- T F
- a) exercise
  - b) increased body temperature
  - c) exposure to high altitude
  - d) increased intracranial pressure
  - e) decreased intracranial pressure

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9/1/22

Brahmanbaria Medical College

Department of Physiology

1st Term Final Examination

MBBS 1<sup>ST</sup> Year, BMC-09, Session: 2021-22

Subject – GP, Blood & Cardiovascular system

**Short Answer Question (SAQ) & Structured Essay Question (SEQ)**

Full marks – 70

Duration – 2 hrs & 40 mins

Date: 04-01-

2023

Time: 10:20 AM

Group-A

Answer **any five** questions for SAQ for question no. 1 to 6. All questions carry equal marks. Answer **any one** question for SEQ for question no. 7 to 8.

1. Define homeostasis. Give an outline of negative feedback control system of the body. (1+4)
2. Define action potential & resting membrane potential. How are they generated & maintained? (2+3)
3. What is the basis of blood grouping? State Landsteiner's law. (2+3)
4. Name the plasma proteins with their blood values. List the functions of each specific plasma proteins. (2+3)
5. What is Leucopoiesis? Briefly describe the properties of WBC. (1+4)
6. Define hemostasis. Name its events. State the role of platelets in blood coagulation. (1+2+2)
7. Name the membranous organelles of a cell. Write down the functions of all membranous organelles of a cell. (10)
8. Show in a diagram and describe the basic changes that occur in erythropoiesis. Discuss about factor of erythropoiesis. (10)

Group-B

Answer **any five** questions for SAQ for question no 1 to 6. All questions carry equal marks. Answer **any one** question for SEQ for question no. 7 to 8.

1. Name the junctional tissues of the heart. State the Frank Starling law with its importance. (2+3)
  2. Define and classify shock with example. What are the compensatory reactions activated by haemorrhage? (1+2+2)
  3. What is cardiac output and venous return? What are the factors affecting both cardiac output and venous return? (2+3)
  4. Define the microcirculation. Classify blood vessel on physiological point of view with example. (1+4)
  5. Define ECG. Name the waves present in a normal ECG. What is P-R interval? (1+2+2)
  6. Define pulse. Write the characteristics of pulse. Name five abnormal pulses. (1+2+2)
  7. Define cardiac cycle. Describe the volume and pressure changes in a cardiac cycle. (10)
  8. What are the regulatory mechanisms of blood pressure? Describe long term regulation of blood pressure. (10)
-



Brahmanbaria Medical College  
Department of Physiology  
1<sup>st</sup> Term Final Examination (Supplementary)  
MBBS 2<sup>nd</sup> Year, BMC-09, Session: 2021-22  
Multiple Choice Questions (MCQ)

23/8/23

Full marks – 20  
Duration – 20 mins

Date: 23-08-2023  
Time: 12:30 PM

Name: ..... Session: ..... Roll No.: .....

Use OMR sheet as answer script. Select "T" for true and "F" for false statements for Question 1 to 10 & select one best correct answer for question 11 to 20.

Q 01. In purpura there is

- T F
- a) Skin of pigmentation
  - b) Leucopenia
  - c) Bleeding under skin
  - d) Prolonged bleeding time
  - e) Indication of weak hemostatic mechanism

Q 05. ABO blood group antigen are

- T F
- a) Found in the plasma
  - b) Protein in nature
  - c) Present since birth
  - d) Agglutinin in presence of corresponding antibody
  - e) Determined for tissue typing

Q 02. Fate of clot are

- T F
- a) Calcification
  - b) Fibrous organization
  - c) Lysis
  - d) Resolution
  - e) Not enzymatic destruction

Q 06. Plasma bilirubin is

- T F
- a) A steroid pigment
  - b) Converted to biliverdin in liver
  - c) Not ideal to cross blood brain barrier
  - d) Freely filtered in the renal glomerulus
  - e) Sensitive to light

Q 03. Cardiac muscles

- T F
- a) Have many tight junctions
  - b) Act as functional syncytium
  - c) Have intercalated disc
  - d) Are interconnected latticework fashion
  - e) Have more myoglobin than skeletal muscle

Q 07. Foetal hemoglobin

- T F
- a) Is present in blood up to adolescent age
  - b) Has high affinity for CO<sub>2</sub>
  - c) Can bind 2,3-DPG more avidly
  - d) Can release oxygen very easily
  - e) Consists of 2 $\alpha$  and 2 $\beta$  chain

Q 04. Mitochondria

- T F
- a) Are not self-replicative
  - b) Contain oxidative enzymes attached to their outer membrane
  - c) Originate from bacteria
  - d) Come from the ovum
  - e) Generate ATP

Q 08. P wave

- T F
- a) Is due to atrial depolarization
  - b) Duration is 0.01 sec
  - c) Duration is 0.1 sec
  - d) Is absent in SA nodal heart block
  - e) Is due to ventricular depolarization

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BMC-9

23/8/23

**Brahmanbaria Medical College**  
Department of Physiology

1st Term Final Examination (Supplementary)

MBBS 2<sup>nd</sup> Year, BMC-09, Session: 2021-22

Subject – GP & Blood & CVS

**Short Answer Question (SAQ) & Structured Essay Question (SEQ)**

Full marks – 45  
Duration – 1 hr & 40 mins

Date: 23-08-2023  
Time: 12:30 PM

Answer **any seven** questions for SAQ for question no. 1 to 8. All questions carry equal marks.  
Answer **any one** question for SEQ for question no. 9 to 10.

1. Define haemostasis. What are the events of Haemostasis? State the mechanism of platelet plug formation? (1+2+2)
2. Give normal count of RBC, WBC and platelet. What is the importance of blood group determination? State Landsteiner's law. (1.5+1.5+2)
3. Name the stages of erythropoiesis. What are the changes that take place during the development of RBC? (2+3)
4. Why SA node is called the pacemaker of the heart? Draw and label the cardiac impulse conducted throughout the heart. (1+4)
5. What is heart rate? Give the normal value of heart rate. What are the factors affecting heart rate? (1+1+3)
6. What is myofibril? Mention the steps of skeletal muscle contraction. (1+4)
7. Define homeostasis. Name systems regulated homeostasis. Give two example of each. (1+2+2)
8. **Write short notes on:** (a) Mitochondria (b) Heart sound (2.5+2.5)
9. Define cardiac cycle. Describe ventricular systole & diastole of cardiac cycle. (10)
10. What is Action potential? Mention the ionic basis of different phases of action potential. How resting membrane potential is produced & maintained in the cell. (10)

Q 9. Resonance protein is found in

- T F  
 a) The cell membrane  
 b) Nucleus  
 c) Cytosol  
 d) Endoplasmic reticulum  
 e) Golgi apparatus

Q 10. Neutrophils

- T F  
 a) Are phagocytic cell  
 b) Are chemotactic cell  
 c) Are less motile  
 d) Move freely to site of inflammation  
 e) Are fewer in lysosome

Q 11. Movement of substance without through a cell membrane could occur by

- T F  
 a) diffusion  
 b) facilitated diffusion  
 c) osmosis  
 d) active transport  
 e) pump

Q 12. Activation of RNA nucleotide is done by

- T F  
 a) activator protein  
 b) repressor protein  
 c) RNA polymerase  
 d) phosphorylase  
 e) ATPase

