**Benha University 2nd Year (Geology) Students**

**Faculty of Science Principles of petrology (232G)**

**Geology Department Date: 07 – 06 – 2017**

**Time Allowed: 2 hours**

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***Answer the following questions***

**1. Define only 6 items from the following: (12 marks)**

1. Metamorphic facies.
2. Anamorphic zone.
3. Microlites.
4. Rift and grain” structure.
5. Devitrification.
6. Crystallites.
7. Plutonic metamorphism.
8. Pyrosphere.
9. Metamorphism grade.

**2. Answer only two questions from the following: (12 marks)**

1. What are the differences between phacolith and Laccolith (Draw if possible).
2. What are the forms of extrusive igneous rocks.
3. The igneous rocks are classified into several types based on the mode of origin (Genetic classification). (Discuss).

**3. Answer only two questions from the following: (12 marks)**

1. The forms of intrusions depend on several factors (Discuss).
2. Define the vesicular and amygdaloidal structures and compare between them.
3. Determine the several types of magma with comparing between them on the basis of composition, temperature, viscosity, and gases.

**4.** Discuss in brief how to determine the metamorphic rocks under microscope (petrographically), (Draw if possible). **(12 marks)**

***With my best wishes***

***Dr. Amr Abdelnasser***