Charles Darwin University

Final Examination

Family Name						
Given Name/s						
Student Number						
Teaching Period	Semester 2, 2017					

MLS202 – Haematology 2	DURATION	
	Reading Time:	10 minutes
	Writing Time:	120 minutes

INSTRUCTIONS TO CANDIDATES

Section A should be answered on the Answer Sheet provided. Please ensure that your name and student number have been written on the Answer sheet and place in the completed answer Booklet.

Section B should be answered in separate booklets.

Questions in section A and Section B are NOT of equal value. Please see each section for allocated marks.

EXAM CONDITIONS

You may begin writing from the commencement of the examination session. The reading time indicated above is provided as a guide only.

This is a CLOSED BOOK examination

Any non-programmable calculator is permitted

No handwritten notes are permitted

No dictionaries are permitted

ADDITIONAL AUTHORISED MATERIALS	EXAMINATION MATERIALS TO BE SUPPLIED
No additional printed material is permitted	1 x 8 Page Book School Multiple Choice Answer Sheet

THIS EXAMINATION IS PRINTED DOUBLE-SIDED.

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Section A

Multiple Choice Questions

Total No of Marks for this section: (70)

This section should be answered on the Answer Sheet provided. Please ensure that your name and student number have been written on the Answer sheet and place in the completed answer Booklet.

Each question is worth 1.4 mark. Suggested Time allocation for Section A: 60 minutes

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END OF SECTION A

Section B

Case study based question
Total Number of marks for this section: (30)

This section should be answered in separate booklets.
Questions are NOT of equal value see each question for mark allocation.

Suggested Time allocation for Section B: 60 minutes
Four questions, each worth 10 marks

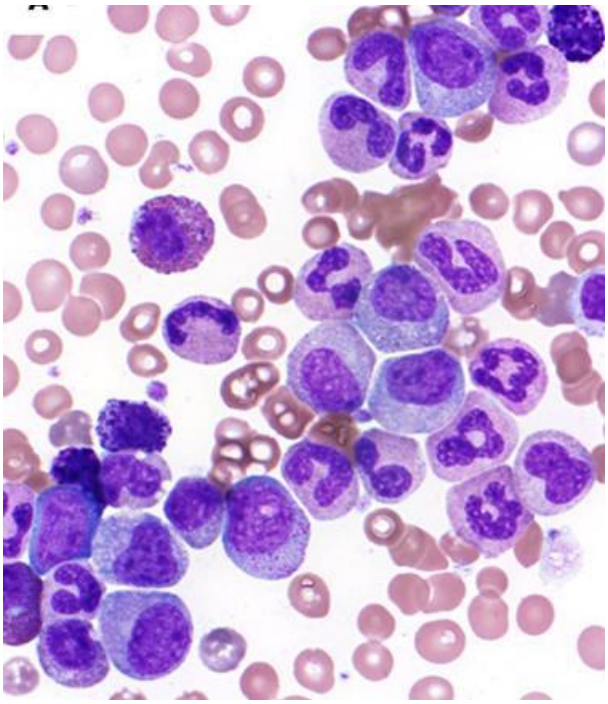
Question 1

Clinical history

45 year old woman with recent fatigue, appetite and weigh loss. She complains for dyspnea (low exercise tolerance) and lower abdominal pain. Full blood count values and WBC differential count with the blood film ispresented bellow:

Laboratory findings

Test		Normal range
WBC:	94.3×10^9/L	$5.0\text{-}10.0 \times 10^9$/L
Blast	10%	
Promyelocyte	20%	
Lymphocyte	40%	
Neutrophil	20%	
Band	4%	
Basophil	4%	
Eosinophil	2%	
RBC:	2.15×10^{12}/L	$4.0\text{-}5.23 \times 10^{12}$/L
Hb:	5.6g/dL	10.2-15.2 g/dL
HCT:	19.1 %	36-45 %
MCV:	90.7 fL	78-94 fL
MCH:	24.7pg	23-31 pg
MCHC:	29.3g/dL	32-36 g/dL
Plt:	91×10^9/L	$150\text{-}450 \times 10^9$/L



Describe your findings and write a reprot while considering the following questions:

1. what's are the significant morphologic changes you see in blood film? (RBC, WBC and Plt)
2. How these morphologic abnormality relates to the FBC indices and clinical symptoms?
3. What's the possible diagnosis and what other laboratory test you may suggest to help the acurate diagnosis?

Question 2

Clinical history

A 6 year old boy is referred to a pediatrician when his dentist realised that the child has a history of easy brusing. The family has lost a child due to intracranial hemorrhage after falling from crib. Laboratory results including FBC and peripheral blood film are shown bellow.