Q 13. Action potential consists of

- T F  
 a) depolarization only  
 b) repolarization only  
 c) both depolarization and repolarization  
 d) repolarization and hyperpolarization  
 e) either depolarization or repolarization

Q 14. Relationship of velocity of contraction to load applied is

- T F  
 a) directly proportional  
 b) inversely proportional  
 c) positive  
 d) negative  
 e) neutral

Q 15. Old RBC is removed from circulation by

- T F  
 a) liver only  
 b) spleen only  
 c) bone marrow only  
 d) liver and spleen  
 e) liver, spleen and bone marrow

Q 16. In a test tube after a blood clot retraction, there is formation of

- T F  
 a) tissue fluid  
 b) lymph  
 c) plasma  
 d) serum  
 e) transcellular fluid

Q 17. Heparin is

- T F  
 a) a procoagulant  
 b) an enzyme  
 c) produced by mast cell  
 d) protein in nature  
 e) synthesized by plasma cell

Q 18. Factors maintaining fluidity of blood in the circulation include

- T F  
 a) rough endothelium  
 b) clotting factor  
 c) antibody  
 d) thrombomodulin complex  
 e) plasmin

Q 19. Cardiac output increases

- T F  
 a) when heart rate of about 200 beats/min  
 b) during expiration  
 c) in lying position  
 d) with stimulation of baroreceptor  
 e) with increased systolic pressure

Q 20. During protodiastolic period there is

- T F  
 a) closure of semilunar valve  
 b) opening of A-V valve  
 c) production of 2<sup>nd</sup> heart sound  
 d) isometric relaxation of ventricle  
 e) isotonic contraction of ventricle

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**Brahmanbaria Medical College**  
Department of Physiology  
4<sup>th</sup> Card Final Examination  
MBBS 1<sup>st</sup> Year, BMC-09, Session: 2021-22  
Subject: Gastrointestinal & Renal system  
Multiple Choice Questions (MCQ) & Single best answer (SBA)

23/4/23

KS - 10  
n - 10 mins

Date: 13-04-2023  
Time: 10:00 AM

MR sheet as answer script. Select "T" for true and "F" for false statements for Question 1 to 5 & select one best correct answer for question 6 to 10.

**01. Abnormal urinary constituents include**

- T  F
- a) albumin
  - b) amino acid
  - c) creatinine
  - d) ketone bodies
  - e) glucose

**Q 02. Vaso-Vagal reflex is most dependent on**

- T  F
- a) chewing
  - b) swallowing
  - c) receptive relaxation
  - d) gastric emptying
  - e) intestinal segmentation

**Q 03. Regarding transport maximum of glucose**

- T  F
- a) it is about 375mg/min
  - b) it is about 650 ml/min
  - c) when the TmG is exceeded glucose appears in the urine
  - d) it is high in diabetes mellitus
  - e) it is low in diabetes insipidus

**Q 04. Hormones that inhibits gastric emptying are**

- T  F
- a) gastrin
  - b) CCK
  - c) motilin
  - d) secretin
  - e) GIP

**Q 05. Factors that depolarize the membrane of gastrointestinal smooth muscle are**

- T  F
- a) shortening of the muscle
  - b) Inhibition of acetylcholine
  - c) stimulation by parasympathetic nerves
  - d) stimulation by gastro intestinal tract hormones
  - e) stimulation by epinephrine and norepinephrine

**Q 06. Gastric emptying is primarily controlled**

- T  F
- a) during chewing
  - b) during swallowing
  - c) when chyme enters the stomach
  - d) when chyme enters the intestinal
  - e) during the interdigestive period

**Q 07. Substances that are freely filtered but not reabsorbed by the kidney include**

- T  F
- a) creatinine
  - b) urea
  - c) glucose
  - d) bicarbonate
  - e) chloride

**Q 08. In resting state the renal blood flow per minute is**

- T  F
- a) 200-500 ml
  - b) 400-500 ml
  - c) 1200-1300 ml
  - d) 500-600 ml
  - e) 600-1000 ml

**Q 09. Two substances that can be used to measure filtration fraction are**

- T  F
- a) inulin and manitol
  - b) urea and diodrast
  - c) PAH and phenol red
  - d) inulin and PAH
  - e) manitol and diodrast

**Q 10. The rate of basic electrical rhythm (BER) is high in**

- T  F
- a) stomach
  - b) duodenum
  - c) jejunum
  - d) ileum
  - e) colon

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**Brahmanbaria Medical College**  
Department of Physiology  
3<sup>rd</sup> Card Final Examination  
MBBS 1<sup>st</sup> Year, BMC-09, Session: 2021-22  
Subject – Gastrointestinal & Renal system  
Short Answer Question (SAQ) & (SEA)

13/4/23

Full marks – 35  
Duration – 1 hrs & 20 mins

Date: 13-04-2023  
Time: 10:10 AM

Answer **any five** questions for SAQ for question no. 1 to 6. All questions carry equal marks. Answer **any one** question for SEA for question no. 7 to 8.

1. What is GFR? Name the factors influencing GFR? Briefly discuss tubulo-glomerular feedback in autoregulation of GFR?  
(1+1+3)
2. Define auto regulation of renal blood flow. Mention the peculiarities of renal blood flow with their importance in relation to normal urine formation? (1+4)
3. How Na<sup>+</sup> is reabsorbed in the proximal tubule? Enumerate kidney functions. (2+3)
4. Name the basic processes of urine formation. How is water reabsorbed in different parts of renal tubule? (2+3)
5. Name the local hormones secreted from the GI tract. State the functions of three hormones. (2+3)
6. Enumerate the hormones that act on kidney. Briefly discuss the role of kidney in regulation of blood pressure. (2+3)
7. Write an essay of GIT motility. What are the factors influencing gastric emptying? (10)
8. Define the counter current system. How is Hyperosmotic medullary interstitium formed? (10)

**CHITTAGONG MEDICAL UNIVERSITY**

**1<sup>st</sup> Professional MBBS Examination: November-2023 (Old Curriculum)**

**Subject: Physiology, Paper: I**

**Subject Code: 12**

**Multiple Choice Question (MCQ)**

**Marks: 20 Time: 30 minutes**

**Instructions:** - All questions carry equal marks. Use OMR sheet as answer script. Fill up the appropriate sheet for True (T) & False (F) answer. Return the question paper with answer script.

