Seat No: _____ **Enrollment No:_____**

PARUL UNIVERSITY
FACULTY OF MEDICINE
M.B.B.S OCT 2020 EXAMINATION

Year: 1 **Date: 29/10/2020**
Subject Code: 19100183 **Time: 10:00 am to 01:00 pm**
Subject Name: Physiology Paper-I **Total Marks: 100**

Instructions:
1. **Attempt all questions from each section.**
2. **Figures to the right indicate full marks.**
3. **Make suitable assumptions wherever necessary.**
4. **Answer each section in separate Answer Books**

SECTION – A

Q.1 Structured Essay question(No choice) 2x10 **(20)**

A **A 3-year-old boy is brought to the pediatrician by his parents, who have noted excessive bleeding around the knees and elbows. Family history is significant for the presence of hemophilia in the mothers family.**
Coagulation Studies :Bleeding time: 6 min. Coagulation time : prolonged.
Fibrinogen levels : normal
Factor VIII: level: 5% (normal: 25% -100%)
1. What is the probable diagnosis? (1)
2. Is it possible to have a female haemophilic child? Explain (2)
3. Describe the intrinsic mechanism of coagulation (5)
4. What are the Vitamin K dependent coagulation factors?(2)

B **A 55-year-old man comes to the clinic complaining of fatigue and persistent shortness of breath, which becomes worse during exercise.Has a history of smoking since 20 yrs. On auscultation: End-expiratory wheeze is heard. Diminished breath sounds**
Spirometry : FVC 2.3 L (predicted 3.8 L)
FEV1 1.2 L (predicted 3.1L) , FEV1 % 52 (predicted 82)
1. What is the likely diagnosis? (2)
2. Is this primarily a restrictive or an obstructive disorder? Explain why? (5)
3. What is Functional Residual capacity , its functions and clinical importance(3)

Q.2 Write short notes on :(Any Four out of Five) **4x5** **(20)**

1. What is Sodium potassium ATPase pump? Add a note on its functions and clinical importance.
2. Define homeostasis. Describe the positive and negative feedback mechanisms with at least one example each.
3. Classification of White blood cells.Add major functions of each.
4. Describe structure of platelets and its functions.
5. Factors regulating erythropoiesis .

SECTION – B

Q.3 Explain briefly on: (any Three out of Four) **3x6** **(18)**

A **A 45 yr old young woman presented with a one month history of intermittent burning epigastric - abdominal pain. The pain occurs early in the morning .Eating food generally improves the symptoms, diagnosed as Peptic ulcer disease.**
1.What are the functions of gastric juice? (3)
2. Describe the mechanism of secretion of HCl (3)

B **37 year old woman had been lethargic for several weeks. She has been having menorrhagia since the last month. Hb was 6 gm/dl, diagnosed as iron deficiency anaemia.**
1.Give the main causes, characteristic features including peripheral blood picture of iron deficiency anaemia (4)
2. What is pernicious anaemia? (1)
3.Clinical significance of reticulocyte count.(1)

C **A 40yr old man underwent a routine health check up. All parameters were normal except that his ECG showed an increase in the duration of PR interval.**

1.What does prolongation of PR interval in an ECGindicate?(1)
2.Draw a neatly labelled diagram of conducting pathway of heart.(2)
3.How is heart block classified?(2)

D **A 62-year-old man comes to the ski resort clinic on a mountain peak at (14,000) ft complaining of dyspnea, headache, dizziness, and inability to sleep.**
Patient had a rapid, shallow breathing pattern.Fingernails show slight cyanosis.
He is diagnosed with acute mountain sickness.

1. What is the cause of Acute mountain sickness?(1)
2.What are its symptoms?(2)
3.What are the dangers in severe cases?(2)

Q.4 Write short notes on : (any Three out of Four) **3x4** **(12)**

1. What are heart sounds.? How are they produced?
2. Role of baroreceptors in regulation of blood pressure.
3. Characteristics of coronary circulation
4. Describe the oxygen Haemoglobin dissociation curve with a neat and labelled diagram

SECTION – C

Q.5 Write short notes on :(Any Five out of Six) **5x5** **(25)**

1. Compare and contrast the two types of nephrons in the kidney
2. Micturition reflex
3. What is glomerular filtration rate? What are the factors affecting it?
4. Mechanism of deglutition
5. GI hormones
6. Functions of bile

Q.6 Answer in MCQ **5x1** **(5)**

1. **Patients with renal insufficiency develop very high plasma concentrations of urea (uremia) because of**
   (a) An increased synthesis of urea by the liver
   (b) An increased reabsorption of urea by the proximal tubules
   (c) A decreased secretion of urea by the distal tubules
   (d) A decreased glomerular filtration rate
2. **A 50 year old man is diagnosed with macrocytic anaemia. Macrocytic anaemia is characteristic of**
   (a) Vit B12 deficiency.
   (b) Thalassemia traits
   (c) Iron deficiency
   (d) Red blood cell enzyme defects
3. **A trained athlete was found to have a resting heart rate of 60 /mt. This is called as**
   (a) Sinus tachycardia
   (b) Sinus bradycardia
   (c) Sinus arrhythmia
   (d) Pulsus paradoxus
4. **A man complained of acute pain in the joints, after ascending up rapidly after a deep dive for about 2 hrs. What are the symptoms likely to be due to**
   (a) Reaction to the gases inhaled
   (b) Arthritis
   (c) Bending forward while entering the water to dive.
   (d) Decompression sickness
5. **A 50yr old lady presented with sharp right upper abdominal pain and tenderness and yellowish discoloration of eyes.She is diagnosed with acutecholecystitis.The likely cause of jaundice** is
   (a) Congenital hyperbilirubinaemia
   (b) Hemolytic
   (c) Hepatocellular
   (d) Obstructive