SAPTHAGIRI NPS UNIVERSITY

MBBS PHASE I (RS1 Batch) University RESIT Examinations Nov/Dec– 2025

SUBJECT: PHYSIOLOGY PAPER 1 (QP CODE: 1028)

Your answer should be specific to the question asked

Draw neat labelled diagrams wherever necessary

Maximum Marks: 100 **Date: 18/11/2025** **Time: 3 hrs**

I . Long Essay Question — 1x12=12 Marks

1) Define blood pressure with the normal values. Explain the short-term regulation of blood pressure. What is postural hypotension and mention the causes for hypotension (3+6+3)

II. Short Notes — 3x6=18 Marks

2) Define Erythropoiesis. Explain the stages of erythropoiesis What are the factors that affect erythropoiesis? (1+4+1)
3) Explain how oxygen is transported from the lungs to tissues.
4) Explain digestion & absorption of Fat. (3+3)

III. Short Notes with Applied aspects — 4x5=20 Marks

5) Define anemia. Explain morphological classification of anaemia with examples. (1+4)
6) Define Circulatory shock. What are the features and stages of shock? (1+4)
7) Define and classify hypoxia with suitable examples. What are the adaptations which occur, when a person is ascending to an altitude of 12000 feet?(3+2)
8) With help of a diagram explain micturition reflex. What is an automatic bladder? (4+1)

IV. Short Notes — 4x5=20 Marks

9) A 12-year-old boy sustained an injury to his leg while playing football & started bleeding from the site of injury. (2+3)
   a. Enumerate the steps involved in spontaneous arrest of bleeding.
   b. Explain the intrinsic mechanism of blood clotting.
10) Explain the basis for heart sounds and correlate it with mechanical activity of heart.
11) Name the respiratory centers. Explain the neural regulation of respiration. (1+4)
12) Describe the role of empathy in Doctor Patient relationship.

V. Reasoning Questions — 5x3=15 Marks

13) What is the rationale behind using oral rehydration solution (ORS) for a patient suffering from diarrhea?
14) Change of posture from supine to standing causes tachycardia-Explain.
15) Cyanosis does not occur in severe anemia. Why? Justify.
16) Thought of delicious food induces salivary secretion - Why?
17) Explain why the actual renal threshold for glucose is less than predicted value? **(P.T.O)**

Verified
BNVJ (Pr. GIRISH BN)

VI. MCQs 15x1=15 Marks

18)

1. A 30-year-old male patient presents with a blood glucose level of 180 mg/dL. What is the primary mechanism by which glucose is reabsorbed in the kidneys?
   a. Facilitated diffusion
   b. Secondary Active transport
   c. Simple diffusion
   d. Primary active transport

2. A medical student was studying body fluids for a project. Which of the following is **NOT TRUE** if Total body water, expressed as a percentage of body weight?
   a. Can be measured with an indicator dilution technique using deuterium oxide.
   b. Is lesser on an average in women than in men.
   c. Is less than 50 per cent in infants
   d. Is less than 80 per cent in young adults

3. A 30-year-old patient presents with a history of bacterial infection. Laboratory tests reveal an increase in neutrophil count. What is the primary function of neutrophils in the body?
   a. Antibody production
   b. Phagocytosis of bacteria
   c. Activation of complement system
   d. Cytotoxicity against infected cells

4. A 28-year-old lady is pregnant with her second child. During the previous pregnancy she delivered a healthy boy who required phototherapy for jaundice shortly after birth. As the treating obstetrician, you find the blood group of the mother is B negative. What is the intervention you would like to perform?
   a. Maternal iron supplementation
   b. Blood transfusion
   c. Rh immunoglobulin injection
   d. Caesarian delivery

5. A 30-year-old patient undergoes an electrophysiology study to evaluate the cardiac conduction system. The study reveals a spontaneous depolarization of the sinoatrial (SA) node. What is the term for this spontaneous depolarization?
   a. Action potential
   b. Pacemaker potential
   c. Refractory period
   d. Depolarization phase

(P.T.O)

6. A 30-year-old patient with severe dehydration presents with a cardiac output of 3 L/min. After administering intravenous fluids, the patient's cardiac output increases to 5 L/min. What is the primary mechanism responsible for the increase in cardiac output in this patient?
   a. Increased heart rate
   b. Increased contractility
   c. Increased preload
   d. Decreased afterload