<b>1. The human cell nucleus</b>	<b>11 Gap junction</b>
a Has no membrane	a Are absent in cardiac muscle
b Has a membrane which allows the passage of nucleic acid	b Connect the sacrotubular system to ind muscle cells
c Contains 44 chromosomes in somatic cells	c Provide pathway for rapid spread of ex cardiac muscle fiber to other
d Is needed for cell division	d Are present in smooth muscle cell
e Contains genes each of which is a complex molecule of RNA	e Allow slow diffusion of ions
<b>2. Action Potential</b>	<b>12 Respiratory dead space</b>
a Is a short-lasting event	a Decreases during a deep inspiration
b Occurs in adipose tissue cells	b Decreases during a cough
c Are generated by voltage gated ion channels	c Decreases when adrenaline level rises
d Occurs in endocrine cells	d Is being influenced by higher center
e Occurs in neuron	e Saturates alveolar air with water vapor alveoli
<b>3. Red Blood Cells</b>	<b>13 A person regarding respiratory syste</b>
a Are non-nucleated cells	a Breathes 12-18 times/min
b Contain carbonic anhydrase	b Ventilates 400 ml of air/breath
c Maintain viscosity of blood	c Breathes 6-8 L/min
d Require zinc for its formation	d Inhales about 250 ml of O <sub>2</sub> /min
e Life span is increased when exposed to hypoxia	e Exhale about 150 ml of CO <sub>2</sub> /min
<b>4. A skeletal muscle fiber</b>	<b>14 The residual volume of the lungs</b>
a Fatigued easily	a Is air remaining in lungs after normal e
b Contains intracellular stores of calcium ions	b Is greater in man than in women
c Is innervated by more than one motor neuron	c Can be measured by spirometry
d Can contract spontaneously	d Is about 1-1.5 liters in young adults
e Never tetanized	e Decreases with age
<b>5. Excess K<sup>+</sup> ions in ECF</b>	<b>15. Hyperpnoea during exercise is cause</b>
a Causes heart to become spastic contraction	a Elevated CO <sub>2</sub>
b Initiate contractile process	b Decreased P <sup>H</sup>
c Decreases intensity of action potential	c Direct impulses from motor cortex
d Causes weakness of heart	d Impulses from body parts which are m
e Increase heart rate	e Elevated O <sub>2</sub>
<b>6. Sympathetic drive to the heart is increased</b>	<b>16. Factors that depolarize GI muscle r</b>
a In exercise	a Stimulation by sympathetic nerves
b In excitement	b Stimulation by parasympathetic nerve:
c In hypotension	c Stretching of muscle
d When parasympathetic drive is decreased	d Effect of epinephrine
e During a vasovagal shock	e Effect of norepinephrine
<b>7. Cardiac cycle</b>	<b>17. Cholecystokinin stimulates</b>
a Begins with the atrial systole	a Gastric emptying
b Begins with the ventricular systole	b Pancreatic enzyme secretion
c Is composed of systole & diastole	c Growth of exocrine pancreas
d Time is directly proportional to heart rate	d Insulin release
e Time is inversely proportional to heart rate	e Gall bladder contraction
<b>8. Fibrinogen</b>	<b>18. Stomach</b>
a Is synthesized in liver	a Mixes food & gastric juice
b Is subdivided into four major categories	b Secretes gastric juice
c Primary function is to create blood clot	c Complete the digestion of proteins
d low levels can lead to kidney failure	d Absorbs 90% of all nutrients
e Elevated levels can be a strong predictor of stroke	e Stores food
<b>9. In purpura there are</b>	<b>19. Severe diarrhea causes a decrease i</b>
a Skin pigmentation	a Body potassium
b Leukopenia	b Body sodium
c Bleeding under the skin	c Total peripheral resistance
d Prolonged clotting time	d Extracellular fluid volume
e Prolonged bleeding time	e Blood P <sup>H</sup>
<b>10. Bilirubin is</b>	<b>20. Saliva is required for</b>
a Formed after degradation of RBC	a Normal speech
b Conjugated in lung	b Taste sensation
c Steroid in nature	c Complete digestion of starch
d Involved in fat absorption	d Deglutition
	e Complete digestion of fo

Brahmanbaria Medical College  
Department of Physiology  
6<sup>th</sup> Card Final Examination  
MBBS 2<sup>nd</sup> Year, BMC-09, Session: 2021-22  
Subject: Nervous system & Special senses  
Multiple Choice Questions (MCQ) & Single best answer (SBA)

Full marks - 10  
Duration - 10 mins

Date: 21-09-2023  
Time: 9:30 AM

Name: ..... Session: ..... Roll No.: .....

Use OMR sheet as answer script. Select "T" for true and "F" for false statements for Question 1 to 5 & selects one best correct answer for question 6 to 10.

**Q 1. A reflex action**

- T F  
O  a) is initiated at a sensory receptor organ  
O  b) may result in endocrine secretion  
O  c) is independent of higher centers in the brain  
O  d) is excitatory  
O  e) is inhibitory

**Q 2. Antero-lateral column carries the following sensation**

- T F  
O  a) position senses  
O  b) crude touch  
O  c) pressure  
O  d) cold  
O  e) itching

**Q 3. Cerebellum is important in controlling of**

- T F  
O  a) smooth muscle movement  
O  b) initiating voluntary muscle movement  
O  c) movement maintenance  
O  d) balance maintenance  
O  e) accuracy of muscle movement

**Q 4. The basal ganglia controls**

- T F  
O  a) simple gross movement  
O  b) complex pattern of movement  
O  c) body equilibrium  
O  d) relative intensity of movement  
O  e) reflex movement

**Q 5. Temperature regulating mechanism activated by cold are**

- T F  
O  a) shivering  
O  b) curling up  
O  c) cutaneous vasodilatation  
O  d) apathy and inertia  
O  e) increased secretion of epinephrine

**Q 6. The basilar membrane of the cochlea**

- T F  
O  a) covers the oval window and the round window  
O  b) vibrates due to transmission of sound wave to cochlear fluid  
O  c) is under tension  
O  d) is unaffected by movement of fluid in the scala vestibule  
O  e) vibrates when the body is subjected to linear acceleration

**Q 7. During photopic vision the**

- T F  
O  a) eye is most effective in low light condition  
O  b) rods are not stimulated  
O  c) cones are responsible for most colour distinction  
O  d) eye is maximally stimulated  
O  e) visual acuity is lower than in scotopic vision

**Q 8. Receptor for**

- T F  
O  a) proprioception are free nerve ending  
O  b) vision are organ of corti  
O  c) temperature are nociceptors  
O  d) pressure are pacinian corpuscles  
O  e) pain sensation are stretch receptors

**Q 9. During deep sleep there is a fall in**

- T F  
O  a) hand skin temperature  
O  b) arterial PCO<sub>2</sub>  
O  c) metabolic rate  
O  d) arterial PO<sub>2</sub>  
O  e) growth hormone and cortisol ratio

**Q 10. The first cell in the visual pathway to respond to light stimulus is**

- T F  
O  a) a rod  
O  b) a bipolar neuron  
O  c) an amacrine  
O  d) a cone  
O  e) a horizontal cell

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21/9/23

**Brahmanbaria Medical College**

**Department of Physiology**

**6<sup>th</sup> Card Final Examination**

**Nervous System & Special senses**

**MBBS 2nd Year, BMC-09, Session: 2021-22**

**Short Answer Question (SAQ) & Structured Essay Question (SEQ)**

Full marks – 35  
Duration – 1 hr & 20 min.

Date: 21-09-2023  
Time: 9:40AM

Answer **any five** questions for SAQ for question no. 1 to 6. All questions carry equal marks. Answer **any one** question for SEQ for question no. 7 to 8.

