

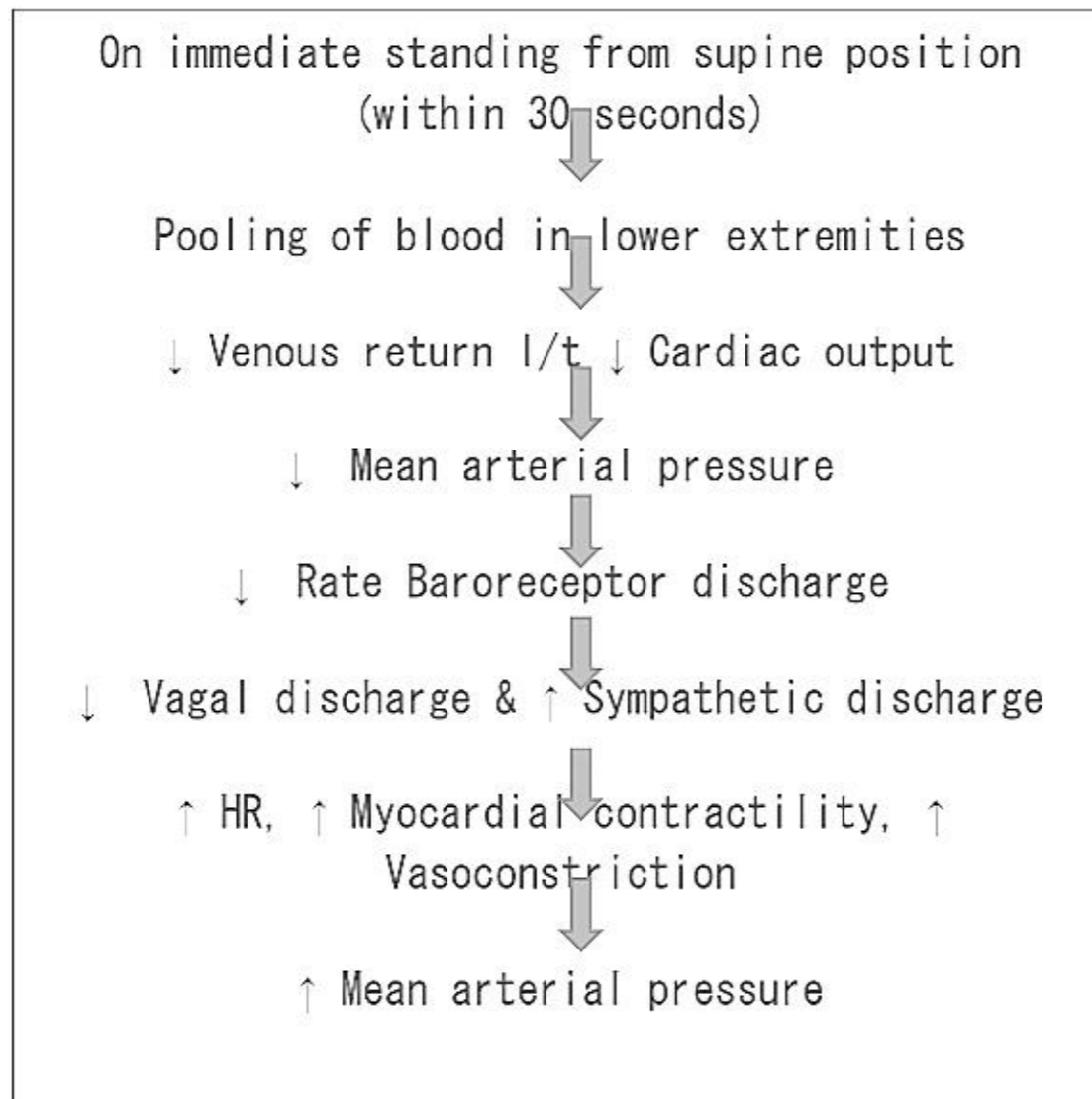
1. Effect of posture change on cardiovascular system
2. Tetanising frequency
3. Identification of blood cells on peripheral blood smear
4. Various pipettes in blood practical
5. Macula densa of kidney
6. Slow waves in GIT
7. Auditory pathway
8. Receptor polarity
9. Respiratory Quotient
10. Normality and Molarity
11. Cardiac cycle, JVP, ECG
12. Concentration of substances in PCT
13. Dextran
14. Action potential
15. Excitation contraction coupling
16. Tight junction

Q1 Which of the following changes are seen when person immediately stands up from supine position?

