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Q No 1:

Answer:- An Earthquake caused by a sudden slip on a fault. The tectonic plates are always slowly moving, But they get stuck at their edges due to fricition. when the stress on the edges over come the fricition, there is an Earthquake that Releases Energy in wave that travel through the Earth,s Crust and cause the shaking that we feel. The Richter magnitude Scale measures the Amount of Seismic Energy Released by an Earthquake:

=) primary wave:- The first kind of body wave is primary wave: they travel through the Earth,s interior and can pass through both solid and molten rock. They shake the ground back and forth. Typical speed are 330m/s in air 1450m/s in water About 5000m/s in granite.

=) Secondary wave:-

The Secondary Types of Body wave is the Secondary wave or which is the Second wave you feel in an Earthquake.

Secondary wave lag behind primary waves as they travel 1.7 time slower However They do more damage Because they are bigger and shake the ground vertically and Horizontally.

Q.No2: (2)

Answer:- Study of geological Toposheet.

⇒ Study of the Area with reference to geology.

⇒ Study of Rock Types.

⇒ Study of structural geology of the Area.

⇒ History of the Area with reference to Rainfall Data.

⇒ Study of Stream Channal with Diff. order.

⇒ Study of Seismic Data of the Area.

⇒ Geomorphological Study.

⇒ preparation of Geological map of the Area in detail.

⇒ Study of core Drill Data and its interpretation.

⇒ Detailed Engg. Geological properties of the Area.

Q.No3:

Answer:- different Types of mass wasting.

(1) Fast movements.
↓ Types.
(a) Slumps.
(b) Rock & Debris fall.
(c) Rock & Debris Slides.
(d) flow.

(2) Slow movement
↓ Types.
(a) Creep.
(b) Solifluction.
(c) permafrost.

p.t.o.

Explaination: (1) Fast movements:

(a) Rock & Debris Slides: Happens when rocks or debris slide down a preexisiting surface.

(b) Slumps: A Typed of slides where in downward Rotation of rock or regolith of ~~rock~~ occure Along a Curved Surface due to over stepenning.

(c) Rock & Debris fall: - Happen when a piece of rock fall down the slope. Debri fall are similar, except They involve a mixture of soil, regolith and Rock. At the Base there is an accumulation of fallen material termed talus.

(d) Flow: Flow of soil and Regolith containing a larg Amount of water.

(2) Slow movement:

(a) Creep: The gradual down hill movement of soil and Gegolith.

(b) Solifluction: Is flow of Saturated Soil downslope at a Rate of a few millimeter or few centimeter per day or per year.

(c): permafrost: Slow landslide due to slowly melting of permanently frozen ground.

Q no 4:

(4)

Answer: Difference b/w Fault, joint, and Fold:

(1) Fault: The fracturing and displacement of rock strata is called fault.

(2) Joint: joints are fractures along which no displacement has occurred.

(3) Fold: In response to compression force the strata may bend and Buckle, These are called Fold.

(A) Normal Faults cause to the surface of the earth. Normal faults cause half grabens to the surface of the Earth.

(B) Folds develop in which Type of Rocks. Folds develop in sedimentary strata.

(C) Effect of Fault on outcrop: The effect of fault is a Horizontal shift between the two parts of the outcrop.

(D): must be avoided to passiable extent to be on All three.

Q No 5: 

Answer: Tunnels on the Basis of Geology:
(1) Hard Rock Tunnels. (2) Soft Rock Tunnels:.

(1) Hard Rock. Tunneling through Hard rock Almost always involves blasting.

(2) Soft-Rock :- Q. Soft Ground (Earth) workers dig Soft-ground tunnels through clay, silt, sand, gravel or mud.

⇒ investigation For Tunnels:.

(1) Selection of tunnel Route: (Alignment):
There might be Avaible many Alternate Alignment That Could connect two point through a Tunnel. However, the final choice would be greatly dependent on the geological constitution Along and Around different Alternative: Alignment having least geological negative factors would be the obvious choice:-

(2): Selection of Excavation Method:.
Tunneling is a complicated process in Any Situation and involves huge costs which would Multiply manifolds if paper planing is not exercised Before Starting the actual excavation. And the Excavation Methods are intimately linked with the Type of rocks to be excavated - Choice of the right ~~nature~~ method will, therefore, be possiable only when the nature of the rocks and ground All Along the Alignment is fully known. This is one of the most important aim and object of geological investigation.

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(3) Selection of Design for the Tunnel:- (6)

The ultimate dimension and design parameters of a proposed tunnel are controlled, besides other factors, by geological constitution of the Area Along the Alignments. wether the tunnel is to be circular, D-Shaped, horse-Shae Shaped or Rectangular or combination of one or more of these outlines, is more often dictated by the geology of the Alignments than by Any other Single factor.

D-Shap or horse-Shoe Shape may be Conveniently adopted But these Shapes would be parctically unsuitable it Soft ground or even in weak rock with unequal lateral pressure. In those Cases Circular outline may be the first choice.

(4). Assessment of Cost and Stability:-

These aspects of the tunneling projects are also Closely inter linked with the first Three Consideration Since geological investigation will determine the Line of Actual excavation, the method of the excavation and the dimension of excavation, as Also the Supporting System (lining) of excavation, All estimates About the Cost of the project would depend on the geological details.

P.to.

(5):. Assessment of Enviromental Hatad:. (7)

The process of tunneling, whether through rock or through soft ground, and for what so ever purpose, involves disturbing the Enviroment of an Area in more than one way. The tunneling methods might involved vibration induced through blasting or ground cutting and drilling, producing Abnormal quantities of dust and lost But not the least, interference with water supply System of near By Area.