1. Trace the pain sensation pathway from the periphery to the center. What do you mean by referred pain? (4+1)
2. Define & classify reflex with example. Trace the pathway of reflex arc of knee jerk and give its clinical importance. (1+1.5+1.5+1)
3. What are the functions of cerebellum? Name the abnormalities due to cerebellar lesion. (3+2)
4. What do you mean by core and shell temperature? Mention the processes of heat loss from the body and heat gain in the body. (2+3)
5. What is synapse? List the events that occur during synaptic transmission. What is EPSP & IPSP? (1+2+2)
6. Write short notes on: i) Neurotransmitter. ii) Refractive error of eye. (2.5+2.5)
7. Name the reflexes related to the eyes. Draw and level the pupillary light reflex Pathway? What is Argyll Robertson Pupil? (10)
8. Discuss the origin, pathway, termination & functions of spinothalamic tract. What is Brown-Sequard syndrome? (10)



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BMC-09

Brahmanbaria Medical College  
Department of Physiology  
3<sup>rd</sup> Card Final Examination  
MBBS 1<sup>st</sup> Year, BMC-09, Session: 2021-22  
Subject: Respiratory & Gastrointestinal system  
Multiple Choice Questions (MCQ) & Single best answer (SBA)

23/3/23

Full marks - 10  
Duration - 10 mins

Date: 13-03-2023  
Time: 10:00 AM

Use OMR sheet as answer script. Select "T" for true and "F" for false statements for Question 1 to 5 & selects one best correct answer for question 6 to 10.

- Q 01. Vital capacity
- T F
- a) is the maximum volume of air that can be exhaled after quiet expiration
  - b) is more in standing position
  - c) depends on muscular strength
  - d) is reduced only in restrictive lung disease
  - e) is increased in weakness of respiratory muscle

- Q 02. Ventilation is increased
- T F
- a) at a high altitude
  - b) during deep sleep
  - c) when plasma CO<sub>2</sub> level is raised
  - d) during chronic renal failure
  - e) during muscular exercise

- Q 03. In heavy exercise extra O<sub>2</sub> is supplied by
- T F
- a) linear flow
  - b) open patent arteries
  - c) increased diffusing area
  - d) increased PO<sub>2</sub>
  - e) increased PCO<sub>2</sub>

- Q 04. Hormones that inhibits gastric emptying are
- T F
- a) gastrin
  - b) CCK
  - c) motilin
  - d) secretin
  - e) GIP

- Q 05. Factors that depolarize the membrane of gastrointestinal smooth muscle are
- T F
- a) shortening of the muscle
  - b) Inhibition of acetylcholine
  - c) stimulation by parasympathetic nerves
  - d) stimulation by gastro intestinal tract hormones
  - e) stimulation by epinephrine and norepinephrine

- Q 06. Transport of gases through respiratory membrane is
- T F
- a) facilitated diffusion
  - b) simple diffusior
  - c) osmosis
  - d) active transport
  - e) filtration

- Q 07. Most of the CO<sub>2</sub> transported in the blood is
- T F
- a) in dissolved state
  - b) as carbamino compounds formed from plasma proteins
  - c) as carbamino compounds formed from hemoglobin
  - d) in bound form with Cl<sup>-</sup>
  - e) in HCO<sub>3</sub><sup>-</sup>

- Q 08. Destruction of pneumotaxic center located in the pons can cause
- T F
- a) apneustic respiration
  - b) forcefull expiration
  - c) accelerated respiration
  - d) apnea
  - e) Cheyne-Stokes breathing

- Q 09. CO<sub>2</sub> retention is most likely to occur in
- T F
- a) high mountain
  - b) ventilatory failure
  - c) carbon monoxide poisoning
  - d) pulmonary failure
  - e) hysterical hyperventilation

- Q 10. The rate of basic electrical rhythm (BER) is high in
- T F
- a) stomach
  - b) duodenum
  - c) jejunum
  - d) ileum
  - e) colon

13/3/23

**Brahmanbaria Medical College**

Department of Physiology

3<sup>rd</sup> Card Final Examination

MBBS 1<sup>ST</sup> Year, BMC-09, Session: 2021-22

Subject – Respiratory & Gastrointestinal system

Short Answer Question (SAQ) & (SEA)

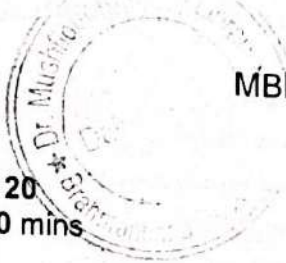
Full marks – 35  
Duration – 1 hrs & 20 mins

Date: 13-03-2023  
Time: 10:10 AM

Answer any five questions for SAQ for question no. 1 to 6. All questions carry equal marks. Answer any one question for SEA for question no. 7 to 8.

1. Draw and label the respiratory membrane. List the factors influencing the gaseous diffusion through the respiratory membrane. (3+2)
2. How O<sub>2</sub> is transported from lungs to tissue. What is Bohr Effect? (4+1)
3. What is rhythmic breathing? Describe the mechanism of rhythmic breathing. (1+4)
4. Write down the composition and function of surfactant. List the factors causing lung collapse. (1.5+2+1.5)
5. Name the local hormones secreted from the GI tract. State the functions of three hormones. (2+3)
6. Describe the stage of deglutition. What is deglutition apnea? (4+1)
7. Discuss the mechanism of breathing. Show in a diagram the different pressure changes during respiration. (10)
8. Draw a diagram and describe the lung volumes & capacities with their normal values. (10)

*BMC-9-12*  
**Brahmanbaria Medical College**  
Department of Physiology  
2<sup>nd</sup> Term Final Examination  
MBBS 1<sup>st</sup> Year, BMC-09, Session: 2021-22  
Multiple Choice Questions (MCQ)



Full marks – 20  
Duration – 20 mins

Date: 09-05-2023  
Time: 10:00

Name: ..... Session..... Roll No.: .....

Use OMR sheet as answer script. Select "T" for true and "F" for false statements for Question 1 to 10 & selects one best correct answer for question 11 to 20.

**Q 01. Oxyhemoglobin dissociation curve is shifted to the left by**

- T **F**
- a) increased PO<sub>2</sub>
  - b) increased PCO<sub>2</sub>
  - c) decreased 2,3-BPG
  - d) increased pH
  - e) fetal haemoglobin

**Q 05. Cholecystokin**

- T **F**
- a) causes ejection of bile from gall bladder
  - b) causes opening of sphincter of Oddi
  - c) induces satiety
  - d) stimulates gastric emptying
  - e) decreases effects of secretin

**Q 02. Regarding characteristics of some lung diseases**

- T **F**
- a) in asthma FEV<sub>1</sub> decreases and FVC increases
  - b) in COPD FEV<sub>1</sub> decreases and FVC decreases
  - c) in fibrosis FEV<sub>1</sub> decreases and FVC decreases
  - d) in emphysema there is mild hypoxemia but normal PCO<sub>2</sub>
  - e) in bronchitis there is hypercapnia, cyanosis & normal PO<sub>2</sub>

**Q 06. Which of the following hormones are acting on the proximal tubule?**

- T **F**
- a) Aldosterone
  - b) Angiotensin II
  - c) ADH
  - d) Prostaglandin
  - e) Bradykinin

**Q 03. Hypersalivation occurs in**

- T **F**
- a) pregnancy
  - b) emotional state
  - c) neurological disorder
  - d) ulceration of esophagus
  - e) fever

**Q 07. GFR is increased when**

- T **F**
- a) plasma oncotic pressure is increased
  - b) glomerular hydrostatic pressure is increased
  - c) tubular hydrostatic pressure is increased
  - d) renal blood flow is increased
  - e) glomerular capillary hydrostatic pressure is increased

**Q 04. Stimuli that increase gastrin secretion are**

- T **F**
- a) luminal peptides and amino acid
  - b) blood borne calcium and epinephrine
  - c) somatostatin
  - d) secretin
  - e) increased vagal discharge

