GLY 4310 Name _____
50 points Tuesday, April 6, 2010

LAB MIDTERM 2

Closed Notes - 15 points

True-False - Print the letter T or F in the blank to indicate if each of the following statements is true or false. Illegible answers are wrong. (1 point each)

1 F 1. The mafics associated with granite are olivine or pyroxene.

0 T 2. Gabbro is a medium to coarse-grained rock consisting of mid- to calcic plagioclase and clinopyroxene.

2 T 3. The major felsic mineral in ijolite is nepheline.

5 T 4. Biotite is lower in Bowen's Reaction Series than hornblende.

0 T 5. Trachytes commonly exhibit flow texture, including flow-banding or alignment of phenocrysts.

Multiple-Choice - Choose the best response to each statement or question. Print the letter corresponding to your choice in the blank. (1 point each)

4 D 1. Kaolinization is an alteration process from which of the following minerals to which mineral?
A. Clay; Epidote
B. Pyroxene; Amphibole
C. Olivine; Serpentine
D. Feldspar; Clay

1 C 2.The essential felsic mineral in andesite is:
A. K-feldspar
B. Quartz
C. Plagioclase
D. Nepheline

2 A 3. If M > 90 and hb/(hb+px+ol) > 90%, the rock is called:
A. Hornblendite
B. Peridotite
C. Pyroxenite
D. Basalt

3 C 4. The name of this rock comes from the Greek word meaning rough, because of its appearance.
A. Latite
B. Rhyolite
C. Trachyte
D. Ijolite

Fill-Ins - Answer each question. 1 point per blank.

3 1. Aegirine is a sodium-rich variety of what mineral family? PYROXENE

4 2. The essential minerals of ijolite are 2) Nepheline and

5 3) Clinopyroxene

6 4. What opaque mineral is apt to be associated with pyroxenite? CHROMITE

Name one distinguishing characteristic of each of the following minerals in hand specimen. (More than one distinguishing characteristic may exist)

4 5. Bronzite SCHILLER LUSTER

5 6. Hornblende CLEAVAGE IN 2-DIR @ 60°

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Open Notes - 35 points

You are allowed to use your own lab write-ups and all laboratory information sheets handed out in class. No other notes or books may be used. Each thin section and hand specimen is identified with a letter and a number. The number corresponds to the question number. The letter is used with the question to identify different samples. Peeling the letters off the slides or rocks will be considered to be cheating.

For each of the following specimens, identify the rock. Tell whether each rock is intrusive or extrusive. (½ point each blank)

		Rock name	Intrusive or Extrusive?
3.5	1.	Latite Porphyry	1 Extrusive
6	2.	Hornblende Syenite	2 Intrusive
3	3.	Granodiorite	1 Intrusive
2	4.	Basalt	3 Extrusive
4.5	5.	Rhyolite Tuff	0 Intrusive
4.5	6.	Olivine Gabbro	1 Intrusive
3	7.	Biotite Granite	0 Intrusive
3.5	8.	Hornblende Andesite	2 Extrusive
6	9.	Anorthosite	3 Intrusive
2.5	10.	Siderite Carbonatite	0 Intrusive

For each of the thin sections, identify three minerals and describe them as fully as possible; use both plane-polarized and crossed-nicols. Your description should include features which enable you to distinguish each mineral, or are pertinent to the description of the rock. (5 points per thin section)

	NUMBER	MINERAL	DESCRIPTION
0,5.5	11.	_____	_____
			_____
			_____
		_____	_____
			_____
			_____
		_____	_____
			_____
			_____

	NUMBER	MINERAL	DESCRIPTION
3,5	12.		

Examine each hand specimen. Identify and describe the major minerals. Estimate the percentage of each identified mineral present in the rock. List the color index. Name the rock, as completely as possible. These specimens correspond to the thin sections of the same number seen in questions 11-12. (NOTE: You may have fewer minerals than the spaces provided.) (5 points per specimen)

NUMBER	MINERAL AND %	DESCRIPTION
0.5,7.5 11.	K-spar 40%	Subhedral 3-8 mm
		Pink
	Quartz 35%	Anhedral 1-5 mm
		Gray
	Plagioclase 10%	Subhedral 1-3 mm
		White
	Muscovite 5%	Anhedral
	Biotite 5%	Anhedral

1 COLOR INDEX: Leucocratic

2 ROCK NAME: Muscovite -Biotite Granite (NARS 2)

	NUMBER	MINERAL AND %	DESCRIPTION
8.5,6	12.	Hornblende 60%	Black, elongated
			To 2 mm
		Biotite 10%	Anhedral to 2 mm
		Plagioclase 20%	Anhedral, white to 1 mm
			Lath
		Quartz 5%	Anhedral, rounded, gray
			To 0.5mm

3 COLOR INDEX: Melanocratic

4 ROCK NAME: Diorite

Interference Figures - Obtain the interference of the grain indicted on each thin section. Estimate 2V if the class is biaxial. If the mineral is uniaxial, state whether the interference figure is centered or not (6 points total)

	Number	Optical Class	Optical Sign	2V
3	13	Biaxial	1 Negative	3 25°
2	14	Uniaxial	5 Negative	NA

13 Lepidolite Pink#3

14 Calcite 44-5151