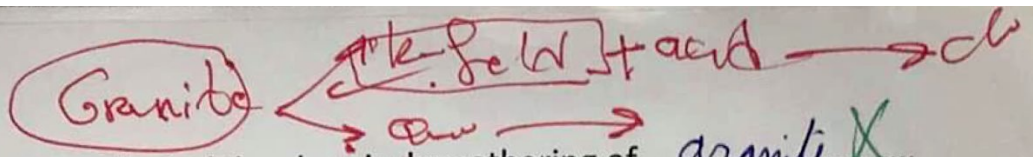


Question #1 / Fill the spaces:

92/ (28 Marks)

- 1- ..... potholes ..... are circular holes in the floor of the stream channel formed by abrasion effect.
- 2- ~~fan~~ ..... taulk (tauli) ..... a cone shape of angular rock pieces formed at the base of steep mountains.
- 3- The steepest angle at which a slope remains stable is called ..... ~~angle~~ ..... safe angle .....
- 4- The parent rock of the metamorphic rock Quartzite is Quartz sand stone .....
- 5- Example of constructional Earth activities that lead to the creation/addition of new matter to the Earths' crust is: ..... building mountat .....
- 6- ..... Quartz ..... is a mineral with a hardness of 7.
- 7- ..... bauxite ..... is the type of soil rich in Aluminum oxides and considered an ore for Al.
- 8- The accumulation of fines in the soil horizon (B) forms a dense impermeable layer called ..... hard pan .....
- 9- This rock notification 


 refers to the rock called ..... sedimentary rock .....
- 10- Most of the houses in Palestine are made up of local rock named lime stone .....
- 11- The most important Earths' wearing agent is ..... ~~agent~~ ..... water .....
- 12- The abbreviation (ppm) to measure water quality means ..... part per millions .....
- 13- The most important factor affecting the texture of igneous rock is ..... the rate of magma cooling .....  
rate



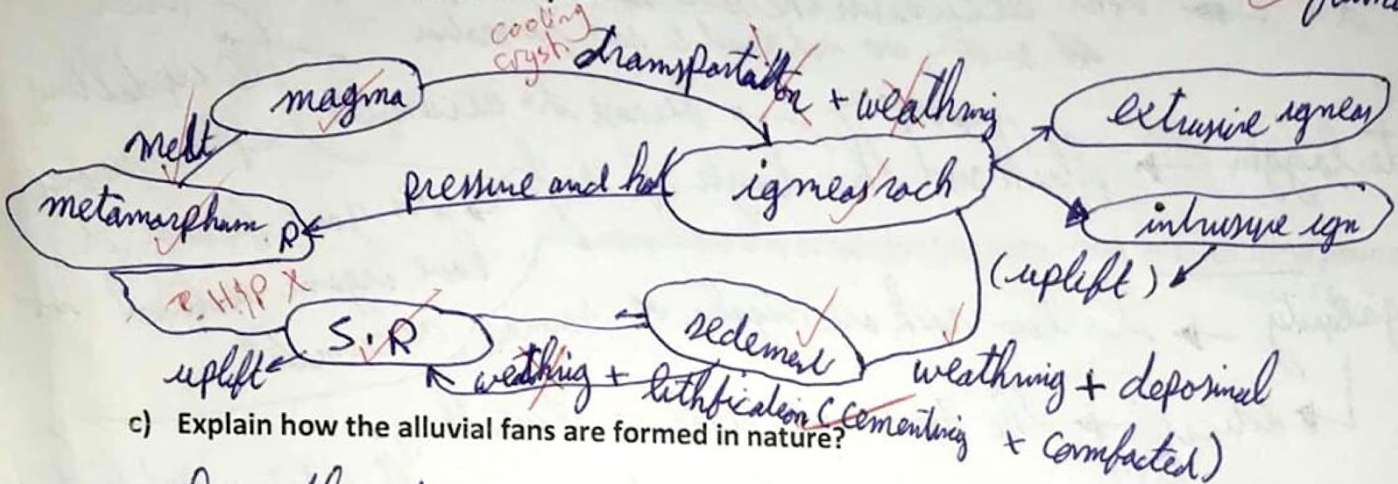
- 14- Clay minerals are product of the chemical weathering of ..... granite.....
- 15- Im-mature soil indicates ..... short ..... time for building soil.
- 16- The fine particles in the (USCS) include ..... gravel, sand, silt, clay.....
- 17- mud flow is a type of mass wasting, occurs on the hill side of volcano
- 18- The element found in dolomite and not in limestone is ..... Mg.....
- 19- The sedimentary rock composed of angular pieces of gravel and mud in between (matrix/ ground mass) is called..... limestone..... L.S P.S S.S sh
- 20- The principal agents of metamorphism are: ..... pressure....., ..... heat.....
- 21- Travertine is an example of a rock deposited in ..... caul.....
- 22- ~~.....~~ laminae are the thin layers of silt & clay deposited in a lake forming shale
- 23- The type of chert, that has dark color is ..... flint.....
- 24- Coal is formed from the remains of ..... plant and remain animal.....
- 25- Pegmatite..... is the igneous rock, whose texture is composed of exceptionally large crystals of several centimeters.
- 26- True-soil is a term that includes..... O-A-E-B..... horizons.
- 27- The slowest type of mass wasting is ..... creep.....
- 28- Limestone represent ..... 10 % of total volume of all sedimentary rock