**Q 08. The osmolarity of the fluid in the**

- T **F**
- a) Tip of the loop of Henle is less than that of plasma
  - b) Bowman's capsules is less than that in the distal tubules
  - c) Collecting duct rises when vasopressin is secreted
  - d) Proximal convoluted tubule rises along its length
  - e) Medullary interstitium can exceed 1 osmol/L

Q 09. The renin angiotensin aldosterone system regulates

T F

- a)  $K^+$  balance
- b)  $Na^+$  balance
- c) Fluid volume
- d) Blood pressure
- e) Nitrogen balance

Q 10. Regarding transport maximum ( $T_m$ ) of glucose

T F

- a) it is about 375mg/min
- b) it is about 650 ml/min
- c) when the  $T_mG$  is exceeded glucose appears in the urine
- d) it is high in diabetes mellitus
- e) it is low in diabetes insipidus

Q 11. Destruction of pneumotaxic center located in the pons can cause

T F

- a) apneustic respiration
- b) forcefull expiration
- c) accelerated respiration
- d) apnea
- e) Cheyne-Stokes breathing

Q 12. Transport of gases through respiratory membrane is

T F

- a) facilitated diffusion
- b) simple diffusion
- c) osmosis
- d) active transport
- e) filtration

Q 13. The rate of basic electrical rhythm (BER) is high in

T F

- a) stomach
- b) duodenum
- c) jejunum
- d) ileum
- e) colon

Q 14. Gastric emptying is primarily controlled

T F

- a) during chewing
- b) during swallowing
- c) when chyme enters the stomach
- d) when chyme enters the intestinal
- e) during the interdigestive period

Q 15.  $CO_2$  retention is most likely to occur in

T F

- a) high mountain
- b) ventilatory failure
- c) carbon monoxide poisoning
- d) pulmonary failure
- e) hysterical hyperventilation

Q 16. In resting state the renal blood flow per minute is

T F

- a) 200-500 ml
- b) 400-500 ml
- c) 1200-1300 ml
- d) 500-600 ml
- e) 600-1000 ml

Q 17. Substances that are freely filtered but not reabsorbed by the kidney include

T F

- a) Creatinine
- b) urea
- c) Glucose
- d) Bicarbonate
- e) Chloride

Q 18. Gastric digestion is most important for

T F

- a) fats
- b) carbohydrates
- c) proteins
- d) vitamins
- e) minerals

Q 19. Most of the  $CO_2$  transported in the blood is

T F

- a) in dissolved state
- b) as carbamino compounds formed from plasma proteins
- c) as carbamino compounds formed from hemoglobin
- d) in bound form with  $Cl^-$
- e) in  $HCO_3^-$

Q 20. Two substances that can be used to measure filtration fraction are

T F

- a) inulin and manitol
- b) urea and diodrast
- c) PAH and phenol red
- d) inulin and PAH
- e) manitol and diodrast

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9/5/23

**Brahmanbaria Medical College**

**Department of Physiology**

**1st Term Final Examination**

**MBBS 2<sup>nd</sup> Year, BMC-09, Session: 2021-22**

**Subject – Respiratory, Gastrointestinal & Renal system**

**Short Answer Question (SAQ) & Structured Essay Question (SEQ)**

Full marks – 70

Duration – 2 hrs & 40 mins

Date: 09-05-2023

Time: 10:20 AM

Group-A

Answer **any five** questions for SAQ for question no. 1 to 6. All questions carry equal marks.  
Answer **any one** question for SEQ for question no. 7 to 8.

1. Draw and label the respiratory membrane. List the factors influencing the gaseous diffusion through the respiratory membrane. What is Bohr Effect? (2+2+1)
2. How O<sub>2</sub> and CO<sub>2</sub> are transported in the blood. How O<sub>2</sub> is transported from lungs to tissue. (2+3)
3. Draw & label Oxy-hemoglobin dissociation curve. Name the factors that influence the shifting of the curve. (3+2)
4. Briefly discuss the effects of exercise upon respiration. (5)
5. Name the higher respiratory centers with their locations and function. (1.5+1.5+2)
6. Describe the stage of swallowing. What is achalasia cardia? (4+1)
7. Discuss the mechanism of breathing. Show in a diagram the different pressure changes during respiration. (10)
8. Draw a diagram and describe the lung volumes & capacities with their normal values. (10)

**Group-B**

Answer **any five** questions for SAQ for question no. 1 to 6. All questions carry equal marks.  
Answer **any one** question for SEQ for question no. 7 to 8.

1. What is GFR? Name the factors influencing GFR? Briefly discuss tubulo-glomerular feedback in autoregulation of GFR? (1+1+3)
  2. What is nephron? Name the hormones and their functions that act on kidney. (1+2+2)  
P.T.O
  3. Enumerate kidney functions. Name the kidney function tests. (3+2)
  4. Name the basic processes of urine formation. State the mechanism of sodium reabsorbed in different parts of renal tubular system? (2+3)
  5. Name the local hormones secreted from the GI tract. State the functions of three hormones. (2+3)
  6. Give an account of electrical activity of GIT. How are they affected by sympathetic & parasympathetic stimulation? (2.5+2.5)
  7. Write an essay of GIT motility. What are the factors influencing gastric emptying? (10)
  8. What is counter current mechanism? Describe the counter current mechanism for excretion of concentrated urine. (10)
-



# BRAHMANBARIA MEDICAL COLLEGE, BRAHMANBARIA

Department of Physiology

## Second Term Final Supplementary Card Final Examination of BbMC-09 MCQs

BMC-9  
2/4/24

Date: April 02, 2024

Time: 30 mins

Full Marks: 20

Use OMR sheet as answer script. Fill up the appropriate circle in OMR sheet with ball pen for true (T) or false (F) answer for question no. 1-10 and select single best answer by filling the single appropriate circle for question no. 11-20 provided in the OMR sheet.

<b>Q. 01</b>	<b>Regarding the pulmonary circulation:</b>
a	The systolic pressure in the pulmonary arteries is about 25 mm Hg
b	The pressures in the pulmonary arteries are similar to those in the systemic arteries.
c	The resistance of the pulmonary circulation rises as the pulmonary blood flow increases.
d	The mean pressure in the pulmonary arteries rises as cardiac output increases.
e	The pattern of pulmonary blood flow is independent of posture
<b>Q. 02</b>	<b>Vital capacity is:</b>
a	Volume of air expired from full inspiration to full expiration
b	Reduced in older person
c	Greater in men than women of same height & age
d	Related more to total body mass than to lean body mass
e	Sum of inspiratory & expiratory reserve volume
<b>Q. 03</b>	<b>Acclimatization to high altitude causes:</b>
a	A small increase in $P_{50}$
b	Decreases erythropoietin secretion
c	Increase no. of mitochondria
d	Decrease in myoglobin
e	Decrease in tissue content of cytochrome oxidase
<b>Q. 04</b>	<b>Oxygen debt is:</b>
a.	The amount of $O_2$ consumed after cessation of exercise
b.	Due to limitation of $O_2$ uptake across pulmonary capillary walls during exercise
c.	Incurred as skeletal muscle can function without oxygen
d.	Associated with a rise in blood lactate
e.	Associated with metabolic acidosis
<b>Q. 05</b>	<b>The work of breathing increases when:</b>
a.	Lung compliance increases
b.	The subject exercises
c.	The rate of breathing increases
d.	The subject lies down
e.	Functional residual capacity increases
<b>Q. 06</b>	<b>The liver is the principal site for:</b>
a.	Synthesis of plasma albumin
b.	Synthesis of plasma globulin
c.	Synthesis of Vitamin $B_{12}$
d.	Storage of Vitamin C
e.	Storage of iron
<b>Q. 07</b>	<b>In normal healthy people urinary:</b>
a	specific gravity ranges from 1.001 to 1.009
b	Osmolarity ranges from 200 to 400 mOsm/L
c	pH rises due to alkaline tide
d	urea is more than that of plasma level
e	glucose is same as that of plasma concentration
<b>Q. 08</b>	<b>Total body water expressed as a percentage of body weight:</b>
a.	Is about 80% in infants
b.	Is less than 80% in young adults
c.	Rises following injection of posterior pituitary extracts
d.	Falls during starvation
e.	Can be measured with an indicator dilution technique using cardiogren
<b>Q. 09</b>	<b>Common causes of end stage renal failure:</b>
a.	Diabetes mellitus
b.	Hypertension
c.	Renal calculi
d.	Obesity
e.	Uremia
<b>Q. 10</b>	<b>Kidney regulates acid-base balance by:</b>
a.	removing $H_2SO_4$

