AIMS FELLOWSHIP EXAMINATION

HAEMATOLOGY I

Routine Cellular Haematology

All questions are to be attempted

Short answer questions (5 marks each)

1. List the possible causes of:
   a) erythrocytosis
   b) neutropenia
   c) stomatocytosis
   d) thrombocytosis

2. Describe the morphology and explain the function of an osteoblast

3. Describe the morphology of:
   a) Megakaryocyte
   b) Prolymphocyte
   c) Plasma cell
   d) Xerocytosis

4. Describe the principle of
   a) The HbH stain
   b) The Heinz body stain
   c) Reticulocyte supra-vital staining

5. A patient presents with an MCV which is 9fl lower than that recorded on several blood counts performed two weeks earlier. Explain the possible causes of this change in MCV result.

6. What factors can affect the result of the ESR test? What test(s) have been proposed as alternative to the ESR?

7. Explain the meaning and significance of the various numbers printed on the side of a microscope objective lens.

8. Explain the role of the following automated cell counter parameters:
   a. RDW
   b. IRF
   c. MCHC and CHCM
   d. Blast flag
9. What clinical condition/s are associated with the following white blood cell morphology
   a) Auer rods
   b) Atypical and reactive lymphocytes
   c) Mott cells
   d) Hypersegmented neutrophils

10. What clinical condition/s are associated with the following red blood morphology.
    a) Spur cells
    b) Howell Jolly bodies
    c) Sickle cells
    d) Oval macrocytes

11. List the haematological laboratory observations in:
    a) HELLP syndrome
    b) Anaemia of chronic disease
    c) South-east Asian Ovalocytosis
    d) Acute Promyelocytic leukaemia

12. List the different techniques which could be used to detect a malarial parasite infection in blood. Briefly list the advantages and disadvantages of each technique.

13. List the storage effects of Di-Sodium EDTA, Tri-Sodium EDTA and Tri-Potassium EDTA.

14. A 65 year old male with no previous history presents with a haemoglobin of 105g/l and MCV of 101fl. What is the differential diagnosis? What tests should be performed as follow up to confirm the diagnosis?

15. What tests should be performed for identification/confirmation of iron deficiency?

16. i) What is a Levy Jennings plot? When is it used?
       ii) What are Westgard rules? Briefly discuss their application in haematology.

17. Briefly outline the tests used in the initial investigation of a patient with suspected haemolysis.

18. Describe the haematological presentation of a patient with Haemoglobin S/C.
19. A patient with no previous history presents with anaemia, tear drop poikilocytes and large platelets. What is the differential diagnosis? What tests should be performed as follow up to confirm the diagnosis?

20. A patient presents with a White Cell Count of 40.0 x 10^9/l. Film examination reveals 75% blast cells. What other observations may be relevant at this time? What immediate follow up tests would be appropriate?
Long answer questions (25 marks each)

1. Describe and discuss the measurement of the WBC differential and associated parameters on three different automated cell counters.

2. Describe the steps involved with the introduction of a systematic approach to determining Measurement Uncertainty in a medium sized Haematology laboratory.