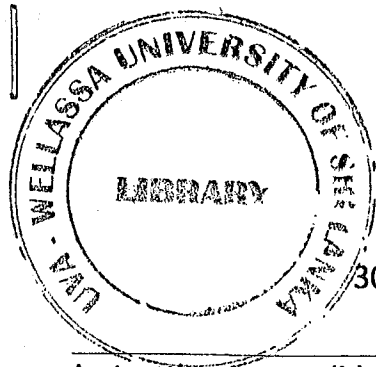




Uva Wellassa University of Sri Lanka

Faculty of Applied Sciences

Department of Science and Technology

300 level 1st Semester Examination – July/August 2019

MRT 315-3 Technical Mineralogy



Uva Wellassa
University

Instructions to candidates

This paper consists of three (03) parts

Part I: MCQ, Part II: Structured, Part III: Essay

Total number of questions: Part I: Thirty (30), Part II: Five (05), Part III: Three (03)

Time Allocated: Three (03) hours (Part I: 30 minutes, Part II: 01 hour, Part III: 01 hour and 30 minutes)

Marks allocation: 200 (Part I – 30, Part II – 80, Part III – 90)

Index No.

Part II – Structured

Answer All Questions

Please provide answers within the given space only

1. a). Define the term “Technical Mineralogy”.

[02 marks]

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b). What is “Energy Mineral”? Give two (02) examples.

[03 marks]

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(i) (ii)

c). Fill the blanks in order to complete the formation stages of Coal.

[02 marks]



[06 marks]

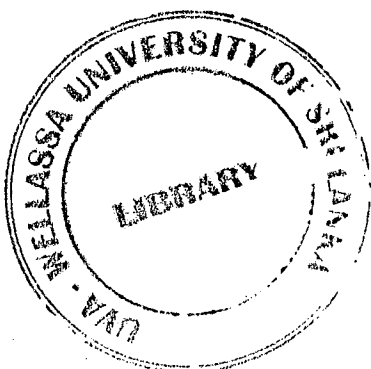
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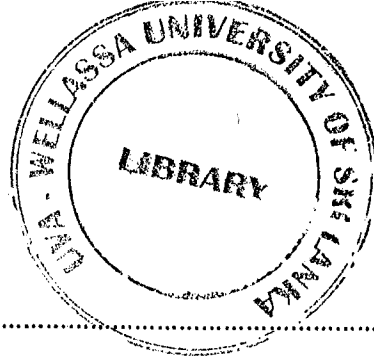
[01 marks]

.....

[02 marks]

Application	Decoration	Roofing
Examples		





2. a). What do you mean by Ceramic?

[02 marks]

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b). Briefly explain the function of Clay, Feldspar and Silica raw materials in ceramic.

[06 marks]

Raw Material	Function in Ceramic
Clay	
	
	
	
	
	
Feldspar	
	
	
	
Silica	
	
	
	
	

c). What do you mean by "Green Body" in ceramic production?

[02 mark]

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d). What is "Vitrification"?

[03 mark]

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e). What are the three (03) types of Powder Pressing techniques for shape forming in ceramic production?

[03 mark]

(i).

(ii).

(iii).

3. a). Define. What is glass?

[02 mark]

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b). Give the two (02) prime assets of glass.

[02 mark]

(i).

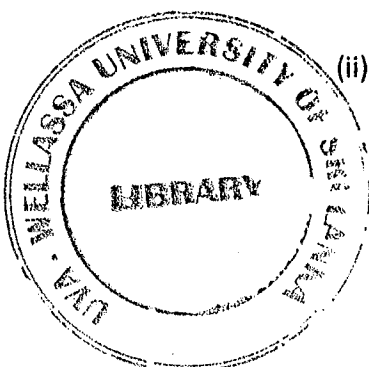
(ii).

c). State two (02) common properties of glass.

[02 mark]

(i)

(ii)



- d). Raw materials of glass can be categorized into three groups. State that three (03) groups and give three (03) raw material as examples for each category. [03 marks]

Group of the raw material	Examples
(i).	①
	②
	③
(ii).	④
	⑤
	⑥
(iii).	⑦
	⑧
	⑨

- e). Briefly explain the manufacturing steps of glass. [07 marks]

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b). What is biominer?

[02 marks]

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c). Name three (03) example bacterial genera important in bio-mineralization.

[03 marks]

- (i)
- (ii)
- (iii)

d). List three (03) environmental requirements of bacteria involved in biomineralization.

[03 marks]

- (i)
- (ii)
- (iii)

e). Fill in the blanks of following statements by considering the bacterium *Acidithiobacillus ferrooxidans*.

[05 marks]

- (i) Participant in industrial recovery of
- (ii) Harvest energy by
- (iii) It fixesand from the atmosphere.
- (iv) It pollute thewater.

5. a). What is the main important feature should be in the biomining mineral?

[01 marks]

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b). Illustrate the heap leaching process by using a diagram only.

[09 marks]



c). List three (03) features of magnetosomes.

[03 marks]

- (i)
- (ii)
- (iii)

d). Name a soil enzyme.

[01 marks]

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e). What is the extracellular conversion of heavy metal pollutants in mine trailing? [02 marks]

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