d. conserving rations  
e. generating buffer acid & NH<sub>3</sub>

		<b>The CO<sub>2</sub> dissociation curve for whole blood shows that:</b>
Q. 11	a	Its shape is sigmoid
	b	Blood saturates with CO <sub>2</sub> when PCO <sub>2</sub> exceeds normal alveolar levels
	c	Blood contains some CO <sub>2</sub> even when PCO <sub>2</sub> is zero
	d	Oxygenation of the blood drives CO <sub>2</sub> out of the blood
Q. 12		<b>The ventilation-perfusion ratio:</b>
	a	Is about 0.8
	b	Is more in base than in apex of the lungs in erect posture
	c	Decreases with increased physiological dead space
	d	Is decreased in exercise
Q. 13		<b>Respiratory dead space:</b>
	a	Decreases during a cough
	b	Decreases during a deep inspiration
	c	Decreases during a shallow inspiration
	d	Decreases when blood catecholamines level rises
Q. 14		<b>Bile:</b>
	a.	Contains enzymes required for the digestion of fat
	b.	Contains unconjugated bilirubin
	c.	Salts make cholesterol more water soluble
	d.	Pigments contain iron
Q. 15		<b>Small intestinal motility is inhibited by:</b>
	a.	insulin
	b.	gastrin
	c.	cholecystokinin
	d.	glucagon
Q. 16		<b>Elimination of terminal ileum is associated with malabsorption of:</b>
	a.	vitamin C
	b.	vitamin B <sub>12</sub>
	c.	Protein
	d.	Carbohydrate
Q. 17		<b>GFR is increased when:</b>
	a	Glomerular capillary hydrostatic pressure is increased
	b	Plasma oncotic pressure is increased
	c	Bowman's capsule pressure is increased
	d	Glomerular capillary filtration coefficient is decreased
Q. 18		<b>Volume of urine is regulated by:</b>
	a.	Testosterone
	b.	Oestrogen
	c.	Anti-diuretic hormone
	d.	Oxytocin
Q. 19		<b>Glucose:</b>
	a.	Is reabsorbed by distal convoluted tubules
	b.	Is secreted by proximal tubules
	c.	Transport by renal tubules is linked to sodium transport
	d.	Is reabsorbed by facilitated diffusion
Q. 20		<b>Regarding functions of kidney:</b>
	a.	Secrete PGE <sub>2</sub>
	b.	Produce ADH
	c.	Secrete aldosterone
	d.	Produce calcitonin



# BRAHMANBARIA MEDICAL COLLEGE, BRAHMANBARIA

## Department of Physiology

### Second Term Final Supplementary Card Final Examination of BbMC-09 SAQs

BbMC-09  
2/4/24

Date: April 02, 2024

Time: 2 hrs 30 mins

Full Marks: 35 X 2=70

Answer any 5 (Five) SAQ questions and 1 (One) SEQ question from each group. For SAQ, Question no.6 in Gr-A & Question no.13 is mandatory in Gr-B (PBQ). For SEQ, Question no. 7 in Gr-A & Question no.14 in Gr-B is mandatory. Marks are indicated beside each question.

#### Group-A

SAQ:		Full Marks: 25 (5X5)
Total 4 (Four) SAQ should be answered from Question no.1-5.		Question no.6 is mandatory.
Q1.	List the functions of lung. Write down the difference between pulmonary ventilation and alveolar ventilation.	3 2
Q2.	Briefly discuss how rhythmic breathing is maintained? What is surfactant? Write down its composition & function.	3 1+1
Q3.	List the lung function tests with their values. Write down the fate of CO <sub>2</sub> in blood. What is Haldane effect?	2 2 1
Q4.	Draw and label the respiratory membrane. Write about the factors determining gas diffusion through this membrane.	3 3
Q5.	Explain the events occur at oxy Hb dissociation curve at it's different parts with their importance. Why the oxy hemoglobin curve is sigmoid shaped?	1+2 2
Q6.	A 36 yrs old Bangladeshi male visited Kashmir. While walking, he had some abnormal feelings. He continued his journey and completed somehow by climbing a hill. a) What were his abnormal feelings? b) How did he cope with the situation up? c) Give an outline of the physiological process involved here.	1.5 1.5 2
SEQ:		Full Marks: 10
Answer 1 (One) question.		Question no. 7 is mandatory.
Q7.	What do you mean by dead space air volume? What are types of dead space? Name the methods of measurement of dead space air volume. How do you measure this volume by using Bohr's equation?	2+4+2+2=10

#### Group-B

SAQ:		Full Marks: 25 (5X5)
Total 4 (Four) SAQ should be answered from Question no.8-12.		Question no.13 is mandatory.
Q8.	Give an account of electrical activity of the GIT. How are they affected by the sympathetic and parasympathetic stimulus? What is MMC?	2 2+1
Q9.	Mention the composition and functions of saliva. How gastric secretion is regulated?	1+1 3
Q10.	Name the movements of different parts of GI tract. Describe in short, the mechanism of swallowing. What is achalasia cardia?	2 2 1
Q11.	Define GFR. Briefly describe the autoregulation of GFR. How GFR can be measured?	1+2 2
Q12.	Explain how four Starling forces affect to form glomerular filtrate. What is filtration fraction? Name the substances that are reabsorbed and secreted from PCT and DCT.	3 1+1
Q13.	A 36-year-old female has come to the Nephrology OPD with the complaints of frequent micturition daily for 5 days. She is a field worker and has to retain urine frequently. On examination her temperature was 99°C, BP110/70 mm Hg with soft and non-tender abdomen. a) What is the most likely cause of this situation? b) What advice should be given to this situation? c) Mention the possible urine R/M/E findings.	1 2 2
SEQ:		Full Marks: 10
Answer 1 (One) question.		Question no. 14 is mandatory.
Q14.	Describe the mechanism of renal tubular reabsorption of Na <sup>+</sup> and glucose. Mention the mechanism of	2+2+4=10

Brahmanbaria Medical College  
 Department of Physiology  
 2<sup>nd</sup> Term Final Examination (Supplementary)  
 MBBS 1<sup>st</sup> Year, BMC-09, Session: 2021-22  
 Multiple Choice Questions (MCQ)

Full marks – 20  
 Duration – 20 mins

Date: 16-08-2023  
 Time: 12:30 PM

Name: ..... Session..... Roll No.: .....