7. A 25-year-old athlete undergoes a treadmill test to assess cardiovascular function. During the test, the athlete's heart rate increases from 60 beats per minute (bpm) at rest to 180 bpm during peak exercise. What is the primary mechanism responsible for the increase in heart rate during exercise?
   a. Increased parasympathetic tone
   b. Decreased sympathetic tone
   c. Increased sympathetic tone
   d. Decreased parasympathetic tone

8. A 25-year-old man is under water in the swimming pool and breathing through a snorkel. He has a respiratory rate of 10/min, a tidal volume of 550 ml and an effective anatomical dead space of 250 ml. What is the alveolar ventilation of this man?
   a. 3000 ml/min
   b. 3500 ml/min
   c. 4000 ml/min
   d. 4500 ml/min

9. Spirometry measures all **EXCEPT**,
   a. Tidal volume
   b. Inspiratory reserve volume
   c. Expiratory reserve volume
   d. Residual volume

10. A newborn boy does not pass meconium in the first 24 hours. His abdomen is distended, and he begins vomiting. Various other tests lead to a diagnosis of Hirschsprung's disease (congenital megacolon). An obstruction is most likely to be found in which portion of the gut?
    a. Ascending colon
    b. Ileocecal sphincter
    c. Lower esophageal sphincter
    d. Sigmoid colon

(P.T.O)

11. A 25-year-old patient presents with symptoms of jaundice, including yellowing of the skin and eyes. The patient's laboratory tests reveal elevated levels of unconjugated bilirubin. What is the most likely cause of jaundice in this patient?

a. Pre-hepatic jaundice due to hemolysis
b. Hepatic jaundice due to hepatitis
c. Post-hepatic jaundice due to bile duct obstruction
d. Inherited disorder of bilirubin metabolism

12. A patient with recurrent abdominal pain is found to have multiple duodenal ulcers . After a detailed evaluation, he is diagnosed with Zollinger- Ellison syndrome. Stimulation of which of the following can inhibit gastric secretion in this patient?

a. Somatostatin
b. Histamine
c. Vagal stimulation
d. Gastrin

13. A 52-year-old man eats a healthy meal. Approximately 20 minutes later, the man has the urge to defecate. Which of the following reflexes results in the urge to defecate when the stomach is stretched?

a. Duodenocolic reflex
b. Enterogastric reflex
c. Gastrocolic reflex
d. Ileocecal reflex

14. If the glomerular capillary hydrostatic pressure, osmotic pressure of plasma proteins, hydrostatic pressure in Bowman's space and oncotic pressure in the interstitium are respectively 40, 25,5, and 0mmHg respectively. What is the net filtration pressure: -

a. 10mmHg
b. 15mmHg
c. 20mmHg
d. 25mmHg

15. Several hormones regulate tubular reabsorption of water and electrolytes at different sites in the nephron. Which of the following is correct?

a. Angiotensin II acts in the PCT
b. Aldosterone acts in the collecting ducts
c. ADH acts in the PCT
d. ANP acts in the loop of Henle

SAPTHAGIRI NPS UNIVERSITY
MBBS PHASE I University RESIT Examinations Sept/Oct 2024
Physiology Paper I (QP CODE: 1003)

Your answer should be specific to the question asked
Draw neat labelled diagrams wherever necessary

Maximum Marks: 100 **Date: 25/09/2024** **Time: 3 hrs**

I Long Essay **2 X 10 = 20 Marks**

1. Define Blood Pressure and mention its normal value. Explain the long-term regulation of blood pressure. Add a note on hypertension. (2+6+2)
2. Define Erythropoiesis. Explain the stages of erythropoiesis with the help of a neat labelled diagram. Add a note on factors regulating it. (1+6+3)

II Short Essay **8x5 = 40 Marks**

3. An individual was brought to the hospital from the site of an accident. He showed the following signs and symptoms – Restlessness, extreme weakness, pale cold clammy skin, rapid pulse, hypotension and oliguria.
   a) What is your diagnosis?
   b) Define and classify it with examples.
   c) Explain the type occurring in this condition.
4. Draw a neat labelled diagram of a spirogram. Explain the lung volumes and capacities.
5. Define and classify Hypoxia with examples.
6. Describe the mechanism of HCl acid secretion in the stomach with the help of a diagram.
7. Describe the functions of liver.
8. Describe the Juxtaglomerular apparatus with the help of a neat labelled diagram and write its functions.
9. Describe the conducting system of the heart.
10. Describe Carbon dioxide transport in the blood.

