Time : 3 hours  
Max. Marks : 100  

Important instructions:  
- Attempt all questions in order.  
- Each question carries 10 marks.  
- Read the question carefully and answer to the point neatly and legibly.  
- Do not leave any blank pages between two answers.  
- Indicate the question number correctly for the answer in the margin space.  
- Answer all the parts of a single question together.  
- Start the answer to a question on a fresh page or leave adequate space between two answers.  
- Draw table/diagrams/flowcharts wherever appropriate.

1. Define milieu interior. Discuss in brief with examples functioning of negative and positive feedback mechanisms. \(2+(4+4)\)

2. Explain briefly various phases of mitosis in human cell. \(10\)

3. Name various anticoagulants. Discuss the various anti-clotting mechanisms. \(3+7\)

4. Define erythropoiesis. Draw well labeled diagram(s) of various stages of erythropoiesis. Briefly discuss its regulation. \(2+4+4\)

5. What are tissue macrophages? What is their origin, and how do they contribute to body defenses? \(2+(2+6)\)

6. What is autoregulation? Enumerate the various theories to explain autoregulation in the kidney. Discuss one theory in detail. \(2+3+5\)

7. Enumerate the trace elements believed to be essential for life? Discuss in brief about effects of deficiencies and toxicity due to overdoses of these trace elements. \(2+(4+4)\)

8. Describe briefly about cholesterol metabolism. What are the factors responsible for hypercholesterolemia and its relation to atherosclerosis? \(4+6\)

9. Describe the various physical principles that dictate the flow of blood in the circulatory system. \(10\)

10. Define and discuss tubuloglomerular feedback and glomerulotubular balance. \(5+5\)

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POSSESSION / USE OF CELL PHONES OR ANY SUCH ELECTRONIC GADGETS IS NOT PERMITTED INSIDE THE EXAMINATION HALL.