

نموذج إجابة مادة الجيولوجيا والعلوم البيئية (باللغة الإنجليزية) لشهادة إتمام الدراسة الثانوية العامة - الدور الثاني - العام الدراسي ٢٠١٧/٢٠١٨
النموذج (د)

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1- (A) or (B)

(1 Mark)

(A) Mechanical Weathering

(P. 1, Ch. 5, Pg. 72)

(B) Delta

(P. 1, Ch. 5, Pg. 83)

2-

(1 Mark)

c. Joints

(P. 1, Ch. 1, Pg. 11)

3-

(1 Mark)

(One difference only)

Gabbro	Basalt
Plutonic basic igneous rock	Volcanic basic igneous rock
Coarse grained texture	fine grained or Glassy texture
Slow Cooling (P. 1, Ch. 3, Pg. 39)	Rapid Cooling (P. 1, Ch. 3, Pg. 40)

4-

(1 Mark)

The ratio between mineral mass and the mass of the same volume of water.
(P. 1, Ch. 1, Pg. 31)

5-

(1 Mark)

Overgrazing	Over hunting
<p>When the rate of grass growing less than the rate of animal consumption of grass then it will be overgrazing (P. 2, Ch. 2, Pg. 119)</p>	<p>The extinction of animals is due to killing or hunting a group of it to the limit that the remaining ones are very few in number thus unable to continue reproduction and that is called overhunting. (P. 2, Ch. 2, Pg. 120)</p>

6-

(1 Mark)

Topaz (hardness 8) scratches the fluorite (hardness 4).

(P. 1, Ch. 2, Pg. 30)

7- (A) or (B) (2 Marks)

(A)

- The spread of depositional basins with great extension and small depth, sometimes intermittently connected with ocean water then separated of it several times.
- Concentration and deposition of salts in the form of layers as a result of evaporation processes for high temperatures under arid climatic conditions. (P. 1, Ch. 4, Pg. 53)

(B)

- *By cooperation between three seismographic stations ($\frac{1}{2}$ mark) (A,B and C) each one determine the relative time of the arrival of the three types of waves. ($\frac{1}{2}$ mark) By knowing their speed and times of their arrival, so we can determine the distance between station and the surface foci earthquake. ($\frac{1}{2}$ mark)
- *Then we draw three circles on a maps, each station represents the center of a circle the point of intersection of these circles is the epicenter point. (P. 1, Ch. 4, Pg. 66)

8-

(2 Marks)

a. 50 grams

b. (Two successive trophic groups following the planktons is enough)
Small fishes, crustaceans and molluscs; big fishes; larger fishes (Sharks); marine mammals and reptiles; whales, man.

(P. 2, Ch. 1, Pg. 108)

9-

(2 Marks)

Photosynthesis in green plants will not happen except in the presence of light. In the availability of light, chlorophyll absorbs the wavelengths between 390 and 780 nanometer, where the chloroplasts carry out food production. In this process, light energy is converted into chemical energy. This chemical energy is the source of food necessary for providing energy for the consumers and the decomposers. (P. 2, Ch. 1, Pg. 99)

10- (A) or (B) (1 Mark)

(A) The renewable resources (P. 2, Ch. 2, Pg. 115)

(B) Petrochemical industries (P. 2, Ch. 2, Pg. 122)

11- (1 Mark)

The concentration of the salts dissolved in the sea water varies according to the quantity of rain or falling water from river mouths of polar glacier and the extent of evaporation due to the prevailing temperature. (P. 2, Ch. 1, Pg. 103)

12- (1 Mark)

(A) Calcite (P. 1, Ch. 2, Pg. 30)

(B) Magnetite or Hematite (P. 1, Ch. 2, Pg. 23)

13- (1 Mark)

- Presence of an assemblage of some reptile fossils that can't cross the oceans and trapped in the rocks of southern continents only, prove that there was a connection between these continents .

-The presence of leaves, seeds and fossils of primitive terrestrial plants in southern continents and India, prove that there was a connection between these continents.

(One point only)

(P. 1, Ch. 4, Pg. 59)

14-

(1 Mark)

Formation of mountain chains as Himalaya. (P. 1, Ch. 4, Pg. 62)

15-

(1 Mark)

⑥ Protozoa (P. 2, Ch. 1, Pg. 102)

16- (2 Marks)

(A)

	Peridotite	Rhyolite
Similarity	Igneous Rock	
Difference	Ultra Basic	Acidic
	Plutonic	Volcanic
	Silica Content <45 %	Silica Content > 66 %
	Dark Coloured	Light Coloured
	Mineralogy: Olivine and Pyroxene (P. 1, Ch. 3, Pg. 41)	Mineralogy: Quartz, Orthoclase, Mica (P. 1, Ch. 3, Pg. 41)