III Short Answers **10x 3 = 30 Marks**

11. Define and classify active transport with examples.
12. Briefly write about intercellular connections.
13. List the functions of platelets.
14. What are anticoagulants. Give two examples.
15. What is PR interval? Write its significance.
16. What are the differences between cortical and juxtamedullary nephrons?
17. What is facultative reabsorption of water?
18. Write briefly about artificial kidney.
19. List the functions of nasal cavity.
20. Name the muscles of respiration.

IV. MCQ's 10x 1 = 10 Marks

21 (i) Tachypnea means

a) Normal Breathing
b) Stoppage of Breathing
c) Difficulty in Breathing
d) Rapid, Shallow Breathing

21 (ii) Which event is associated with the first heart sound?

a) Closing of aortic valve
b) Closing of A-V valves
c) Inrushing of blood into the ventricles during diastole
d) Beginning of diastole

21 (iii) ANP (Atrial Natriuretic Peptide) causes

a) Increase in cardiac output
b) Increase in blood volume
c) Increase in urine output
d) Increase in renin secretion

21 (iv) The buffer systems in the kidney to excrete H^+ are all EXCEPT

a) Bicarbonate
b) Dibasic phosphate
c) Ammonia
d) Urate

21 (v) The normal Albumin Globulin ratio in blood is

a) 1.7 : 1
b) 1 : 1.7
c) 7.1 : 1
d) 1 : 7.1

22 (i) A large greasy, smelly, pale stool usually indicates failure of digestion of

a) Carbohydrates
b) Fats
c) Proteins
d) Cellulose

22 (ii) Cytoskeleton comprises

a) Microtubules and microfilaments
b) Cell membrane
c) Golgi complex
d) Cell junctions

22 (iii) Following are the movements of small intestine EXCEPT

a) Peristalsis
b) Segmentation
c) Pendular movements
d) Mass peristalsis

22(iv) Immunoglobulin that provides localized protection is

a) Ig G
b) Ig M
c) Ig A
d) Ig D

22 (v) In major cross matching

a) Donor's RBCs are mixed with recipient's plasma
b) Donor's RBCs are mixed with recipient's RBCs
c) Donor's plasma is mixed with recipient's RBCs
d) Donor's plasma is mixed with recipient's plasma

SAPTHAGIRI NPS UNIVERSITY

MBBS PHASE I (RS 1 Batch) University Examinations September/October– 2025

SUBJECT: PHYSIOLOGY PAPER 1 (QP CODE: 1028)

Your answer should be specific to the question asked

Draw neat labelled diagrams wherever necessary

Maximum Marks: 100 **Date: 19/09/2025** **Time: 3 hrs**

I . Long Essay Question **1x12=12 Marks**

1. Describe the sequential events of a cardiac cycle, including concurrent pressure volume changes and generation of heart sounds.

II. Short Notes **3x6=18 Marks**

2. Describe the mechanism of gastric acid secretion and its regulation.
3. Give the source and functions of erythropoietin and explain its regulation.
4. Define and Classify hypoxia with examples for each category.

III. Short Notes with Applied aspects **4x5=20 Marks**

5. Explain the pathophysiology of peptic ulcer.
6. What is circulatory shock? Briefly explain any one of its types.
7. Explain the functions of WBCs. Why does leucocyte count increases during exercise?
8. A person working as traffic police may sometimes faint on prolonged standing, why? Add a note on factors influencing venous return.

IV. Short Notes **4x5=20 Marks**

9. Explain the process of apoptosis with examples.
10. Explain the mechanism of urine formation.
11. Physiological responses in the body following acute ascent to high altitude.
12. What are the rights and privileges of a patient?

