RUHS

First Year MBBS Examination

I MBBS PHYSIOLOGY PAPER II

Time: 3 hours Max Marks: 100

Date: 23-01-2023

Instructions: INSTRUCTIONS: Attempt all questions in both sections: (Use separate answer book for each section)

Section 1

1. Fill in the blanks: (6)
   a. The haematocrit of venous blood is greater than arterial blood because of a phenomenon called _____
   b. The WBCs that increase in allergic conditions are _____
   c. The first plasma protein to appear in urine in renal diseases is _____
   d. The hormone involved in the initiation of the migrating motor complexes is _____ syndrome.
   e. Cerebral ischemia in third degree heart block may lead to _____
   f. The decrease in the affinity of 02 for

haemoglobin when the pH of blood falls is known as. _____

2. Answer the following MCQ: (4)
   a. All are associated with hemolysis EXCEPT: a) G6PD deficiency b) Sickle cell anemia c) Physiological jaundice d) Pernicious anemia
   b. Reabsorption of Na* in kidney: a) Takes place in association with Cl- & HCO3 b) Occurs only in the proximal tubules c) is under control of parathormone hormone d) Is a passive process
   c. ECG wave corresponding to ventricular repolarization is: a) P wave b) QRS complex c) T wave d) U wave
   d. Air remaining in lungs after tidal expiration is called: a) Functional residual capacity b) Residual volume c) Expiratory reserve volume d) Expiratory capacity
3. Person A takes deep breaths at slow respiratory rate. (Tidal volume 600 ml &respiratory rate 10/min). Another person B shallow breaths at high respiratory (15) yrate15pulmonary ventilation and alveolar ventilation. Who, do you think is having better(TV: 300ml & RR 20/min). Considering their dead space air as 150 ml, calculate their alveolar ventilation and why? Add a note on periodic breathing.

4. Write short note on (Any Five). (10)
   a. Secretion of HCl by stomach.
   b. Antigen presenting cells.
   c. Surfactant in lungs. (C1-408)
   d. Reabsorption of f glucose in kidneys.
   e. ECG in myocardial infarction
   f. Spherocytosis.
5. Explain briefly (Any Three). (15)
   a. Gastrointestinal hormones.
   b. Regulation of ECF volume by kidney.
   c. Nutritional anemias.
   d. Cardiac cycle (C1-287)

Section 2

6. Describe with the help of diagrams, the countercurrent mechanism for generation hyperosmolar medulla in kidney. What is the significance of the 'U' shape, long size (20) and low blood supply is vasa recta? State the role of urea in concentrating urine. 20
7. What will happen and why (Any Five). (10)
   a. To GFR if a person takes protein rich diet.
   b. To cardiac output during exercise. (A.599) (8.215)
   c. To rate of respiration at high altitudes.
   d. To RBC count in patients of chronic renal failure.
   e. To PR interval in first degree heart block.

f. To reticulocyte count if a person is treated for anemia.

8. Explain briefly (Any Four). (20)
   a. Fetal circulation.
   b. Oxygen hemoglobin dissociation curve. (C1-435)
   c. Bicarbonate reabsorption in PCT.
   d. Physiological jaundice.
   e. Role of baroreceptors in regulating blood pressure.

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