

Correction of Duty 2

- 1) Magmas **A** and **B** come from a fusion of rock **C** of the mantle at a hot spot where fusion occurs by an increase in temperature at constant pressure.
- 2) Rock **C** is an ultrabasic rock because the silica content of this rock is less than 45% (see projection),
- 3) According to the projection, magma **A** which gave rock **A** is an intermediate magma because its silica content is between **52%** and **65%**, while magma **B** which gave rock **B** is a basic magma because its silica content is between **45%** and **52%**,
- 4) The two magmas **A** and **B** come from the same rock **C**, but they are different because their partial fusion rate is not the same and/or they have undergone different paths with different fractional crystallizations, this constitutes what is called magmatic differentiation.
- 5) The most differentiated magma is magma **A** because it contains the highest silica content.
- 6) The mineralogical composition of the three rocks from the diagram: 6) If the **M** magma was deposited at depth, it would then give rise to a plutonic rock and its name would be a Gabbro (equivalent to basalt).

	Roche A	Roche B	Roche C
Feldspaths potassique en %	10	-	-
Plagioclase en %	25	20	-
Quartz en %	35	-	-
Amphibole en %	15	-	-
Biotite en %	15	-	-
Pyroxène en %	-	70	20
Olivine en %	-	10	80
Total en %	100	100	100

- 7) Le degré de coloration d'une roche est fonction des minéraux colorés (essentiels ou ferromagnésiens : olivine, pyroxène, amphibole et biotite),

	% minéraux colorés	Degré de coloration
Roche A	30	Leucocrate
Roche B	80	Mélanocrate
Roche C	100	Holo Mélanocrate