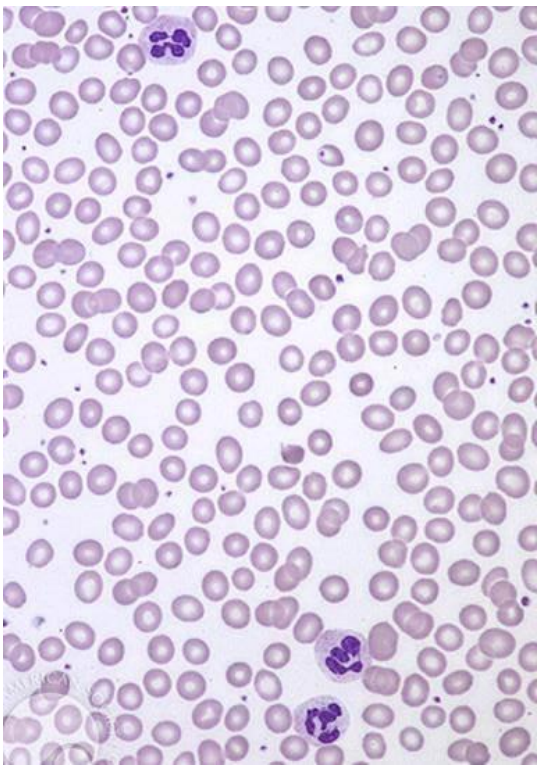
Laboratory findings

Haematology

Test		Normal range
WBC:	5.3×10^9/L	$5.3\text{-}11.5 \times 10^9$/L
RBC:	4.1×10^{12}/L	$4.0\text{-}4.9 \times 10^{12}$/L
Hb:	12.9 g/dL	10-15 g/dL
HCT:	37.1 %	36-46 %
Plt:	280×10^9/L	$219\text{-}450 \times 10^9$/L

Coagulation test

PT	11 sec	10-12 sec
PTT	58 sec	20-30 sec



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Question 3

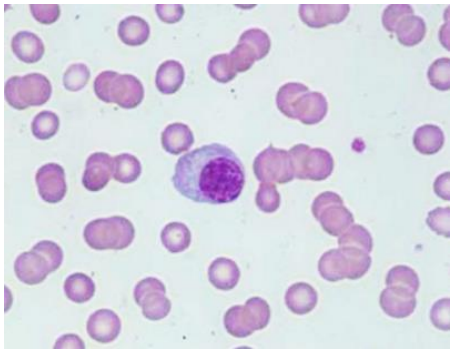
Clinical history

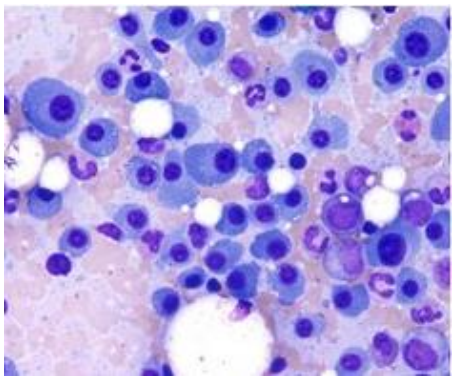
A 56 year old man visited the clinic with complaining for a generalized weakness, and back pain. He looked fatigue and pale in clinical exam and he noticed that his urination had decreased recently. His initial laboratory tests show a slight increase in calcium and creatinine levels and moderate proteinuria. His peripheral blood picutre (Top) and bone marrow smear (Bottom) are presented bellow.

Laboratory findings

Haematology:

Test		Normal range
WBC:	3.8	5.0-10.0 × 10^9/L
Neut:	2.0	2.5-7.5 × 10^9/L
LYM:	6.0	1.5-3.5 × 10^9/L
Mono	0.3	0.2-0.8 × 10^9/L
RBC:	3.8	4.0-5.2 × 10^{12}/L
Hb:	13.5	13.5-18 g/dL
HCT:	42.8	40-45 %
MCV:	83.9	80-100 fL
MCH:	27.4	2-34 pg
MCHC:	32.7	32-36 g/dL
Plt:	158	150-450× 10^9/L
Biochemistry:		
Calcium	14.2	9-11 mg/dL.2
Creatinine	2.8	1-2 mg/dL
Urinanalysis:		
Protein	++	Neg





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END OF SECTION B

You have completed the test. Please place the multiple choice questions answer sheet that you used for Section A inside the answer booklet. Please ensure that your name and student number are clearly indicated on your Answer Sheet and at the top of this examination paper.