Hematopoiesis — 30 Multiple Choice Questions (MCQs)

1. Euchromatin represents which type of chromatin?
A. Condensed inactive chromatin
B. Extended active chromatin
C. Dark heterochromatin
D. Nucleolar chromatin
Answer: B. Extended active chromatin

2. The function of the nucleolus is to:
A. Store DNA
B. Form ribosomal RNA
C. Assemble microtubules
D. Produce enzymes
Answer: B. Form ribosomal RNA

3. The cytoplasm appears basophilic mainly due to:
A. Ribosomes
B. Lysosomes
C. Golgi apparatus
D. Mitochondria
Answer: A. Ribosomes

4. The parenchyma of the heart is composed of:
A. Endothelium
B. Cardiac muscle
C. Connective tissue
D. Nerve fibers
Answer: B. Cardiac muscle

5. Reticular connective tissue forms the stroma of:
A. Brain
B. Skeletal muscle
C. Liver and lymph nodes
D. Skin
Answer: C. Liver and lymph nodes

6. Sinusoidal capillaries are found in:
A. Kidney
B. Liver
C. Muscle
D. Lung
Answer: B. Liver

7. The first site of hematopoiesis in the embryo is the:
A. Liver
B. Bone marrow
C. Yolk sac mesoderm
D. Spleen
Answer: C. Yolk sac mesoderm

8. After birth, hematopoiesis occurs mainly in:
A. Liver
B. Bone marrow
C. Spleen

D. Lymph node
Answer: B. Bone marrow

9. Red bone marrow in adults is found mainly in:
A. Long bones
B. Axial skeleton
C. Limbs only
D. Compact bone
Answer: B. Axial skeleton

10. Yellow bone marrow can revert to red marrow during:
A. Starvation
B. Severe bleeding
C. Fever
D. Exercise
Answer: B. Severe bleeding

11. The discontinuous endothelium in bone marrow belongs to:
A. Continuous capillaries
B. Sinusoidal capillaries
C. Fenestrated capillaries
D. Tight capillaries
Answer: B. Sinusoidal capillaries

12. The stem cells that give rise to all blood cells are called:
A. Myeloid stem cells
B. Lymphoid stem cells
C. Pluripotent stem cells
D. Erythroblasts
Answer: C. Pluripotent stem cells

13. CFU stands for:
A. Central Forming Unit
B. Colony-Forming Unit
C. Cellular Fusion Unit
D. Cytoplasmic Formation Unit
Answer: B. Colony-Forming Unit

14. Myeloid stem cells give rise to all the following except:
A. Monocytes
B. Erythrocytes
C. T lymphocytes
D. Megakaryocytes
Answer: C. T lymphocytes

15. Erythropoiesis is regulated by:
A. Thrombopoietin
B. Erythropoietin
C. Interleukin
D. Myeloperoxidase
Answer: B. Erythropoietin

16. Erythropoietin is secreted by:
A. Liver
B. Bone marrow
C. Kidney
D. Spleen
Answer: C. Kidney

17. During erythrocyte maturation, the cell size:
A. Increases
B. Decreases
C. Remains constant
D. Fluctuates
Answer: B. Decreases

18. Reticulocytes contain:
A. Nucleus
B. Golgi bodies
C. Ribosomal remnants
D. Lysosomes
Answer: C. Ribosomal remnants

19. The first recognizable precursor in erythropoiesis is the:
A. Reticulocyte
B. Basophilic erythroblast
C. Proerythroblast
D. Normoblast
Answer: C. Proerythroblast

20. Reticulocytes can be stained by:
A. Hematoxylin
B. Brilliant cresyl blue
C. Eosin
D. Wright's stain
Answer: B. Brilliant cresyl blue

21. Granulopoiesis takes approximately:
A. 1 day
B. 1 week
C. 2 weeks
D. 4 weeks
Answer: C. 2 weeks

22. Specific granules first appear at the stage of:
A. Myeloblast
B. Promyelocyte
C. Myelocyte
D. Metamyelocyte
Answer: C. Myelocyte

23. Band cells are almost mature forms of:
A. Basophils
B. Neutrophils
C. Monocytes
D. Lymphocytes
Answer: B. Neutrophils

24. The presence of excess band cells indicates:
A. Viral infection
B. Bacterial infection
C. Fungal infection
D. Parasitic infection
Answer: B. Bacterial infection

25. Margination of neutrophils occurs along:

A. Arteries
B. Venules
C. Capillaries
D. Arterioles
Answer: B. Venules

26. Neutrophilia due to stress or exercise is caused by:
A. Increased granulopoiesis
B. Movement from marginating pool
C. Bone marrow failure
D. Decreased apoptosis
Answer: B. Movement from marginating pool

27. The myeloid:erythroid ratio in bone marrow is approximately:
A. 1:1
B. 2:1
C. 3:1
D. 5:1
Answer: C. 3:1

28. Platelets originate from:
A. Monocytes
B. Megakaryocytes
C. Myelocytes
D. Lymphocytes
Answer: B. Megakaryocytes

29. The main glycoproteins that stimulate hematopoiesis are called:
A. Enzymes
B. Hormones
C. Colony-stimulating factors
D. Plasma proteins
Answer: C. Colony-stimulating factors

30. The main function of thrombopoietin is to regulate formation of:
A. Erythrocytes
B. Platelets
C. Neutrophils
D. Lymphocytes
Answer: B. Platelets