1. Increased venous pooling
2. Immediate fall in Mean arterial pressure
3. Increased baroreceptor discharge
4. Increased sympathetic discharge
5. Reduced vagal discharge

- (A) 1, 2, 3,
(B) 1, 2, 4, 5
(C) 2, 3, 6
(D) 2, 4, 5, 6

Ans : (B) 1, 2, 4, 5



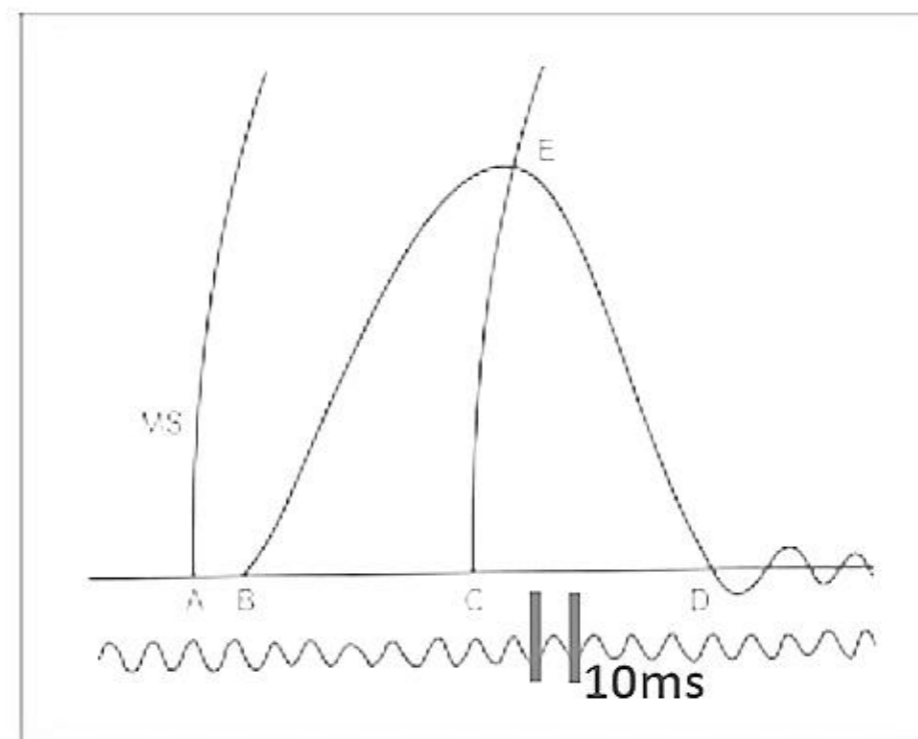
For detailed explanation, visit YouTube video on INI-CET Physiology by Dr. Ayesha

Q2 Calculate tetanising frequency from given graph?

- (A) 20
- (B) 25
- (C) 30
- (D) 35

Ans : (A) 20

- ❖ 1 wave = 10 msec
- Tetanizing frequency
- ❖ = 1/contraction period
- ❖ = 1/0.05
- ❖ = 20 Hz



For detailed explanation, visit YouTube video on INI-CET Physiology by Dr. Ayesha

Q3 Identify type of WBC?