V. Reasoning Questions **5x3=15 Marks**

13. What is the rationale behind slow ascent to the surface after diving?
14. Why is the Cardiac muscle resistant to tetanic contraction?
15. The apices of the lungs are more predisposed to tuberculosis - why?
16. Explain the cause for increase in blood pH following a meal?
17. Change of posture from supine to standing causes tachycardia - explain. **P.T.O**

19/9/25

19/9/25

VI . 18. MCQs **15x1=15 Marks**

1) A 22year old man comes to OPD with a history of diarrhea and vomiting of one day . On examination, the patient was in altered sensorium , BP- 90/60mmHg, rapid thready pulse and cold clammy extremities. What could be the condition?
   a. Syncope
   b. Hypovolemic shock
   c. Warm shock
   d. Septicemic shock

2) A 55-year-old man, presents to the nephrology clinic with symptoms of swelling in his legs, foamy urine, and unexplained weight gain. After evaluation, he is diagnosed with nephrotic syndrome. Nephrotic syndrome is primarily characterized by excessive loss of which important blood component in the urine, leading to edema?
   a. Albumin
   b. Red blood cells
   c. White blood cells
   d. Platelets

3) A 24-year-old woman presents to the emergency department with severe diarrhoea. When she is supine (lying down), her blood pressure is 90/60 mm Hg (decreased) and her heart rate is 100 beats/min (increased). When she moves to a standing position, her heart rate further increases to 120 beats/ min. Which of the following accounts for the further increase in heart rate upon standing?
   a. Decreased total peripheral resistance
   b. Increased venoconstriction
   c. Increased contractility
   d. Decreased venous return

4) A person's electrocardiogram (ECG) has no P wave, but has a normal QRS complex and a normal T wave. Therefore, his pacemaker is located in the
   a. Sinoatrial (SA) node
   b. Atrioventricular (AV) node
   c. Bundle of His
   d. Purkinje system

5) A patient with achalasia would be expected to exhibit a decrease in which of the following?
   a. Esophageal peristalsis
   b. Expression of neuronal NO synthase at the esophageal/ gastric junction
   c. Acetylcholine receptors
   d. Substance P release

19/9/25

19/9/25

P.T.O

6) In children, defecation often follows a meal. The cause of colonic contractions in this situation is :

a. Histamine.
b. Increased circulating levels of CCK.
c. The gastrocolic reflex.
d. Increased circulating levels of somatostatin.

7) On the summit of Mt. Everest, where the barometric pressure is about 250 mm Hg, the partial pressure of O2 is about -

a. 0.1 mm Hg.
b. 0.5 mm Hg.
c. 5 mm Hg.
d. 50 mm Hg.

8) Dehydration develops more rapidly and is frequently more severe in children than adults because in children:

a. ECFV/ICFV ratio is smaller
b. ECFV/ECFV ratio is larger
c. Total ECFV is smaller
d. Total body water is larger

9) A 2-day old baby was brought to the NICU with complaints of poor feeding and laboured breathing. He was born to a diabetic mother at 36 weeks. What could be the cause?

a. Infant respiratory distress syndrome.
b. Lack of Surfactant
c. Incomplete lung maturation
d. All of the above

10) A 12-year-old boy, presents to the hematology clinic with a history of excessive bleeding and easy bruising. After evaluation, he is diagnosed with hemophilia, a rare genetic bleeding disorder. Hemophilia is characterized by a deficiency or dysfunction of which blood components ?

a. Platelets
b. Red blood cells
c. White blood cells
d. Clotting factors

P.T.O

11) A lethargic infant presented to ER with diarrhoea with decreased skin turgor, evidenced by slow skin fold return. The infant also exhibited Increased respiratory rate. This infant needs immediate resuscitation with 0.9% saline with supplementation of?

a. Calcium
b. Sodium
c. Potassium
d. All the above

12) In a patient who has become dehydrated, body water should be replaced by intravenous infusion of

a. Distilled water.
b. 0.9% sodium chloride solution.
c. 5% glucose solution.
d. Hyperoncotic albumin.

