1. Student should answer (A) or (B) only. (1 Mark)
   (A) Slate rock produced
   (B) Kerogen decomposes to oil substances

2. b) Very hot during day and night. (1 Mark)

3. Rocks consisting mostly of silicate minerals represented in feldspars and Mica and others minerals containing iron and magnesium mainly turn by chemical weathering into a set of clay minerals found in agriculture soil. (1 Mark)

4. Conglomerate is formed. (1 Mark)

5. The crystal symmetrical axis (1 Mark)

6. The percentage of pores, cracks and spaces between the rocks and grains. (1 Mark)
7- Student should answer (A) or (B) only.

(A) G1 p. 9 G4 p. 60

<table>
<thead>
<tr>
<th>Type of rock</th>
<th>Sial</th>
<th>Sima</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>granitic rocks</td>
<td>basaltic rocks</td>
</tr>
<tr>
<td>Composition</td>
<td>Silica and Aluminium</td>
<td>Silica and Magnesium</td>
</tr>
</tbody>
</table>

(B) G4 p. 63

<table>
<thead>
<tr>
<th>Volcanic earthquakes.</th>
<th>Tectonic earthquakes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Their occurrences are associated with volcanic activity</td>
<td>They occur in areas where the rocks subjected to faulting as a result of the motion of tectonic plates</td>
</tr>
<tr>
<td>are local earthquakes, their impact do not extend in large areas</td>
<td>They are the most common earthquakes occurrence</td>
</tr>
</tbody>
</table>

8- (2 Marks)

- Anticlines Folds (½ Mark)  
- Strike - slip fault (½ Mark)  
- Fault is younger (1 Mark) G1 p. 12, 15
9- (2 Marks)

1st: *Using synthetic fibers instead of cotton fibers to save a larger agricultural area for planting*  
(1 Mark) E2 P.116

2nd: which nourishes the soil and keeps its fertility  
(1 Mark) E 2P .118
10- Student should answer (A) or (B) only. (1 Mark)
(A) calcite minerals or manganese or copper G1 p. 16
(B) Permian G1 p. 18

11- Student should answer (A) or (B) only. (1 Mark)
(A) Smoothing of pebbles and get a round faces as a result of friction with the bottom G5 p. 80
(B) expansion of rocks, the rock surface separates into successive spheroid shells following the direction of joints. This feature, known as spheroidal weathering G5 p. 73

12- Student should answer (A) or (B) only. (1 Mark)
(A) because the multiplicity of species in ecosystems increases the mutual relationship among them and thus increasing the stability of the ecosystem E1 p. 99
(B) cycles start with the liberation of important elements from the bodies of the living organism after their death and precipitation in the depth. As the water is moving upward plant live in the top water layers, and thus the animals that feed on them increase which increase fish production accordingly. E1 p. 104
13- Ancient Evaporites Deposits (1 Mark) 

14- it activates living organisms in the soil and enters into the food chains thus giving the soil desirable physical characteristics. (1 Mark) 

15- b) 2 times atmospheric pressure (1 Mark) 

16- a. Flint (2 Marks) 

17- G2 p. 28 

<table>
<thead>
<tr>
<th></th>
<th>Hematite</th>
<th>pyrite</th>
</tr>
</thead>
<tbody>
<tr>
<td>color</td>
<td>has two colours dark grey and red</td>
<td>golden colour</td>
</tr>
<tr>
<td>streak</td>
<td>red</td>
<td>black</td>
</tr>
</tbody>
</table>
18. (2 Marks)

i. (A) Littoral Zone (½ Mark)

ii. from 200 to 2000 m (½ Mark)

iii. The sediments containing red clay, which is of volcanic deposits, also this area contains fine grains organic sediments of limestone and silicic deposits that are remains of micro-organisms like foraminifera and diatoms. (1 Mark) G5 p. 88
19- Student should answer (A) or (B) only. 
(A) Rectangular dunes or Longitudinal Dunes 
(B) Saline lakes. 

20- 
(b) hydrous calcium sulfate 

21- 
spangling or what known as “Cat’s eyes” is also where mineral luster which has fibrous tissues, is rippling depending on the direction of view. 

22- 
a. Phosphate 
b. These deposits reflected that ordinary temperature and normal salinity prevailed in shallow marine conditions. 

23- Measuring the Intensity of Earthquakes
24- produced friction sometimes causes increase in temperature G3p. 49

25- Student should answer (A) or (B) only.