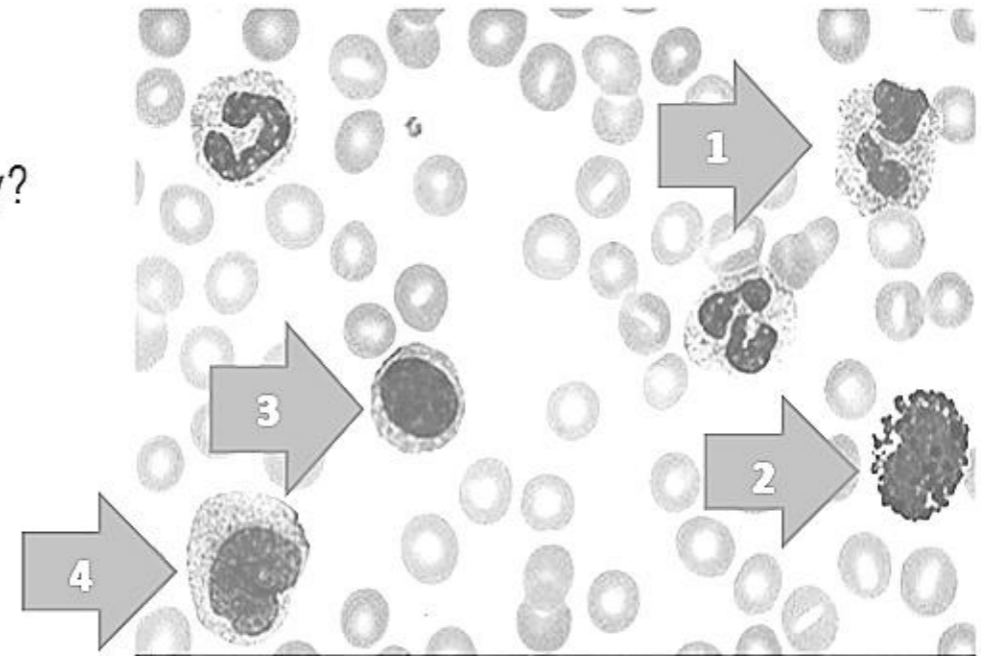
A=Basophil, B=Eosinophil, C=Monocyte

D=Lymphocyte

Select the answer using the following key?

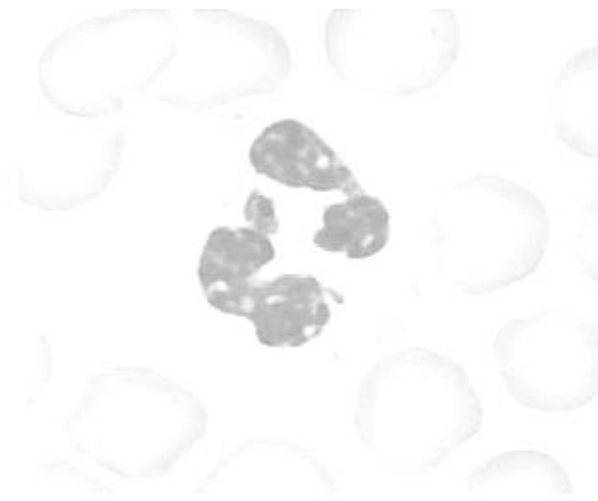
- (A) 1 = B, 2 = A, 3 = D, 4 = C
- (B) 1 = B, 2 = D, 3 = A, 4 = C
- (C) 1 = A, 2 = B, 3 = C, 4 = D
- (D) 1 = A, 2 = B, 3 = D, 4 = C

Ans : (A) 1 = B, 2 = A, 3 = D, 4 = C



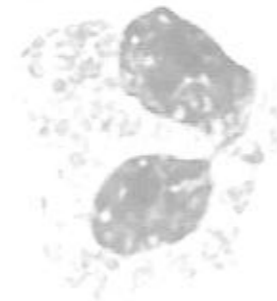
NEUTROPHIL

- ❖ Size = double than RBC
- ❖ Nucleus = 2-5 lobed purple
- ❖ Cytoplasm = Pale pink
- ❖ Granules = Fine Purple (few)



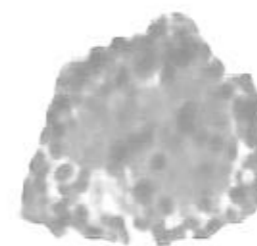
EOSINOPHIL

- ❖ Size = double than RBC
- ❖ Nucleus = 2 lobed purple = Spectacle
- ❖ Granules = Coarse, Dark Red (more no.)



BASOPHIL

- ❖ Size = double than RBC
- ❖ Nucleus = 2 lobed purple = Not visible
- ❖ Granules = Coarse, Dark blue (more no.)



