MMRT 311-2 Genesis of mineral deposits
3rd year, 1st Semester
2019

Part B - Structured

(Please provide the answer within the given space only)

1. Define the mineral deposit genesis process of the following.

   a. Supergene enrichment (2 marks)

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   b. Volcanic Exhalative (2 marks)

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   c. Magmatic Crystallization (2 marks)

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   d. Hydrothermal process (2 marks)

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   e. Concordant mineral deposits (2 marks)

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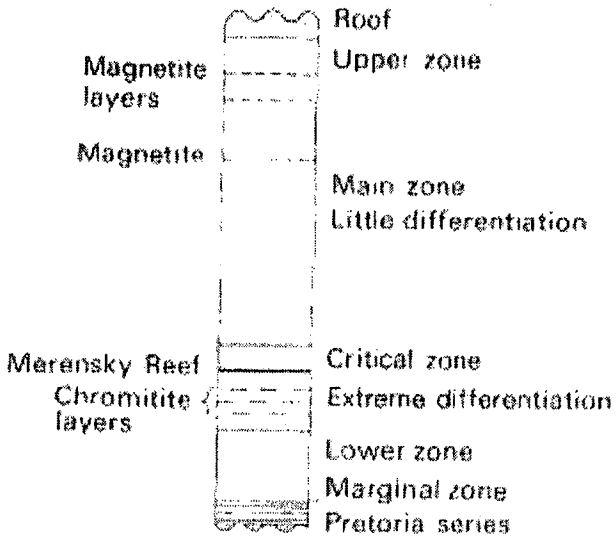
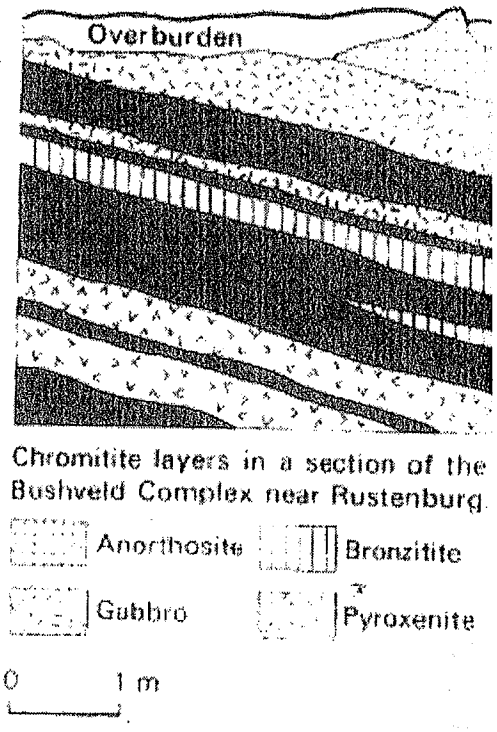
2. The following figure shows the chromitite layers in a section of the Bushveld Compl Rustenburg. Give answers to the following questions based on Figure 1.





Chromitite layers in a section of the Bushveld Complex near Rustenburg

Figure 1 Bushveld complex near Rustenburg
(Source: Ore geology and industrial minerals/Anthony M. Evans, - 3rd ed.)

a. Identify the morphology of the deposit. (3 mar

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b. What is the ore genesis process that leads to the formation of above mineral dep (3 mar

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c. Define the above process. (4 marks)

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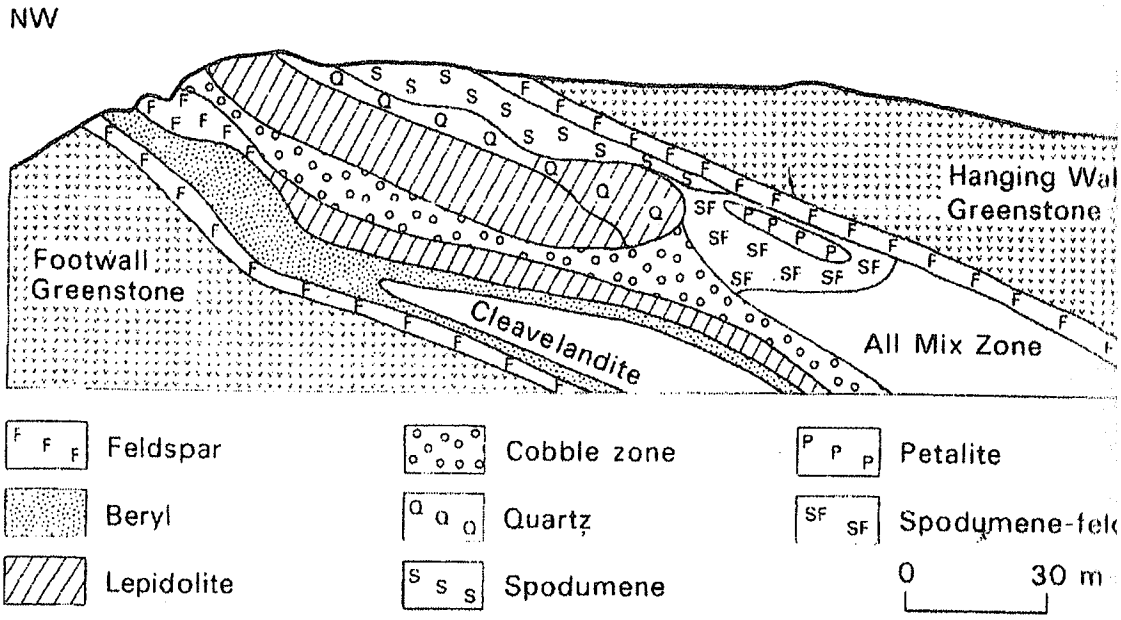
plex n 3. Suggest the ore genesis process responsible for the formation of following mineral deposits.

(20 marks)

Mineral Deposits	Ore Genesis Process
Disseminated nickel deposits in ultramafic bodies	
Flake Graphite deposits	
Zechstein evaporite deposits of Europe	
Lithium Pegmatites	
Stratiform chromium deposit	
Carbonatite	
Volcanogenic massive sulfide ore deposits	
Magnetite deposit at Buttala	
Graphite deposits at Kahatagaha	
Tin placers of Malaysia	
Rutile-zircon sands of New South Wales	
Granitic gneisses at Tonigala	
Banded iron formations of the Precambrian shields.	
Alluvial type gem deposits	
Secondary iron ore deposits	
Nickel laterites of New Caledonia	
Vein quartz deposit at Rattota, Sri Lanka	
Diamonds disseminated in kimberlites	
Gold placers of the Yukon. Canada.	
Skarn type Gem deposits, Bakamuna, Sri Lanka	

4. The following figure is a schematic drawing showing Bikita Pegmatite showing the zone structure and the important mineral in each zone. Give answers to the followin based on the figure.



(Source: Ore geology and industrial minerals/Anthony M. Evans, - 3rd ed.)

a. Identify the morphology of the deposit. (2

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b. What is the ore genesis process that leads to the formation of above mineral de (2

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c. Is this process syngenetic or epigenetic?..... (2

d. Define the above process. (4

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