(B)

	Sandstone	Table salt rock
Similarity	Sedimentary rock	
Difference (only one)	Clastic rock, from sand deposits	Chemical rock by evaporation
	SiO₂	NaCl
	Forming sand dunes (P. 1, Ch. 3, Pg. 45)	Formed in semi-closed or closed lakes (inland lakes) or in coastal sabkhas (P. 1, Ch. 3, Pg. 46)

17-

(2 Marks)

(A) (2) Dyke (½ mark) (P. 1, Ch. 3, Pg. 44)

(3) Reverse Fault (½ mark) (P. 1, Ch. 1, Pg. 14)

(B) Foliated Texture (1 mark) (P. 1, Ch. 3, Pg. 48)

or

Parallel arrangement of mica crystal.

18-

(2 Marks)

a. The chemical degradation effect of ground water due to presence of carbon dioxide gas and acidic salts dissolved in water whose lead to dissolving of limestone rocks that lead to formation of caves.

b. Mechanical degradation effect of ground water: Mechanical degradation effect of ground water occurred due to saturation of porous rocks with ground water which leads to blocks of rocks to fall on the mountain foothill.

(P. 1, Ch. 5, Pg. 86)

19- (A) or (B) (1 Mark)

(A) Mineralogy and crystallography P. 1, Ch. 1, Pg. 7)

(B) Faults (P. 1, Ch. 1, Pg. 14)

20- (A) or (B) (1 Mark)

(A) Ⓒ Carbonates (P. 1, Ch. 2, Pg. 25)

(B) Ⓒ Luster (P. 1, Ch. 2, Pg. 27)

21- (A) or (B) (1 Mark)

(A) It is a muddy rock rich in hydrocarbons, are mostly of plant origin and it is a waxy solid state known as kerogen.

(P. 1, Ch. 3, Pg. 47)

(B) It is an inverted dome when magma with low viscosity which press on the lower layers rock to bend layers down causing syncline fold.

(P. 1, Ch. 3, Pg. 44)

22- (1 Mark)

Eroding destroys the soil that was formed through millions of years and make it unsuitable for agriculture.

(P. 2, Ch. 2, Pg. 117)

23- (1 Mark)

Because most of minerals change the colour by changing its chemical composition or contain small portion of impurities may change the colour of the same mineral.

(P. 1, Ch. 2, Pg. 28)

24-

(1 Mark)

(P. 1, Ch. 5, Pg. 74)

	Oxidation process	Acid rains
Similarity	Chemical weathering	Chemical weathering
Difference	The oxidation process occurred by oxygen dissolved in water especially for minerals that has iron and magnesium in their mineralogical composition as in basalt rock.	It usually leads to the decomposition and decay of rocks as for example limestone rock is decomposed by completely dissolved under the influence of acidic rains that carry carbon dioxide. This process is called Carbonizing or Carburizing process.

25-

(2 Marks)

a. Convergent plate motion.

(P. 1, Ch. 4, Pg. 62)

b- C. Basalt, B. Andesit

(P. 1, Ch. 4, Pg. 60, 62)

26-

(2 Marks)

- Many different kinds of desert insects such as grasshoppers and beetles, some reptiles that developed tight protective covering around their bodies to keep the water.
- Some desert mammals such as rodents and dears which are adapted to this hard environment. Most of these animals are active during the night or early in the morning and hide during the day in ditches or humid tunnels. Its urine is concentrated and its perspiration (sweat) is reduced.

(P. 2, Ch. 1, Pg. 110, 111)

27-

(2 Marks)

(Only two points)

1. Established a number of new cities in uncultivated desert land and establishment of industrial projects in these cities.
2. Provided these cities with the infrastructure, houses, schools and the different services.
3. The government had issued legislations that prohibiting building on agricultural land.

(P. 2, Ch. 2, Pg. 117)

28- (1 Mark)

Angular unconformity (P. 1, Ch. 1, Pg. 19)

29- (A) or (B) (1 Mark)

(A) 14 gm/cm³ (P. 1, Ch. 1, Pg. 10)

(B) about 2900 km (P. 1, Ch. 1, Pg. 9)

30- (A) or (B) (1 Mark)

(A) It causes soil exhaustion and its lack of some essential nutrients for plant. (P. 2, Ch. 2, Pg. 116)

(B) (Two points only)

1. Rationalizing the consumption: by drip irrigation or spraying and using saving water for planting new area.

2. Not squandering water in personal use, using tap working by infrared rays to save water.

3. Treatment the house used water to irrigate the timber trees.

4. Search for ground water suitable for irrigation and human use and desalination of sea water and collecting rainwater.

(P. 2, Ch. 2, Pg. 121)

31- (1 Mark)

Biogas.(methane gas) (P. 2, Ch. 2, Pg. 123)

32-

(1 Mark)

Due to weathering for more than three thousand years.