SMALL LYMPHOCYTE

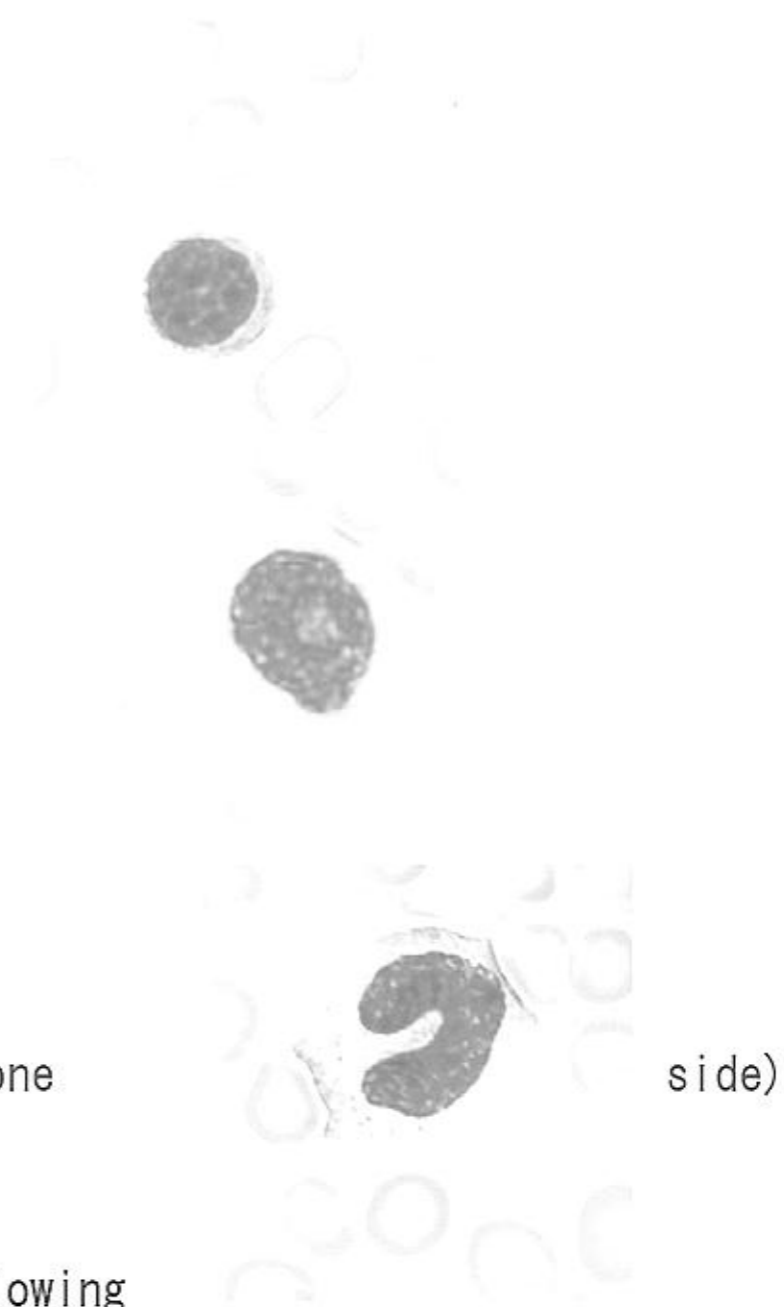
- ❖ Size equal or slightly larger than RBC
- ❖ Nucleus = Large Blue
- ❖ Cytoplasm = Thin rim

LARGE LYMPHOCYTE

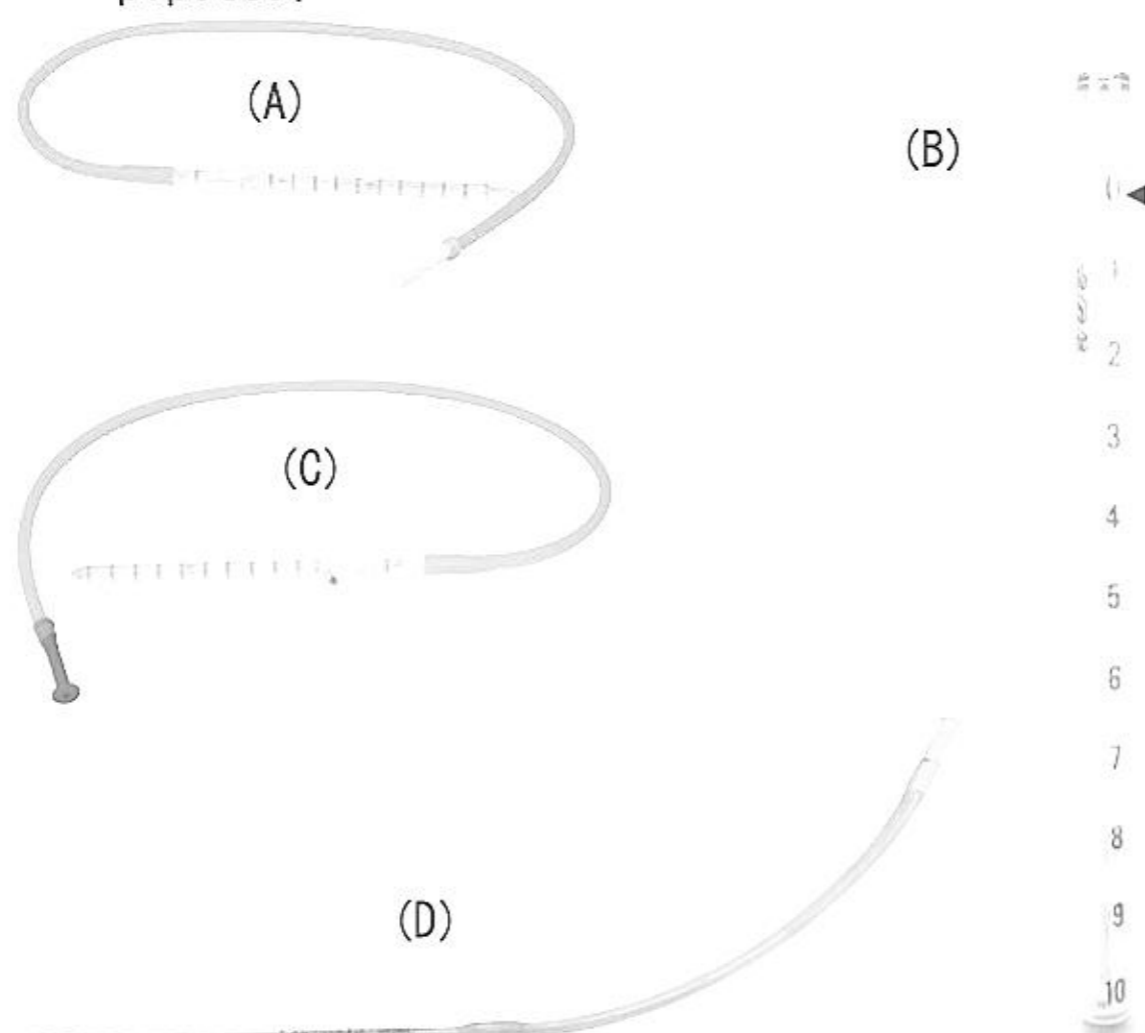
- ❖ Size = 2 -3 RBC
- ❖ Nucleus = Large , centrally placed
- ❖ Cytoplasm = less as compared to nucleus