13) A gym trainer presented with acute renal failure went in to coma. His serum creatinine levels are elevated. When asked further from his family, they told that he was on a strict protein diet from past 4 months for a weight lifting tournament. What could be the most likely cause for his renal failure?

a. High protein diet
b. Weightlifting
c. Dieting
d. None of the above

14) A Rh negative mother carrying Rh positive foetus in first pregnancy may have normal child as:

a. Mother does not have agglutinogen D
b. Anti-Rh titre developed is not sufficient enough to destroy the fetal red cells
c. Fetal agglutinogen cannot cross placenta
d. Anti Rh titre from mother's plasma cannot cross the placenta to destroy the fetal red cells

15) Administration of low dose aspirin has shown to be of value in preventing myocardial infarction by:

a. Inhibiting platelet aggregation
b. Preventing platelets adhesion
c. Initiating platelets activation
d. Retracting the blood clot

19/9/25

BNJ 19/9/25

SAPTHAGIRI NPS UNIVERSITY

MBBS PHASE I University Examinations (2023 Repeater Batch) Sep/ Oct– 2025

SUBJECT: PHYSIOLOGY PAPER 1 (QP CODE: 1003)

Your answer should be specific to the question asked

Draw neat labelled diagrams wherever necessary

Maximum Marks: 100 **Date: 19/09/2025** **Time: 3 hrs.**

I. Long Essay — 2 X 10 = 20 Marks

1. Define stroke volume & cardiac output. describe factors affecting cardiac output (1+1+8)
2. Name the respiratory centers present in brain. Describe the neural regulation of respiration. Add a note on role of vagus nerve in control of respiration (2+6+2).

II. Short Essay — 8 x 5 = 40 Marks

3. Explain the pathophysiology of erythroblastosis fetalis. Explain how the condition can be presented. (3+2)
4. Describe the pressure & volume changes in the left ventricle during cardiac cycle with the help of a graph (2+2+1)
5. Draw a neat, labelled diagram of respiratory membrane & describe the factors affecting diffusion across respiratory membrane (1+4)
6. A 51 year old man complained of pain in abdomen. He also complaints that his stools are pale in color. Ultrasound examination revealed a mass in proximal portion of common bile duct causing complete obstruction.
   a) What is the reason of pale colored stool in this patient (1 mark)
   b) Explain the digestive & absorptive processes that will be affected in this patient (2+2 marks)
7. Describe the process of renal reabsorption of sodium in different parts of nephron
8. Define anaemia. Enumerate the etiological classification of anaemia.
9. Explain the mechanism of defecation reflex
10. Name the renal buffers. Explain bicarbonate reabsorption in the nephron (2+3)

III. Short Answers — 10 x 3 = 30 Marks

11. Differentiate between active and passive transport mechanisms.
12. Classify leucocytes & mention one function for each
13. State Frank Starling's law of heart & how is it applicable to human heart.
14. Explain the role of CNS ischemic response in regulation of blood pressure.
15. Define refractory period. What is the significance of long refractory period in cardiac muscle
16. Define hypoxia. Enumerate the types of hypoxia.
17. Enumerate the actions of gastrin
18. Describe cystometrogram
19. What is the significance of colloid osmotic pressure? Which plasma protein maintains normal colloid osmotic pressure
20. What are the barriers of communication in a doctor patient relationship?

IV. MCQ's — 10 x 1 = 10 Marks

21.

i. Genesis of resting membrane potential is due to all except
   a) Permeability of membrane to K^+ is lesser than other ions
   b) Permeability of membrane to Na^+ is lesser than other ions
   c) Permeability of anions is less
   d) Presence of Na^+ K^+ pump

P.T.O

ii. Indicator used to measure plasma volume is
   a) D_2O
   b) Inulin
   c) Radioactive Na^+
   d) Evan's blue dye

iii. Most important regulator of RBC production is
   a) Vit B 12
   b) Folic acid
   c) Tissue Oxygenation
   d) Diet

iv. The immunoglobulin that is abundant in plasma is
   a) IgM
   b) IgG
   c) IgE
   d) IgA

v. Central venous pressure is the pressure found in
   a) Inferior venacava
   b) Superior venacava
   c) Right atrium
   d) Pulmonary artery

22.

