American University of Beirut Department of Geology Geol. 205 – Final Exam Summer 2007/2008

Exam rules apply

Name:	Inst.: Ms. R. Oue	ida
ID #:	Time: 2 hrs	
	Grade: %	

I. Circle the correct answer (30 %)

1. All are attributes of coal environment	tal constraints except one		
a. acid mine drainage	c. increased release of CO ₂ gas		
b. mine explosions	d. lowering of water table level		
2. Electrical power generation is basica	ally provided from		
a. solar energy	c. hydroelectric resources		
b. nuclear energy	d. fossil fuels		
3. All are considered as ore minerals ex	scept one		
a. quartzite	c. chalcopyrite		
b. sphalerite	d. cinnabar		
-	An example of a metal that is usually <u>not alloyed</u> with iron is		
a. cobalt	c. vanadium		
b. mercury	d. tungsten		
5. Cassiterite forms mineral ore deposit			
a. tin	c. gold		
b. mercury	d. lead		
	subsurface zones due to processes		
a. erosion	c. leaching		
b. diagenetic	d. migration		
7. In comparison, oil and gas general same burial (T and P) conditions	ation would match formation under		
a. peat	c. bituminous coal		
b. lignite	d. anthracite		
8. An alloy of silver and mercury is			
a. pewter	c. solder		
b. amalgam	d. brass		
9. The dominant metal used in the prepa	aration of pewter aside Tin is		
a. lead	c. cobalt		
b. zinc	d. copper		
10. Sylvanite is a mineral ore deposit of	•		
a. silver	c. gold		
b. tellurium	d. native gold		
11. Deterioration of water quality direct	tly affects		
a. availability of water	c. safe yield limit		
b. TDS concentration	d. specific yield limit		
12. An example of a metal sulfide mine			
a. quartz	c. chalcopyrite		
b. magnetite	d. vanadium		

13. One of the primary sources of heat in the Earth's interior applies to		
	a. radioactive decay	c. geothermal energy
	b. convection currents in the mantle	d. T & P increments
14.	In oil primary recovery technique, about	
	a. 25 %	c. 50 %
	b. 35 %	d. 63 %
15.	Hydroelectric type of energy depends on the us	<u> </u>
	a. hot springs	c. solar energy
	b. underground water	d. surface water
16. Most rocks that undergo metamorphism would form resources used in tindustry		
	a. abrasives	c. building
	b. ceramics	d. metal
17.	Fossil fuels could be thought of as a/an re	esources
	a. expensive	c. essential
	b. valuable	d. indispensable
18.	Another equivalence for solid solution would a	lso apply to
	a. magmatic segregation	c. atomic substitution
	b. acid solution	d. ionic substitution
	o. dela solution	d. folic substitution
19.	Lead as a scarce metal is very well known for it	ts drawback
	a. costly extraction	c. toxicity
	b. hazardous	d. costly smelting
20.	Destruction of rocks by some geological proces	sses occur as part of
	a. rock cycle	c. formation of resources
	b. geochemical cycle	d. dispersion of resources
21.	Metal sulfide minerals usually form as a result	<u> •</u>
	a. erosion	c. weathering
	b. hydrothermal	d. igneous
22.	Skarns usually include oxides and of meta	
	a. silicates	c. carbonates
	b. sulfides	d. hydroxides
23.	In general terms, occurrences of scattered vein metals of this group	deposits would mostly include
	a. base	c. precious
	b. ferrous	d. a & c
24.	Rock porosity and permeability <u>directly</u> affect heavy rainfall seasons	t the amount of water in
	a. stored	c. meteoric (rain)
	b. surface	d. both a and b

25. The only mineral resource that did not form in		
a. copper	c. diamond	
b. zinc	d. corundum	
26. Malachite is a mineral ore deposit that belongs		
a. sulfide family	c. silicate family	
b. carbonate family	d. oxide family	
27. Pegmatite's generally form with		
a. basalt flows	c. granitic intrusions	
b. contact metamorphic zones	d. large basaltic intrusions	
28. For the same amount of metal produced from the ores, environmental impact		
of open pit mines is relatively than the	nat of underground mines	
a. much less	c. about the same	
b. much greater	d. exactly the same	
-	•	
29. Alloys of remarkable magnetic properties invol	lve the use of this metal	
a. mercury	c. vanadium	
b. cobalt	d. gold	
30. Precious and base-metal vein deposits generally	y form	
a. as a result of deep weathering	c. in large basaltic intrusions	
b. from hydrothermal fluids	d. from leaching of sulfide deposits	
31. Anti-harmful radiation shields are prepared ma	inly from this metal	
a. tungsten	c. lead	
b. vanadium	d. zinc	
32. An example of a natural type of glass that has a	<u> </u>	
a. table-wear glass	c. obsidian	
b. sand	d. olivine	
33. Anti-corrosive metals usually belong to the gro		
a. ferro-alloy metals	c. precious metals	
b. base metals	d. b & c	
34. A in solubility of dissolved materials	causes precipitation of valuable	
mineral resources.		
a. balance	c. increase	
b. decrease	d. change	
25 All belong to the10 1- fee 11		
35. All belong to the sulfide family except one		
a. galena	c. azurite	
b. chalcocite	d. cassiterite	
26 Olivina minanda ana andra 11	a/:-	
36. Olivine minerals are valuable sources for use as		
a. building stones	c. refractory bricks	
b. ceramic products	d. paint products	