MONOCYTE

- ❖ Size = 2 -3 RBC
- ❖ Nucleus = Round /kidney shaped / indented (on one side)
- ❖ Cytoplasm = Abundant as compared to nucleus



Q4 Rees Ecker fluid is filled in which of the following pipette?



Ans : (C) RBC PIPETTE

RBC PIPETTE

Uses: in counting of

1. RBC
2. Platelet

Fluids:

- ❖ Hayem's fluid for RBC counting
- ❖ Uses Rees Ecker fluid for platelet counting



WBC PIPETTE

Use:

in counting of WBC.

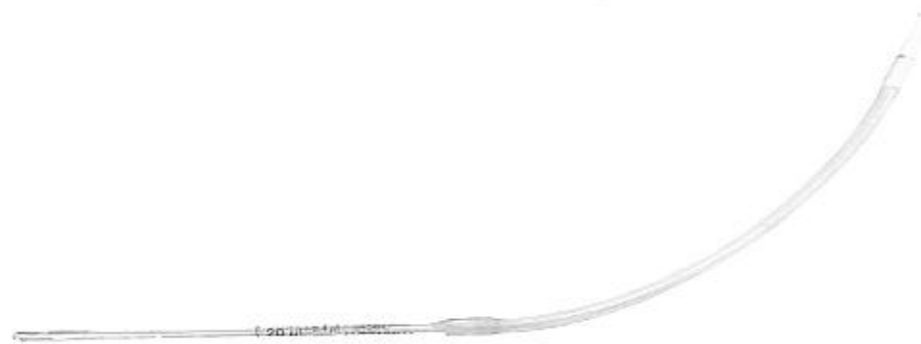
Fluid:

Turk's fluid



HEMOGLOBINOMETER PIPETTE

- ❖ For Hb estimation



WINTROBE'S TUBE

- ❖ Used for ESR estimation



Q5 Macula densa cells are

- (A) DCT
- (B) PCT
- (C) Afferent arterioles

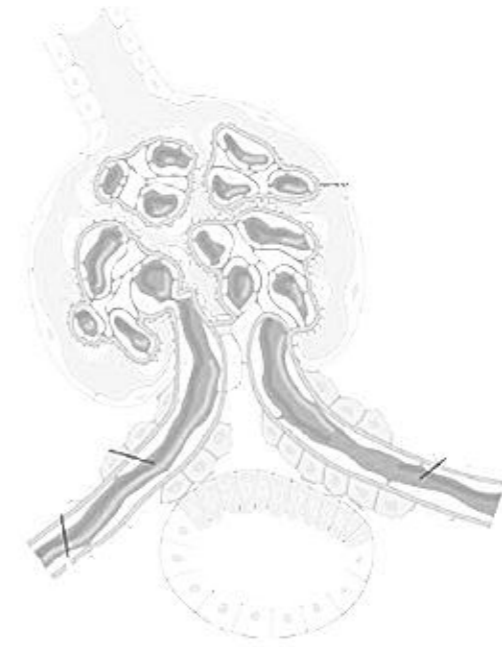
from which part?