i. A person with rapid shallow breathing has his alveolar ventilation
   a) Normal
   b) decreased
   c) increased
   d) equal to pulmonary ventilation

ii. Which carbohydrate is not hydrolysed by pancreatic amylase
   a) Starch
   b) Glycogen
   c) Dextrin
   d) Cellulose

iii. Stomach does not digest itself because
   a) Gastric mucosa is protected by thick layer of mucus
   b) Gastric mucosa cells are not digestible
   c) Gastric mucosa cells transport H^+ out of gastric mucosa
   d) H^+ are completely neutralized by the epithelial cells

iv. Glomerular capillaries exhibit higher pressure than that of other capillaries in body pressure
   a) Afferent arterioles have high resistance
   b) Efferent arterioles have high resistance
   c) Afferent arterioles are smaller & shorter
   d) All of the above

v. Normal renal filtration fraction is.....of plasma
   a) 5- 10%
   b) 11- 15 %
   c) 16- 20%
   d) 26 – 30 %

SAPTHAGIRI NPS UNIVERSITY

MBBS PHASE I University RESIT Examinations (2023 Repeater Batch) Nov/Dec– 2025

SUBJECT: PHYSIOLOGY PAPER 1 (QP CODE: 1003)

Your answer should be specific to the question asked

Draw neat, labelled diagrams wherever necessary

Maximum Marks: 100 **Date: 18/11/2025** **Time: 3 hrs.**

I. Long Essay

2 X 10 = 20 Marks

1. Explain the intrinsic mechanism of blood coagulation & add a note on hemophilia.
2. Define cardiac cycle. Explain the various phases of cardiac cycle in details (1+9)

II. Short Essay

8 X 5 = 40 Marks

3. Illustrate the conducting system of the heart. What is the mechanism & importance of AV nodal delay? (3+2)
4. A 20-year-old male was brought to the causality following a road traffic accident. On examination his extremities were found to the cold & clammy, heart rate 102/ min & blood pressure 70/50 mm Hg (2+1+2)
   a) Explain the physiological basis of cold clammy extremities.
   b) Classify shock.
   c) Explain hypovolemic shock.
5. Define Homeostasis. Explain positive feedback mechanism with one example (1+4)
6. What is erythroblastosis fetalis? How it can be prevented? (4+1)
7. Classify hypoxia. Explain any 2 types in detail. (1+4)
8. Describe the standard lung volumes and capacities.
9. Define glomerular filtration rate (GFR). Explain the factors regulating it. (1+4)
10. Enumerate the various functions of saliva.

III . Short Answers

10 X 3 = 30 Marks

11. Explain the regulation of gastric juice secretion.
12. List the functions of liver.
13. Explain any 2 types of small intestinal movement.
14. Enumerate the functions of plasma proteins.
15. Mention the functions of juxtaglomerular apparatus.
16. What is the role of Vasa recta in renal system.
17. Draw a diagram of normal ECG recorded from lead II. Mention its cause.
18. Define dead space & give its clinical significance.
19. What is alveolar surfactant? Mention its significance.
20. What is the difference between sympathy & empathy?

IV. MCQ's

10 x 1 = 10 Marks

21.

i. Hematocrit is ratio of
   a) WBC's to plasma
   b) Platelets to plasma
   c) RBC's to Plasma
   d) Total blood cells to plasma

ii. Oncotic pressure of plasma is due to
   a) Albumin
   b) Prealbumin
   c) Electrolytes
   d) Fibrinogen

Verified by
Dr. GIRISH BN
BNGiri

(P.T.O)

iii. Sino- aortic nerves are called as buffer nerves because:
   a) They originate from vagus nerve
   b) They innervate both baroreceptor
   c) They buffer any alteration in blood pH
   d) They act as BP regulators

iv. Pre-load of the heart is determined by
   a) End- diastolic volume
   b) Ejection systolic volume
   c) End systolic volume
   d) Systolic vascular resistance

v. Ventilation /Perfusion ratio is ratio of
   a) Pulmonary ventilation to Pulmonary blood flow
   b) Minute ventilation to pulmonary blood flow
   c) Alveolar ventilation to Pulmonary blood flow
   d) Expired air volume to intra-pulmonary pressure

22.

i. Oxygen affinity with hemoglobin decreases in
   a) Hypoxia
   b) Hypothermia
   c) HbF
   d) Increase in blood pH

ii. Which is not a cause of physiological apnoea?
   a) Sleep
   b) Deglutition
   c) After hyperventilation
   d) Bezold Jarisch Reflex

iii. Acclimatization include all the following **EXCEPT**
   a) Bradycardia
   b) Hyperventilation
   c) Increased 2,3-DPG
   d) Increased Erythropoietin

iv. Achalasia cardia is characterized by-
   a) Accumulation of food in oesophagus.
   b) Relaxation of cardiac sphincter.
   c) Decreased response of lower oesophageal sphincter to circulating gastrin.
   d) Increased nitric oxide in lower oesophagus.

