#1-#12 MULT. CHOICE QUESTIONS: CHOOSE THE ONE BEST ANSWER

1. In a person whose hematocrit is 55%, which of the following makes up the greatest portion of whole blood:

a) plasma
b) white blood cells
c) platelets
d) red blood cells
e) serum

2. Which of the following function in the blood:

a) erythrocytes
b) granulocytes
c) lymphocytes
d) all of the above
e) none of the above

3. How does the bicarbonate ion leave red blood cells and enter the plasma:

a) it diffuses freely across the red blood cell plasma membrane
b) it is released from secretory vesicles after they fuse with the red blood cell plasmamembrane
c) it is actively transported across the red blood cell plasmamembrane
d) all of the above
e) none of the above

4. Which of the following is prominent in a mature, circulating red blood cell:

a) nucleus
b) hemoglobin genes
c) ribosomes
d) all of the above
e) none of the above

5. Which of the following is a characteristic of neutrophils in loose connective tissue:

a) multilobed nucleus
b) secretory vesicles
c) golgi apparatus
d) all of the above
e) none of the above

6. Which of the following is a characteristic of monocytes:

a) produced in lymph nodes
b) become phagocytic when activated
c) release platelets after blood vessel injury
d) all of the above
e) none of the above

7. Which of the following mediate platelet adhesion to the subendothelial ECM after blood vessel injury:

a) integrins
b) desmocollins
c) occludins
d) all of the above
e) none of the above

8. Which of the following is a characteristic of 'stem cell factor' that is produced by stromal cells in the bone marrow:

a) it binds to cytoplasmic receptors in hematopoietic stem cells
b) it acts on lineage-restricted progenitor cells exclusively
c) it prevents stem cell niches from forming in the bone marrow
d) all of the above
e) none of the above

9. Where do early atheroschlerotic lesions initially form:

a) in the blood
b) on the lumenal (i.e. apical) surface of the endothelium
c) in the cytoplasm of the endothelium
d) on the basal surface of the endothelium
e) in the subendothelial connective tissue

10. Which of the following is synthesized in the hypothalamus and transported to the pituitary by the 'indirect' pathway:

a) OT (oxytocin)
b) CRH (corticotropin-releasing hormone)
c) ACTH (adrenocorticotrophic hormone)
d) all of the above
e) none of the above

11. Which of the following is synthesized in the posterior pituitary:

a) OT (oxytocin)
b) CRH (corticotropin-releasing hormone)
c) ACTH (adrenocorticotrophic hormone)
d) all of the above
e) none of the above

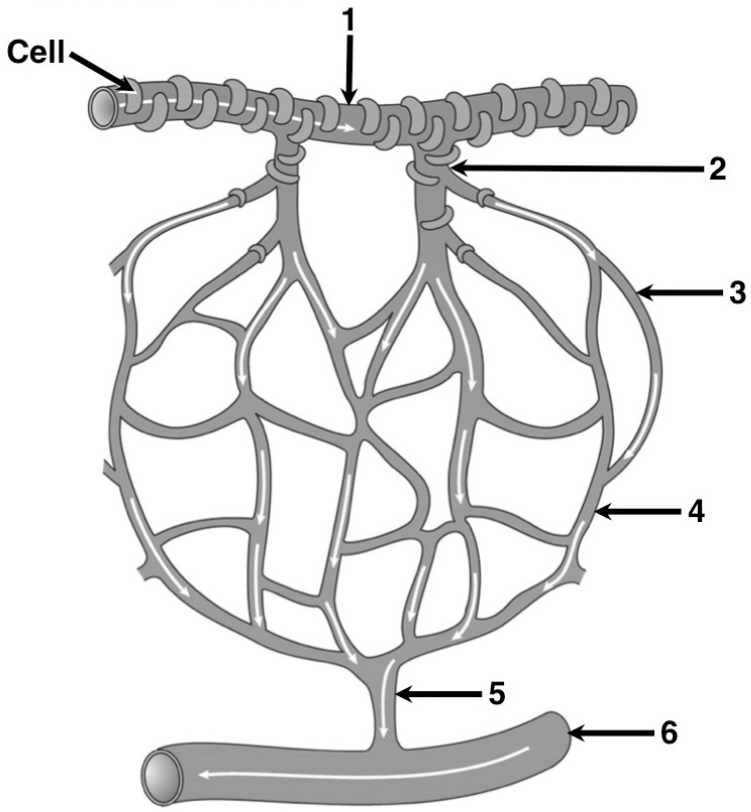
12. Regarding the paraventricular nucleus of the hypothalamus, which of the following is CORRECT:

a) contains neurosecretory cells that terminate in the posterior pituitary
b) contains neurosecretory cells that terminate in the median eminence
c) located in the hypothalamus
d) all of the above
e) none of the above

End of Multiple Choice Questions - Please Proceed to Short Answer Questions

#13-#16 SHORT ANSWER QUESTIONS: ANSWER AS REQUESTED

Figure 1: Capillary Bed and Associated Vessels



13. In Fig 1, what type of cell does the struture labelled 'Cell' represent:
(write the cell type) _____

14. In Fig 1, what type of endothelium would be present at structure #4 if this capillary bed is in an endocrine gland:
(write the type of endothelium) _____

15. In Fig 1, which numbered structure represents the metarteriole:
(write the #) _____

16. In Fig 1, which numbered struture is the venule:
(write the #) _____

17. In Fig 1, which numbered structure has the highest blood pressure:
(write the #) _____

End of Questions associated with Fig 1

18. A mythical ANAT390 student who had been feeling unwell for two weeks went to the see his physician who had a differential white cell count from the student's peripheral blood done. The results indicated that the student had a significantly elevated number of mature neutrophils in his blood. What is the most likely caused this?

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19. A mythical ANAT390 teaching assistant plans to spend her entire Christmas vacation telemark skiing at high elevation in the Rocky Mountains. Why will her blood EPO levels very likely be elevated on New Year's Day?

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20. A mythical ANAT390 instructor was working a research project in her laboratory in which she developed a drug that prevented the binding of a paracrine factor produced by osteoblasts that binds to hematopoietic stem cells (HSCs) in a very short range acting manner. Why did the instructor carry out her experiments on isolated hematopoietic cords (ie. where the hematopoietic niches are intact) rather than with purified populations of HSC cells?

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End of 05 SampleSetQuestions
The final examination will consist of questions formulated in the formats above