(D) Bowman' s capsule

Ans : A

❖ Macula densa cells = distal tubule

Guyton and Hall, 14th edition, Chapter 27, Page 339-340



Q6 Slow waves are least in:

- (A) Stomach
- (B) Duodenum
- (C) Ileum
- (D) Jejunum

Ans : (A)

❖ Slow waves Frequency = 2 - 12/ min

SITE	Slow waves per minute
Stomach	3/ min
Duodenum	12/min
Ileum	8/min
Cecum	2/min
Sigmoid	6/min

Guyton and Hall, 14th edition, Chapter 63, Page 788

Ganong, 26th edition, Chapter 27, Page 486

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Q7 Arrange order of sequence of auditory pathway?

1. Spiral ganglion
2. Eight nerve
3. Cochlear nuclei
4. Inferior colliculi
5. Medial geniculate body
6. Superior olivary nucleus
7. Lateral lemniscus
8. Auditory cortex

- (A) 1-2-3-4-5-6-7-8
- (B) 1-2-3-5-4-6-7-8
- (C) 1-2-3-6-7-4-5-8
- (D) 1-2-4-5-3-6-7-8

Ans : (C)

AUDITORY PATHWAY

E. COLI-MA

- ❖ Axons of spiral ganglion
- ❖ E = Eighth nerve
- ❖ C = Cochlear nuclei
- ❖ O = Superior olivary complex
- ❖ L = Lateral lemniscus
- ❖ I = Inferior colliculus
- ❖ M = Medial geniculate body
- ❖ A = Auditory cortex

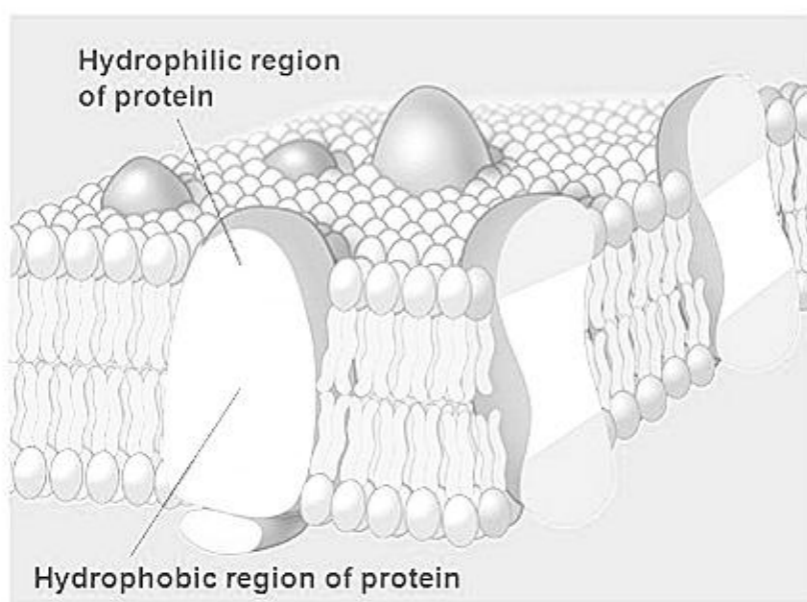
Q8 Intramembranous part of membrane spanning receptor is made up of ?

- (A) Hydrophobic
- (B) Hydrophilic
- (C) Charged
- (D) Amphipathic

Ans : (A)

MEMBRANE SPANNING RECEPTOR

- ❖ Within membrane
 - Hydrophobic (Nonpolar amino acids)
- ❖ On outer and inner surfaces of cell membrane
 - Hydrophilic (Polar amino acids)



Q9 What is respiratory quotient in a 50 kg man who inspires 250 ml of oxygen per minute and expires 200 ml of CO₂ per minute?

- (A) 0.6
- (B) 0.8
- (C) 1.0
- (D) 1.25

Ans : (B)

RESPIRATORY QUOTIENT

$$RQ = \frac{\text{Volume of CO}_2 \text{ produced}}{\text{Volume of O}_2 \text{ consumed}} \text{ Per unit time}$$

$$= \frac{200\text{ml}}{250\text{ml}}$$

$$RQ = 0.8$$

Q10 Normality of 2 mmol of HCl:, 1 mmol of H₂SO₄ ?

- (A) 2
- (B) Half
- (C) 4
- (D) Same

Ans : (D) SAME

NORMALITY AND MOLARITY

- ❖ Molarity (M) = concentration of compound in solution
- ❖ Normality (N) = molar concentration of acid or base component
- ❖ $N = M \times \text{number of Hydrogen ions or Hydroxyl ions}$

- ❖ For 2 mmol of HCl:
 $N = 2 \times 1 = 2$
- ❖ For 1 mmol H₂SO₄:
 $N = 1 \times 2 = 2$

Q11 Arrange the order of sequence of events after P wave in ECG?