37.	When a river is channelized		
	a. the rate of flow increases	c. the rate of flow decreases	
	b. the rate of evaporation increases	d. the rate of evaporation decreases	
	•	•	
38.	Regional metamorphism of shale results in the f	formation of	
	a. quartzite	c. slate	
	b. limestone	d. basalt	
39.	One of the major uses of tungsten nowadays is		
	a. for electrical bulb-wiring	c. as a cutting agent	
	b. for medical cures	d. as a galvanizing agent	
	o. for medical cares	d. us a garvanizing agent	
40.	In its transformation phase into fossil fuel, o	organic matter remains found as a	
	carbon solid residue in the stage of		
	a. diagenesis	c. metagenesis	
	b. catagenesis	d. all of the above	
II.	Choose to sketch and label only two of the	e following givens (14%). Please	
	draw on the back of this page.	(,	
	T. G.		
	1. Formation of skarn deposits - diagram form	n - 7%	
	ii I officiation of Sharif doposits and I will I will I will be a second of the second	<u>u</u> , ,,	
	2. Refined products of crude oil (add percentage	ges) – table form – 7 %	
	2. Refined products of crade on (add percentage	505) <u>table 101111</u> / /0	
	3. Effects of local geology on drilling of succ	cessful underground water wells –	
	3. Effects of local geology on drilling of successful underground water wells – sketch form – 7 %		
	SKCCH IOI III — 7 70		
TTT	E	· · · · · · · · · · · · · · · · · · ·	
111	Fossil fuels and process of transformation of	organic matter (10 %)	
	Orden and in acqueres the following transform	ustismal shamasa that assum duning	
	Order and in sequence, the following transform	national changes that occur during	
	the formation of fossil fuels.		
	reduction of water and volatile subst	ances	
	metabolism of organic matter		
	increased T and P conditions		
	production of methane gas		
	increase in C and H concentration		
	decrease in microbial activity		
	reduction of O and N content		
	biochemical changes		
	carbon rich residue		
	compaction of rock		
	compaction of rock		

IV- Short answers - questions (20%)

A.	List four environmental drawbacks that result from the disposing of domestic & industrial waste products (5 %)
-	
-	
-	
_	
В.	How could the formation of scarce metals be explained numerically and geochemically? (5 $\%$)
-	
_	
C.	What is TDS and from where do dissolved constituents of water come from? List only $\underline{\text{three}}$ (5 %)
-	
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-	
-	

D.	Define carbonization a	nd coalification (5 %)	
	-			
	-			
V	Geologic processes and	formation of reso	ources (20 %)	
٠.	Geologie processes and	101 mation of 1 est	<u> </u>	
A.	Fill in the blanks with t	the appropriate ex	ample of the resulting	resource and its
	mineral ore deposit (12	.5 %)		
C	alasia Duasasa	Dagayyaa	Minaral are	Haa
<u>Ge</u>	eologic Process	Resource (5 %)	Mineral-ore (5 %)	<u>Use</u> (2.5 %)
Ex	ample:	(3 /0)	(3 70)	(2.5 70)
	vaporative	Salts	Gypsum	Plaster_
1	XX .1 '			
	Weathering Erosion		· ————	
	Biogenic		<u> </u>	
4.	9			
5.	Marine			
	Hydrothermal			
7.			·	
	Metamorphic Magmatic			
	. Volcanogenic			
10	. Voicunogeme		·	
B.	Compose and explain a	•		ispersion among
	processes #9, 1 and 2 co	onsecutively (6 %)).	
C.	Give an example of a moto #2 (1.5 %).	etal that experienc	e this cycle from proces	ss # 9 to #1 then