v. Juxta glomerular cells are located in-
   a) Afferent arteriole
   b) Efferent arteriole
   c) Distal convoluted tubule
   d) Glomerular tuft

SAPTHAGIRI NPS UNIVERSITY

MBBS PHASE I University Examinations July /August 2024

Physiology Paper I (QP CODE: 1003)

Your answer should be specific to the question asked
Draw neat labelled diagrams wherever necessary

Maximum Marks: 100 **Time: 3 hrs.** **Date:05/08/24**

I Long Essay **2 X 10 = 20 Marks**

1. Define Erythropoiesis. Name the sites of Erythropoiesis. Explain the various stages of erythropoiesis with their characteristic features (1+2+7)
2. Define cardiac output and Cardiac Index. Explain in detail the factors regulating cardiac output. (2+8)

II Short Essay **8x5 = 40 Marks**

3. A male aged 55 years was brought to emergency department with history of Profuse sweating & retrosternal pain since morning. Pain is radiating to the left shoulder. (1+2+2)
    a) What is the probable diagnosis?
    b) What are the suspected ECG changes in this condition?
    c) Why is sub endocardium more prone to ischemia?
4. Explain baroreceptor mechanism of Blood Pressure regulation
5. Define active transport. Explain its types with example
6. Explain cell mediated immunity
7. Explain oxygen hemoglobin dissociation curve & the factors affecting it (3+2)
8. What are the causes, manifestation & principle involved in management of dysbarism? (1+3+1)
9. What is GFR? State its normal value; Enumerate the factors influencing GFR? (1+1+3)
10. Define Deglutition – Explain the phases of Deglutition (1+4)

III Short Answers **(10x 3 = 30) Marks**

11. What is Sham feeding
12. Mention any three consequences of mismatched blood transfusion.
13. What are choleretics & cholagogues
14. What are Anticoagulants. Mention any 2 anticoagulants.
15. Draw a neat labeled diagram of Cystometrogram
16. What is facultative & obligatory reabsorption of water
17. What are the cardiovascular changes during exercise
18. List the functions of Pulmonary Surfactant
19. What is ventilation perfusion ratio? What is its significance
20. Enumerate the professional qualities of a Physician

IV. MCQ's

21 (i) All of the following help in maturation of RBC's **EXCEPT**

a) Intrinsic factor of castle
b) Vitamin B12
c) Iron
d) Folic acid

21 (ii) Which of the following structures has the slowest rate of conduction of the cardiac action potential?

a) Atrial muscle
b) Anterior internodal pathway
c) A-V bundle fibres
d) Purkinje fibres

21 (iii) Which of the following does not form a filtration barrier in nephrons

a) Podocytes
b) Mesangium
c) Endothelial cells
d) Basement membrane

21 (iv) "a" Wave on JVP indicates

a) Atrial contraction
b) Ventricular relaxation
c) Atrial filling
d) Ventricular filling

21 (v) Reflex responsible for tachycardia during right atrium distension is

a) J receptor reflex
b) Bezold Jarisch reflex
c) Cushing's reflex
d) Bainbridge reflex

22 (i) Dynamic lung volume is

a) Tidal volume
b) Vital capacity
c) Timed vital capacity
d) Expiratory reserve volume

22 (ii) The central chemoreceptors are present in

a) Carotid & aortic bodies
b) Floor of 4th ventricle in medulla
c) Arch of aorta
d) Carotid sinus

22 iii) Which of the following factor slows down gastric emptying

a) Vagal stimulation
b) Food rich in Carbohydrate
c) Gastrin
d) Food rich in fat

22 (iv) Haemophilia is

a) Autosomal dominant
b) X- linked recessive
c) Autosomal recessive
d) X – linked dominant

22 (v) Which is not a cause of physiological apnoea

a) Sleep
b) Deglutition
c) After hyperventilation
d) Bezold Jarisch reflex

5/8/24