1. a wave in JVP
 2. T wave on ECG
 3. S1 heart sound
 4. Ventricular filling
- (A) 1 → 2 → 3 → 4
(B) 1 → 3 → 2 → 4
(C) 1 → 2 → 4 → 3
(D) 3 → 1 → 2 → 4

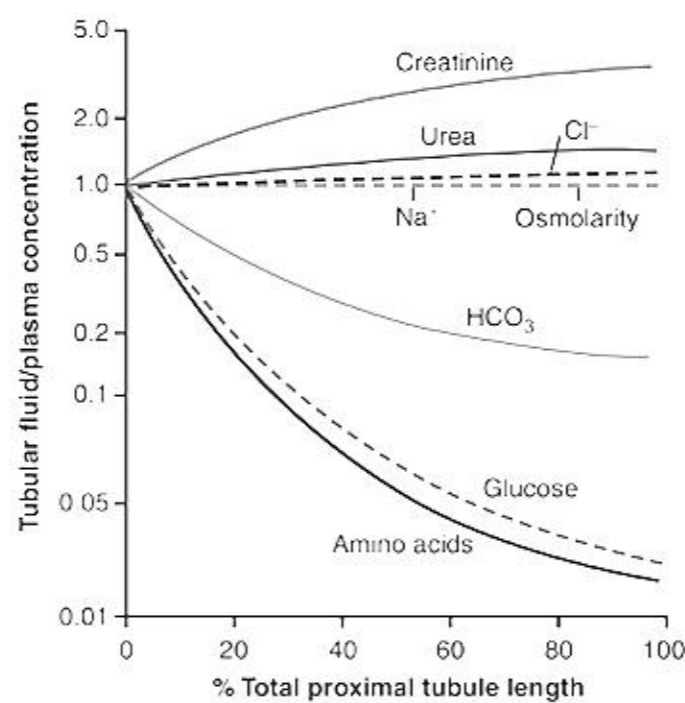
Ans : (B) 1 → 3 → 2 → 4

For detailed explanation, visit YouTube video on INI-CET Physiology by Dr. Ayesha

Q12 Along the length of proximal tubule, concentration of which of the following substance increases?

- (A) Amino acids
(B) Glucose
(C) Chloride
(D) Bicarbonate

Ans : (c)



Guyton and Hall, 14th edition, Chapter 28, Page 349

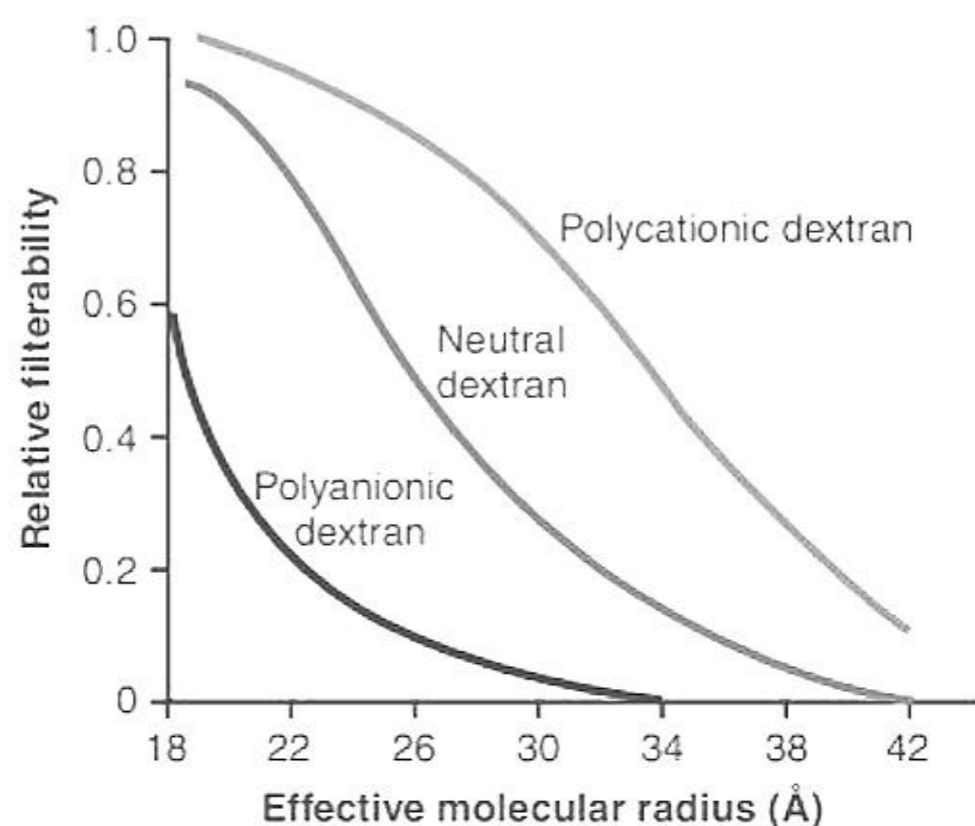
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Q13 Arrange the following based on filterability in glomerulus?