Use OMR sheet as answer script. Select "T" for true and "F" for false statements for Question 1 to 10 & selects one best correct answer for question 11 to 20.

Q 01. Oxyhemoglobin dissociation curve is shifted to the right by

- T  F
- a) increased PCO<sub>2</sub>  
 b) increased pH  
 c) increased 2,3-BPG  
 d) decreased temperature  
 e) increased PO<sub>2</sub>

Q 02. Surfactant

- T  F
- a) increases the surface-tension of the fluid lining alveolar walls  
 b) is secreted by type-II alveolar epithelial cells  
 c) increases the lung compliance  
 d) increases in the fetal lungs during the last month of pregnancy  
 e) causes collapsing of the lungs

Q 03. Gastroesophageal reflux disease

- T  F
- a) is same as achalasia  
 b) is caused by lower esophageal sphincter incompetence  
 c) permits reflux of acid  
 d) is due to regurgitation of food  
 e) causes heart burn

Q 04. Digestive activities of the pharynx are

- T  F
- a) deglutition  
 b) closing the airway passage  
 c) relaxation of upper esophageal sphincter  
 d) permitting entry of bolus into stomach  
 e) lubrication of esophagus

Q 05. Intrinsic factor

- T  F
- a) is needed for absorption of vit B<sub>12</sub>  
 b) is required for erythropoiesis  
 c) forms a protective barrier  
 d) prevents digestion of stomach wall  
 e) is secreted from oxyntic cells

Q 06. The renal clearance of a substance

- T  F
- a) is inversely related to its urinary concentration  
 b) is directly related to the rate of urine formation  
 c) is directly related to its plasma concentration  
 d) is expressed in units of volume per unit time  
 e) must fall in the presence of metabolic poisons

Q 07. GFR is

- T  F
- a) relatively constant  
 b) increased by prostaglandin  
 c) decreased by bradykinin  
 d) increased by nitric oxide  
 e) increased by angiotensin II

Q 08. Autoregulation of renal blood flow

- T  F
- a) does not occur in the kidney  
 b) is seen when the kidney is perfused at pressures between 90-220 mmHg  
 c) is present in denervated kidney  
 d) is partly due to direct contractile response of the efferent arteriole to stretch  
 e) can be prevented by administration of drugs that excites the vascular smooth muscle

Q 09. Renin secretion is stimulated by

- T F  
  a) cardiac failure  
  b) low  $\text{Na}^+$  in the proximal tubule  
  c) sympathetic stimulation  
  d) high  $\text{Na}^+$  in the proximal tubule  
  e) Hypoxia

Q 10. Regarding transport maximum ( $T_m$ ) of glucose

- T F  
  a) it is about 375mg/min  
  b) it is about 650 ml/min  
  c) when the  $T_m$  is exceeded glucose appears in the urine  
  d) it is high in diabetes mellitus  
  e) it is low in diabetes insipidus

Q 11. Destruction of pneumotaxic center located in the pons can cause

- T F  
  a) apneustic respiration  
  b) forcefull expiration  
  c) accelerated respiration  
  d) Apnea  
  e) Cheyne-Stokes breathing

Q 12. Transport of gases through respiratory membrane is

- T F  
  a) facilitated diffusion  
  b) simple diffusion  
  c) osmosis  
  d) active transport  
  e) filtration

Q 13. The rate of basic electrical rhythm (BER) is high in

- T F  
  a) stomach  
  b) duodenum  
  c) Jejunum  
  d) Ileum  
  e) Colon

Q 14. Gastric emptying is primarily controlled

- T F  
  a) during chewing  
  b) during swallowing  
  c) when chyme enters the stomach  
  d) when chyme enters the intestinal  
  e) during the interdigestive period

Q 15.  $\text{CO}_2$  retention is most likely to occur in

- T F  
  a) high mountain  
  b) ventilatory failure  
  c) carbon monoxide poisoning  
  d) pulmonary failure  
  e) hysterical hyperventilation

Q 16. In resting state the renal blood flow per minute is

- T F  
  a) 200-500 ml  
  b) 400-500 ml  
  c) 1200-1300 ml  
  d) 500-600 ml  
  e) 600-1000 ml

Q 17. Substances that are freely filtered but not reabsorbed by the kidney include

- T F  
  a) Creatinine  
  b) urea  
  c) Glucose  
  d) Bicarbonate  
  e) Chloride

Q 18. Gastric digestion is most important for

- T F  
  a) fats  
  b) carbohydrates  
  c) proteins  
  d) vitamins  
  e) minerals

Q 19. Most of the  $\text{CO}_2$  transported in the blood is

- T F  
  a) in dissolved state  
  b) as carbamino compounds formed from plasma proteins  
  c) as carbamino compounds formed from hemoglobin  
  d) in bound form with  $\text{Cl}^-$   
  e) in  $\text{HCO}_3^-$

Q 20. Two substances that can be used to measure filtration fraction are

- T F  
  a) inulin and manitol  
  b) urea and diodrast  
  c) PAH and phenol red  
  d) inulin and PAH  
  e) manitol and diodrast

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16/08/2023

**Brahmanbaria Medical College**  
Department of Physiology  
2nd Term Final Examination (Supplementary)  
MBBS 2<sup>nd</sup> Year, BMC-09, Session: 2021-22  
Subject – Respiratory, Gastrointestinal & Renal system  
Short Answer Question (SAQ) & Structured Essay Question (SEQ)

Full marks – 45  
Duration – 1 hr & 40 mins

Date: 16-08-2023  
Time: 12:30 PM

Answer any seven questions for SAQ for question no. 1 to 8. All questions carry equal marks.  
Answer any one question for SEQ for question no. 9 to 10.

1. Define vital capacity. Mention physiological importance of it. Name the factors that can influence it. (1+2+2)
2. Describe the basic mechanism of respiration. What is periodic breathing? (3+2)
3. Draw & label Oxy-hemoglobin dissociation curve. Name its different parts with their importance. (2+3)
4. What is nephron? Name the hormones and their functions that act on kidney. (1+2+2)
5. What is BER? Name the movements in different parts of GI tract. List the function of saliva. (1+3+1)
6. Write about micturation reflex. What is neurogenic bladder? (4+1)
7. Write short notes on: (a) Haldene effect (b) Defaecation reflex (2.5+2.5)
8. What are the changes that occur in respiratory system during exercise? Define & classify cyanosis with example. (2+3)
9. What is counter current mechanism? Describe the counter current mechanism for excretion of concentrated urine. (10)
10. Write the peculiarities of renal circulation. What is  $T_m$ , filtration fraction, obligatory water reabsorption, renal threshold, plasma clearance? (10)

is EPSP & (1+2+2) an by

# Brahmanbaria Medical College

## Department of Physiology

3<sup>rd</sup> Term Final Examination

MBBS 2<sup>nd</sup> Year, BMC-09, Session: 2021-22

Multiple Choice Questions (MCQ) & Single best answer (SBA)

Full marks – 20  
Duration – 20 mins

Date: 30-09-2023  
Time: 10:00 AM

Name: ..... Session..... Roll No.: .....