a) Name two methods of landslide mitigation (slope treatment).

- ① reduce the steepness of the slope (make it more gentle)
- ② increase the cover plant on the slope
- ③ piles foundation

b) Draw or describe the Rock Cycle.



c) Explain how the alluvial fans are formed in nature?

When the stream goes from narrow area to open area and sudden drop of sediment happens because of reduced slope.

d) Why is feldspar the most abundant silicate mineral in nature?

because it (is) in the large range of cooling (when magma cooling from higher to lower temperature) and it also ~~strong~~ strong

e) Based on the chemical composition, classify the igneous rocks (compositional categories) and indicate the silica content in each.

mafic → low silica content

felsic → high silica content

intermediate → in between (mafic and felsic) in silica content

ultra mafic → low silica content (less than mafic)

where the hardness of it equal (6)

f) How can we differentiate between shale & mudstone.

shale → has high porosity (accumulates in thin layers) → weak → made a gentle slope.

mudstone → made a chunks and blocks



g) What does cross-bedding tell us about the deposition Environment?

- ① river delta
- ② sand dunes
- ③ channel stream

direction of wind & water currents

best env for form a soil is:

- ① flat land
- ② good infiltration of water

h) How does a slope control the soil formation?

if it's  $\rightarrow$  doesn't accumulate the soil so no cover plant  
 so it's not good for soil formation

① slope waterlogging  $\rightarrow$  black and thin layer of soil  $\rightarrow$  organic  $\rightarrow$  because it's accumulates  $\rightarrow$  it's good because it have organic material and accumulates

② up-dalling upland surface

i) Explain what controls the sorting and angularity of a sediments.

angularity  $\rightarrow$  it's how rock are angular or rounded

$\rightarrow$  indicate  $\rightarrow$  the time and distance of weathering.

sorting  $\rightarrow$  the degree of similarity of particles size. well sorted  $\rightarrow$  particles about size  
 Poor sorted  $\rightarrow$  mix with long and small particles

j) Name three physical (mechanical) parameters used to evaluate the engineering properties of a rock.

- ① compressive strength
- ② tensile strength
- ③ permeability (high conductivity)
- ④ sonic speed
- ⑤ abrasion (wear)

k) Calculate the velocity of water in a channel knowing that: the width of the channel is 15m, depth of water is 10m, and the discharge is 300m<sup>3</sup>/second.

(indicate the time and the depositional environment)

$$D = m \times V$$

$$300 = (15 \times 10) \times V$$

$$\Rightarrow V = \frac{300}{150} = 2 \text{ m/s}$$

$\rightarrow$  the sediment are have corner and edge and the angularity the degree of abrasion of particle and became more rounded.



29

(30 Marks)

**Question #3**

Classify the following rocks and minerals:

Rock or Mineral	MINERAL Silicate Structure	IGNEOUS (Texture)	METAMORPHIC (Texture) <i>or</i>	SEDIMENTARY		
				Detritus	Organic	Inorganic
1. Gneiss			<i>foliated</i>			
2. Biotite	<del>blacked out</del>					
3. Gabbro	<del>blacked out</del>	<i>phanitic</i>				
4. Schist			<i>foliated</i>			
5. Arkose				✓		
6. Quartz	<i>3-D network</i>				✓	
7. Coquina					✓	
8. Basalt		<i>aphenitic</i>				
9. Olivine	<i>single tetrahedron</i>					
10. Granite		<i>phanitic</i>			✓	
11. Coal					✓	
12. Augite	<i>single chain</i>					
13. Ryholite		<i>aphenitic</i>				
14. Obsidian		<i>glassy</i>				
15. Diorite		<i>phanitic</i>			✓	
16. Chalk						
17. Marble			<i>non-foliated</i>			
18. Dolostone				<del>blacked out</del>		✓
19. Peridotite		<i>ultramafic</i>				
20. Feldspar	<i>3-P network</i>					

sheet