# HEMATOLOGY
# PAPER-I

HEM/D/17/48/I

Time: 3 hours
Max. Marks: 100

- *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 question to a question on a fresh page or leave adequate space between two answers.*
- *Draw table/diagrams/flowcharts wherever appropriate.*

Write short notes on:

1. a) Vitamin $B_{12}$ metabolism — 4+3+3
   b) Role of Vitamin $B_{12}$ levels in diagnosis of $B_{12}$ deficiency and pitfalls
   c) Clinical manifestations of vitamin $B_{12}$ deficiency
   d) Non-megaloblastic macrocytic anemia and its causes

2. Hemophilia: — 3+4+3
   a) Causes of acquired hemophilia
   b) Eliciting joint abnormalities
   c) Prenatal diagnosis of hemophilia

3. Angiogenesis: — 3+4+3
   a) Its role in hematologic malignancies
   b) Anti-angiogenic drugs in treatment of hematologic malignancies
   c) Markers of angiogenesis

4. AML: — 4+3+3
   a) Molecular markers affecting prognosis of AML
   b) FLT3 Inhibitors
   c) AML with related myelodysplasia

5. CART cells in Pediatric ALL: — 4+3+3
   a) Role of therapy in Pediatric ALL
   b) How are they formed?
   c) What lab facilities are required for generating and using CART cells in patients?

6. Autoimmune hemolytic anemia (AIHA): — 4+3+3
   a) Management of warm type of AIHA.
   b) Methods of detection of auto-antibodies against RBC
   c) Coomb's negative auto immune hemolytic anemia

7. a) Compensation in clinical trials 4+3+3
   b) Role of sponsors in clinical trial
   c) Salient features of Phase I, II and III clinical trials.

8. a) Growth factors in normal hematopoiesis 3+4+3
   b) Microenvironment in acquired aplastic anemia
   c) Hematopoietic stem cell

9. Minimal residual disease in ALL: 3+4+3
   a) What is minimal residual disease?
   b) How is it detected?
   c) How does treatment alter based on MRD?

10. a) What are T-reg cells and how are they picked up? 4+3+3
    b) What is their role in ITP?
    c) Describe in brief dendritic cells

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