Use OMR sheet as answer script. Select "T" for true and "F" for false statements for Question 1 to 10 & selects one best correct answer for question 11 to 20.

**Q 01. Insulin**

- T
- O  a) binds with its membrane receptor
- O  b) increases uptake of glucose by muscle cells and adapter cells
- O  c) increases permeability to amino acid
- O  d) causes more excretion of potassium ions
- O  e) has diabetogenic effect

**Q 02. During pregnancy ovulation is ceased due to**

- T  F
- O  a) high levels of estrogen
- O  b) low levels of progesterone
- O  c) inhibition of the secretion of GnRH
- O  d) low levels of LH
- O  e) high levels of FSH

**Q 03. Antero-lateral column carries the following sensation**

- T  F
- O  a) position senses
- O  b) crude touch
- O  c) pressure
- O  d) cold
- O  e) itching

**Q 04. A reflex action**

- T  F
- O  a) is initiated at a sensory receptor organ
- O  b) may result in endocrine secretion
- O  c) is independent of higher centers in the brain
- O  d) is excitatory
- O  e) is inhibitory

**Q 05. Temperature regulating mechanism activated by cold are**

- T  F
- O  a) Shivering
- O  b) curling up
- O  c) cutaneous vasodilatation
- O  d) apathy and inertia
- O  e) increased secretion of epinephrine

**Q 06. The basal ganglia controls**

- T  F
- O  a) simple gross movement
- O  b) complex pattern of movement
- O  c) body equilibrium
- O  d) relative intensity of movement
- O  e) reflex movement

**Q 07. Cerebellum is important in controlling of**

- T  F
- O  a) smooth muscle movement
- O  b) initiating voluntary muscle movement
- O  c) movement maintenance
- O  d) balance maintenance
- O  e) accuracy of muscle movement

**Q 08. Effects of panhypopituitarism in the adult are**

- T  F
- O  a) hypothyroidism
- O  b) decreased production of glucocorticoids
- O  c) loss of weight
- O  d) loss of sexual function
- O  e) Dwarfism

**Q 09. Spermatogenesis**

- T  F
- O  a) requires 64-74 days
- O  b) occurs in epididymis
- O  c) requires testosterone and LH
- O  d) requires high temperature
- O  e) starts at the time of puberty

**Q 10. Hormones concerned with calcium metabolism are**

- T  F
- O  a) parathormone
- O  b) Calcitonin
- O  c) 1,25-dihydroxycholecalciferol
- O  d) Aldosterone
- O  e) Androgen

Q 11. Calcitonin hormone

- T  F
- a) decreases plasma calcium concentration
  - b) increases plasma calcium concentration
  - c) has no effect on calcium concentration in ECF
  - d) has same effects of parathormone
  - e) increases sodium ion concentration

Q 12. Stimulator of the adrenal medulla to secrete epinephrine is

- T  F
- a) thyroid stimulating hormone
  - b) ACTH
  - c) cortico-trophin releasing hormone
  - d) sympathetic nerve
  - e) acetylcholine

Q 13. The basilar membrane of the cochlea

- T  F
- a) covers the oval window and the round window
  - b) vibrates due to transmission of sound wave to cochlear fluid
  - c) is under tension
  - d) is unaffected by movement of fluid in the scala vestibule
  - e) vibrates when the body is subjected to linear acceleration

Q 14. During photopic vision the

- T  F
- a) eye is most effective in low light condition
  - b) rods are not stimulated
  - c) cones are responsible for most colour distinction
  - d) eye is maximally stimulated
  - e) visual acuity is lower than in scotopic vision

Q 15. The first cell in the visual pathway to respond to light stimulus is

- T  F
- a) a rod
  - b) a bipolar neuron
  - c) an amacrine
  - d) a cone
  - e) a horizontal cell

Q 16. During deep sleep there is a fall in

- T  F
- a) hand skin temperature
  - b) arterial  $PCO_2$
  - c) metabolic rate
  - d) arterial  $PO_2$
  - e) growth hormone and cortisol ratio

Q 17. Receptor for

- T  F
- a) proprioception are free nerve ending
  - b) vision are organ of corti
  - c) temperature are nociceptors
  - d) pressure are pacinian corpuscles
  - e) pain sensation are stretch receptors

Q 18. The general hormone is

- T  F
- a) thyroxine
  - b) Acetylcholine
  - c) Gastrin
  - d) Secretin
  - e) Epinephrine

Q 19. Sperm becomes motile in the

- T  F
- a) seminiferous tubules
  - b) vas deferens
  - c) Epididymis
  - d) Urethra
  - e) Testes

Q 20. Fertilization of ovum occurs in the

- T  F
- a) body of the uterine tube
  - b) fundus of the uterus
  - c) ampulla of the uterine tube
  - d) isthmus of the uterine tube
  - e) abdominal cavity

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**Brahmanbaria Medical College**

Department of Physiology

3rd Term Final Examination

MBBS 2<sup>nd</sup> Year, BMC-09, Session: 2021-22

Subject – Endocrinology, Reproductive, Nervous system & Special senses

Short Answer Question (SAQ) & Structured Essay Question (SEQ)

Full marks – 70

Duration – 2 hrs & 40 mins

Date: 30-09-2023

Time: 10:20 AM

Group-A

Answer **any five** questions for SAQ for question no. 1 to 6. All questions carry equal marks.  
Answer **any one** question for SEQ for question no. 7 to 8.

1. Write down the functions and regulation of secretion of aldosterone hormone. (2.5+2.5)
2. Name two essential endocrine glands. Name the hormones essential for normal calcium metabolism. How the blood calcium level is regulated? (1+1+3)
3. List the hormones of islets of Langerhan's of pancreas. How normal blood glucose level is maintained? (2+3)
4. What is the source of sex hormones? Write in short spermatogenesis along with their hormonal control. (1+4)
5. Name the growth promoting hormone. Write in brief the physiological effects of growth hormone. (1.5+3.5)
6. Define menstrual cycle. Describe the different changes of uterine endometrium in the phases of menstrual cycle. (2+3)
7. Define ovarian cycle. What are the phases of ovarian cycle? Show in a diagram & explain the phases of ovarian cycle. (10)
8. State the steps of biosynthesis of thyroid hormones. Briefly discuss the physiological effects of thyroid hormone. (10)

Group-B

Answer **any five** questions for SAQ for question no. 1 to 6. All questions carry equal marks.  
Answer **any one** question for SEQ for question no. 7 to 8.

1. Define & classify reflex with example. Trace the pathway of reflex arc of knee jerk and give its clinical importance. (1+1.5+1+1.5)

P.T.O

2. What is synapse? List the events that occur during synaptic transmission. What is EPSP & IPSP? (1+2+2)
3. Trace the pain sensation pathway from the periphery to the center. What do you mean by referred pain? (4+1)
4. What are the functions of cerebellum? Name the abnormalities due to cerebellar lesion. (3+2)
5. What do you mean by core and shell temperature? Mention the processes of heat loss from the body and heat gain in the body. (2+3)
6. Write short notes on: i) Neurotransmitter. ii) Refractive error of eye. (2.5+2.5)
7. Name the reflexes related to the eyes. Draw and label the papillary light reflex pathway? What is Argyll Robertson Pupil? (10)
8. Discuss the origin, pathway, termination & functions of spinothalamic tract. What is Brown-Sequard syndrome? (10)