- (A) Neutral dextran > Polycationic dextran > Polyanionic dextran
(B) Polycationic dextran > Neutral dextran > Polyanionic dextran

- (C) Polyanionic dextran > Neutral dextran > Polycationic dextran
 (D) Polycationic dextran > Polyanionic dextran > Neutral dextran

Ans : (B) Polycationic dextran > Neutral dextran > Polyanionic dextran



Guyton and Hall, 14th edition, Chapter 27,
 Page 333

For detailed explanation, visit YouTube video on INI-CET Physiology by Dr. Ayesha

Q14 Match the following:

1. After-hyperpolarization
 2. Depolarization
 3. Repolarization
- A. Efflux from voltage gated K channels
 - B. Influx from voltage gated Na channels
 - C. Influx of sodium through Ach muscarinic channels
 - D. Prolonged opening of voltage gated K channels
 - E. Influx from ligand gated Na channels
- (A) 1 a, 2 c, 3 d
 (B) 1 d, 2 b, 3 a
 (C) 1 d, 2 b, 3 e
 (D) 1 e, 2 a, 3 c

Ans : (B) 1 d, 2 b, 3 a

For detailed explanation, visit YouTube video on INI-CET Physiology by Dr. Ayesha

Q15 Which of the following statements about excitation contraction coupling in skeletal muscle is/ are correct?

1. Extracellular calcium plays no role
2. Intracellular source of calcium is mitochondria
3. Electrical event is followed by mechanical event

- (A) 1 only
(B) 1 and 2
(C) 1 and 3
(D) 1, 2, 3

Ans : (C) 1 and 3

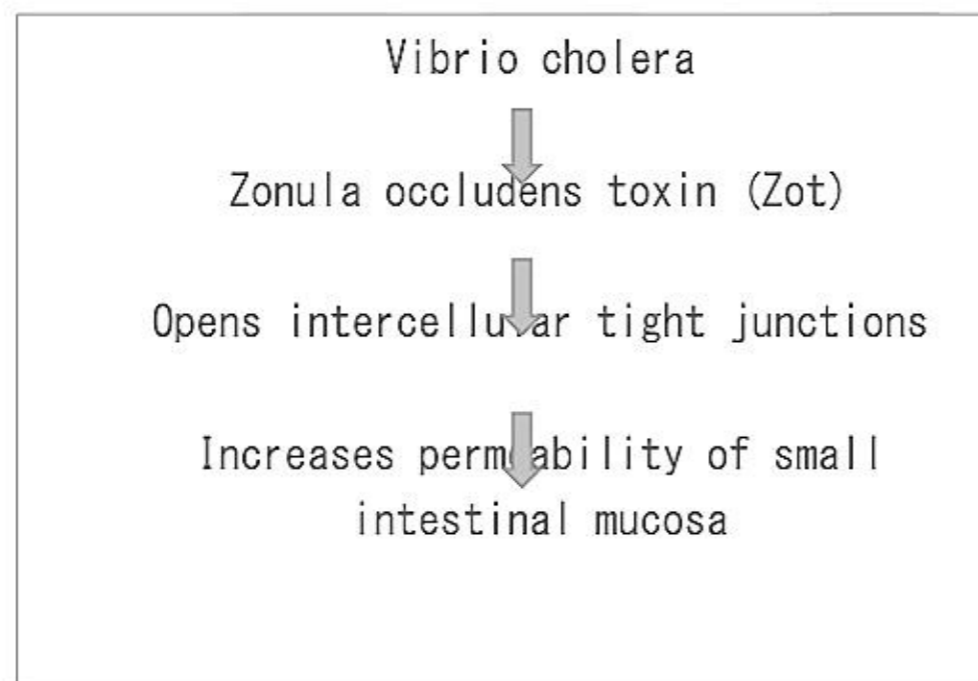
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Q16 Diarrhoea in vibrio cholera is due to disruption of?

- (A) Zona occludens
(B) Hemidesmosomes
(C) Macula adherens
(D) Desmosomes

Ans : (A) Zona occludens

TIGHT JUNCTION



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