Physiology Lab 2-Tutorial cases

A young male adult; is admitted to the hospital. He complains that he feels weak and tires easily. On questioning, it becomes clear that he has been bleeding into his gastrointestinal tract, probably from a gastric ulcer. The patient is also found to have a mild fever (38.6°C).

The medical house officer sends a sample of the patient's blood: to the haematology laboratory in a bottle containing a Ca2+-chelating agent. The requested investigations include the measurement of the hemoglobin concentration and a blood cell count. The results are given in the Table below.

Variable	Measured value	Normal value
Haemoglobin	9.6 g dl^{1}	14-16gdr^{1}
Red cell count	3.3 x $10^{12}L^{-1}$	4-6 x $10^{12}L^{-1}$
Reticulocytes	9 %	0-2%
White cell count	15.6 x $10^{9}L^{-1}$	4-11x $10^{9}L^{-1}$
Platelet count	190 x $10^{9}L^{-1}$	150-400 x $10^{9}L^{-1}$

1-What is the purpose of the Ca2+-chelating agent in the sample bottle?

2-How might the patient's symptoms of weakness and tiredness be explained on the basis of the haematology results?

3-Comment on the reticulocyte count in the light of the other blood results.

4-Which of the blood results is most consistent with the patient's fever and what may be the cause of both changes?

Case 2:

A 34-year-old man with schizophrenia has had: chronic fatigue for 6 months. He has a good appetite but has refused to eat vegetables for I year because he hears voices that tell him the vegetables are poi¬soned. His physical and neurological examinations are normal.

- His hemoglobin level is 9.1 g/dl (Reference: 14-16 g/dl)
- Leukocyte count is 10,000/mm3 (Reference: 6000-11000/mm3)
- Mean corpuscular volume is 122 Fl (Reference: 85-92 FL).

What is the most likely diagnosis? Explain your answer

Case 3:

A 65-year-old man complains of dizziness and visual disturbances. His laboratory values are as follows:

- Red blood cell count = 8.5 x lOVmm3
- Hemoglobin = 21 g/dl
- Hematocrit = 60 per cent
- Plasma osmolality = 295 mOsm/L

What is the most likely explanation for this -presentation?