(P. 1, Ch. 5, Pg. 72)

33-

(1 Mark)

(b) Producers

(P. 2, Ch. 1, Pg. 97)

34-

(2 Marks)

(A) The Rock Cycle

(B)

1. Igneous rocks

2. Metamorphism or temperature and pressure

3. Sedimentary rocks

(P. 1, Ch. 3, Pg. 36)

35- (A) or (B)

(2 Marks)

(A) (P. 1, Ch. 4, Pg. 56)

Epirogenic movements	Orogenic movements
slow movement which acts for a successive geologic time	it is relatively rapid movement compared to the Epeirogenic movement
affects extensive regions of the continent or ocean floor	it changes the shape of the strata causing tight folding and intensive faulting
causing gradual uplift or subsidence of the sedimentary sequence without deformation neither by folding nor faulting	Causing low inclined faults with great side displacements
The emerged strata appear almost horizontal or in the form of plain folds at high altitude above sea level.	Formation of chains of mountains in local regions.
Example grand canyon of Colorado River in North America	Example: the Atlas mountain chains of north Africa, the Alps mountain chains of central, the Himalayas mountain chains (north of India) and north Egypt, such mountain chains are reported extending from Maghara massif mountain in north Sinai to Bahariya oasis in the Western Desert through the areas of Shabarawet Southern Ismailia and Abu Roash west Cairo.

(B) (P. 1, Ch. 4, Pg. 60,61)

Divergent plate motion	Sliding (Transform) Plate Motion
Also known as constructive motion, which arise from tension force where two plates move away from each other's	Produced as a result of sliding of edge of a plate with edge of other plate forming transforming vertical faults

36-

(2 Marks)

a. Number 3.

b. Its source is rainwater or ice that seep into the ground through the pores of the rocks or cracks, gaps and joints.

(P. 1, Ch. 5, Pg. 85)

37- (A) or (B) (1 Mark)

(A) Pangaea (P. 1, Ch. 4, Pg. 57, 58)

(B) Mercalli scale (P. 1, Ch. 4, Pg. 67)

38- (A) or (B) (1 Mark)

(A) ⓑ Unconformity surfaces (P. 1, Ch. 1, Pg. 17)

(B) ⓒ Outer Core (P. 1, Ch. 1, Pg. 10)

39- (A) or (B) (1 Mark)

(A) The localized movement of the plant without movement of the body due to growth in a direction determines the direction of the external stimulus of the plant. (P. 2, Ch. 1, Pg. 99)

(B) The area where life exists. (P. 2, Ch. 1, Pg. 96)

40- (1 Mark)

The difference in hardness of rock layers between soft and hard in both two sides of river lead to erosion in one side more than the other side, which leads to the formation of river Meanders or Meanders as an example of differential erosion.

(P. 1, Ch. 5, Pg. 81)

41- (1 Mark)

Some of the animals that become submerged by the flow tide remain inactive when the tide water is ebb tide. (P. 2, Ch. 1, Pg. 101)

42- (1 Mark)

For power generation from nuclear fuel using uranium instead of oil. (P. 2, Ch. 2, Pg. 123)

43- (2 Marks)

a. River Terraces (½ mark)

b. The River terraces are formed due to change of water level at the time of flood.

- River rejuvenation. (One reason only) (½ mark)

c. A, because the upper terraces are older than beneath terraces on the river. (1 Mark) (P. 1, Ch. 5, Pg. 82)

44-

(2 Marks)

	Play of colour	Cleavage
Definition	Certain minerals change their colour when moved in front of human eyes in the different directions (or in front of a source of light).	Cleavage is the ability of the mineral to split along planer surfaces representing the weaker planes produce smooth surfaces when minerals are broken or pressed.
Example (only one)	Diamond: disperses falling light on it into red and violet then gives strong luster in all direction. Opal mineral is characterized by spangling or what known as "Cat's eyes". (P. 1, Ch. 2, Pg. 29)	Mica and graphite minerals: one direction good basal cleavage. Halite and galena have perfect cubic cleavage. Calcite rhombohedral cleavage (P. 1, Ch. 2, Pg. 30, 31)

45-

(2 Marks)

a. **Texture: coarse texture, and small number of large sized crystals seen with naked eye.**

Mineral composition: Quartz, orthoclase feldspar, muscovite and biotite. (P. 1, Ch. 3, Pg. 39, 40)

b. - **They are the rocks originated from changing rocks under the effect of high temperature when they are in contact or adjacent to mass of magma.**

- **This results an increase in the size of the crystals forming massive granular texture. (P. 1, Ch. 3, Pg. 48)**