(A) E2 P.119

<table>
<thead>
<tr>
<th>overgrazing</th>
<th>organized Grazing</th>
</tr>
</thead>
<tbody>
<tr>
<td>When the rate of grass growing less than the rate of animal consumption of grass</td>
<td>When the grass growth rate is more than animals consumption rate to this grass.</td>
</tr>
</tbody>
</table>

(B)

<table>
<thead>
<tr>
<th>Causes of Mineral depletion</th>
<th>Causes of fossil fuel depletion</th>
</tr>
</thead>
<tbody>
<tr>
<td>increasing of population and progress of technology E2 P.121</td>
<td>Coal, oil and natural gas are non-renewable resources as they are found in limited amounts the developed countries and the individual’s consumption of energy increases E2 P.122</td>
</tr>
</tbody>
</table>
26- (2 Marks)

<table>
<thead>
<tr>
<th>herbivorous marine ecosystems</th>
<th>herbivorous desert ecosystems</th>
</tr>
</thead>
<tbody>
<tr>
<td>a large group of protozoa, worms, small crustaceans, and different larvae</td>
<td>Many different kinds of desert insects such as grasshoppers and beetles, some reptiles some desert mammals such as rodents and dears</td>
</tr>
</tbody>
</table>

E1 P.106

E1 P.110

27- (2 Marks)

Sea waters store large quantities of heat which it absorbs from the sun-rays during the day and it leaks it at night to the space and the surrounding earth. This provides warmth to the coastal areas which are characterized by heat stability

E1 p. 104
28- plant grow upward (no tropism occur) (1 Mark)  
E1 p. 99

29- raw materials necessary for many industries such as wood, synthetic fibers and paper. (1 Mark)  
E1 p. 118

30- c) monoclinic (1 Mark)  
G2 p. 27

31- Student should answer (A) or (B) only. (1 Mark)  
(A) Secondary Geological Structures(tectonic geological structures)  
G1 p. 12  
(B) Hadean  
G1 p. 17

32- Student should answer (A) or (B) only. (1 Mark)  
(A) c) corundum  
G2 p. 30  
(B) b) diamond  
G2 p. 28
33- Student should answer (A) or (B) only. (1 Mark)

(A) the origin of the magnetic field of Earth may be generated from the presence of outer core that composed of molten iron and nickel material revolves with earth around its axis. G1 p. 10

(B) Since any fold always consists of a succession of different layers and each one of these layers has its own axis, then it is expected that the axial plane should contain all these axes G1 p. 13

34- (2 Marks)

1st: The isostatic balance G4 p. 54

2nd: gradual flow of the light molten rock (magma) in upper mantle layers under the deposition areas to the disintegration areas so the mountains rise up and earth crust regain its balance.

35- (2 Marks)

a. Environment: every thing around man of living and nonliving components that affects him and is affected by him.

b. Ecology: the studies of what determines life and how the living organism uses what is available to him where he lives.

E1 p. 95
<table>
<thead>
<tr>
<th>Texture</th>
<th>residual soils</th>
<th>transported soils</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gradually changing texture of grains size until it reaches the original rock</td>
<td>differ in the texture, there is no gradual texture and there are rounded angled pebbles</td>
</tr>
</tbody>
</table>

G5 p. 90
37- Student should answer (A) or (B) only.
(A) Rationalizing the consumption E2 p. 121
(B) The sunset period E2 p. 30

38- (1 Mark)
c) Stalactite G5 p. 81

39- (1 Mark)
Evidences supporting theory of continental drift G4 p. 58

40- (1 Mark)
Due to rotational convergent currents in the upper mantle G4 p. 60

41- (1 Mark)
1st: Graphite G2 P.30
2nd: Malachite G2 P.28

42- (1 Mark)
A water level that all the pores below, cracks and spaces are saturated with water and the depth of this level differs as it’s near the surface of areas near the sea, rivers and places of rain and far from the surface in dry areas. G5 p. 85
43. Student should answer (A) or (B) only. (2 Marks)

(A) Once the surface water temperature reaches 3°C, the water expands and its density is decreased and it floats to the surface where it freezes on the surface thus protecting the aquatic life below from freezing. E1 p. 104

(B) Annual plants appear only in the winter after the rainfalls and withers away by the arrival of draught in summer and disappears after leaving its seeds in the soil. E1 p. 110

44. (2 Marks) G1 p. 15

1st: Reverse fault

2nd: The hanging wall is moving upward along the fault plane with respect to the footwall.

3rd: Angular unconformity

4th: Angular unconformity

45. (2 Marks) G3 p. 39, 41

<table>
<thead>
<tr>
<th></th>
<th>Komatite</th>
<th>Rhyolite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composition</td>
<td>Rich in olivine &amp; pyroxene</td>
<td>Quartz, orthoclase, mica, sodium plagioclase</td>
</tr>
<tr>
<td>Classification</td>
<td>Ultrabasic igneous rocks (Ultramafic-volcanic)</td>
<td>Acidic igneous rocks (Felsic-volcanic)</td>
</tr>
</tbody>
</table>