HEMATOLOGY

PAPER-I

Time: 3 hours HEMAT/J/20/48/I
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.*

Write short notes on:

1. A 56-year-old patient is admitted with chest pain, decreased saturation and is diagnosed to have acute promyelocytic leukemia. Cardiac enzymes are normal. He also has raised D dimer levels; he does not have fever. 2+4+4
   a) What do you think his ECG will show?
   b) What tests will you do to confirm your suspicion?
   c) How will you manage this complication?

2. a) What is hematopoietic niche? 3+3+4
   b) Role of mesenchymal stem cells in the bone marrow stroma.
   c) Role of the bone marrow stroma in stem cell mobilization and engraftment.

3. Megakaryocytes: 3+4+3
   a) What is the molecular defect and presentation of congenital amegakaryocytic thrombocytopenia?
   b) What are micro-megakaryocytes?
   c) What bone marrow picture is found in immune thrombocytopenia?

4. Hereditary spherocytosis: 3+4+3
   a) What structural defects occur in the red cells?
   b) What is the basis of the incubated osmotic fragility test?
   c) What is Nestroft test?

5. a) What is the need for randomization in a clinical trial? 4+3+3
   b) What is the reason for blinded assessments?
   c) What is block randomization? What does it achieve?

6. a) Why do some clinical trials have a crossover design? 2+4+4
   b) What information is needed to calculate the sample size and power of a study?
   c) What is intention to treat analysis? How does it help the researcher?

P.T.O

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7. a) Inherited bone marrow failure syndrome - list diseases and main features. 5+3+2
   b) What tests are required to diagnose dyskeratosis congenital (DKC)?
   c) How will you work up a case of Diamond-Blackfan anemia?

8. A 3-year-old child with short stature, hyperpigmentation, horse shoe kidney and thrombocytopenia comes to see you. Elder sibling died because of chronic anemia and development of acute myeloid leukemia. 3+4+3
   a) What work up will you do?
   b) What is the therapy you will plan?
   c) What counselling will you give to the parents?

9. Sickle cell disease: 3+4+3
   a) How is the diagnosis made in the new born period?
   b) What are the evidence based practices recommended for therapy in children and adults with sickle cell disease?
   c) What is a veno-occlusive crisis? How should it be managed? What are the pain medicines indicated?

10. Describe, discuss rational and give examples for: 4+3+3
    a) Primary prophylaxis.
    b) Secondary prophylaxis.
    c) Post exposure prophylaxis.

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