

Bahagian A

Setiap soalan diikuti oleh empat pilihan jawapan, **A, B, C dan D**. Pilih jawapan terbaik bagi setiap soalan.
Each question is followed by four alternative answers, **A, B, C and D**. Choose the best answer for each question.

9.1 Sistem dan Struktur Bumi The System and Structure of the Earth

- 1 Antara bahagian Bumi berikut, yang manakah sesuai untuk penempatan manusia, haiwan, tumbuhan dan mikroorganisma?

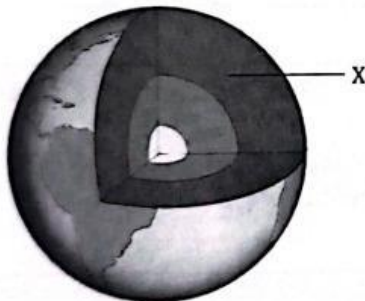
Which of the following Earth's components is suitable for the living of humans, animals, plants and microorganisms?

- A Biosfera
Biosphere
- B Geosfera
Geosphere
- C Atmosfera
Atmosphere
- D Hidrosfera
Hydrosphere



- 2 Rajah di bawah menunjukkan lapisan utama Bumi.

The diagram below shows the main layers of the Earth.



Apakah X?
What is X?

- A Kerak
Crust
- B Mantel
Mantle
- C Teras luar
Outer core
- D Teras dalam
Inner core

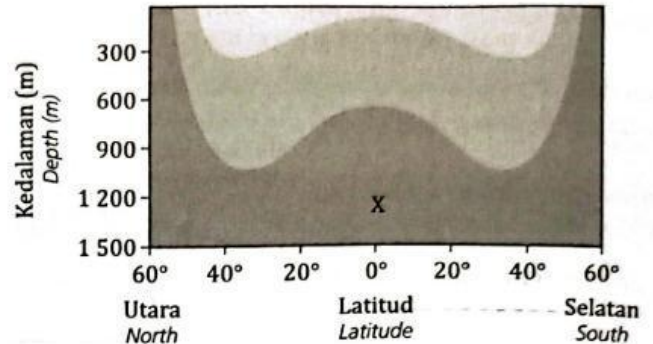


Tip Cemerlang

Lapisan X terdiri daripada komponen litosfera, astenosfera dan mesosfera.

Layer X consists of the lithosphere, asthenosphere and mesosphere.

- 3 Rajah berikut menunjukkan stratifikasi lautan.
The following diagram shows an ocean stratification.



Apakah X?
What is X?

- A Zon cerah
Bright zone
- B Zon gelap
Dark zone
- C Zon permukaan
Surface zone
- D Zon tengah malam
Midnight zone

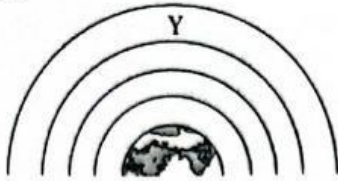
- 4 Antara pernyataan berikut, yang manakah benar tentang zon tengah malam?

Which of the following statements are true about the midnight zone?

- I Zon ini amat dalam
This zone is very deep
- II Zon ini tidak dapat ditembusi oleh cahaya
This zone cannot be penetrated by light
- III Tumbuhan sukar untuk hidup di sini
It is difficult for plants to live here
- IV Zon ini menjadi habitat untuk haiwan laut yang besar
This zone becomes the habitat for large marine animals

- A I dan II
I and II
- B III dan IV
III and IV
- C II dan III
II and III
- D I dan IV
I and IV

- 5 Rajah di bawah menunjukkan stratifikasi atmosfera.
The diagram below shows the atmospheric stratification.



Apakah lapisan Y?
What is layer Y?

- | | |
|----------------------------------|--------------------------------------|
| A Eksosfera
Exosphere | C Termosfera
Thermosphere |
| B Mesosfera
Mesosphere | D Stratosfera
Stratosphere |



Tip Cemerlang

Lapisan Y juga dikenali sebagai ionosfera.
Layer Y is also known as ionosphere.

- 6 Antara pernyataan berikut, yang manakah benar tentang lapisan eksosfera?
Which of the following statements is true about the exosphere layer?
- A** Dikenali sebagai ionosfera
Is known as the ionosphere
 - B** Terdapat perubahan iklim dan cuaca
There are changes in the climate and weather
 - C** Lapisan yang kering dan tidak berawan
The dry layer and cloudless
 - D** Lapisan udara nipis yang penting untuk satelit komunikasi mengorbit
Thinner air layer that is crucial for the orbiting of communication satellites

9.2 Bahan Bumi Composition of the Earth

- 7 Apakah ciri batuan igneus?
What is the characteristic of igneous rock?
- A** Batuan yang mengandungi fosil
Rocks that contain fossils
 - B** Batuan yang termendap di dalam lumpur dan pasir
Rocks that are deposited in mud and sand
 - C** Batuan nipis yang terbentuk melalui tekanan dan suhu yang sangat tinggi
Thin rocks formed under very high pressure and temperature
 - D** Batuan yang terbentuk daripada proses penyejukan dan pembekuan magma atau lava
Rocks that are formed through the process of cooling and freezing of magma or lava

- 8 Antara berikut, yang manakah contoh batuan metamorfik?
Which of the following is an example of metamorphic rock?

- | | |
|----------------------------|----------------------------------|
| A Basalt
Basalt | C Marmar
Marble |
| B Granit
Granite | D Batu kapur
Limestone |



Tip Cemerlang

Batuan metamorfik terbentuk apabila batuan igneus atau batuan sedimen terdedah kepada tekanan dan suhu yang sangat tinggi.

Metamorphic rock is formed when igneous rocks or sedimentary rocks are exposed to very high pressure and temperature.

- 9 Maklumat berikut menunjukkan langkah-langkah dalam proses pembentukan batuan.
The following information shows the steps in the formation process of rocks.

P: Apabila tiba di permukaan Bumi, magma akan membeku menjadi batuan igneus.
Once approaching the Earth's surface, the magma will freeze and becomes igneous rock.

Q: Batuan sedimen berubah menjadi batuan metamorfik akibat tekanan dan suhu yang berubah-ubah selama beribu-ribu tahun.
Sedimentary rocks become metamorphic rocks due to the changing pressure and temperature for thousands of years.

R: Magma di dalam Bumi keluar ke permukaan Bumi melalui gunung berapi ribuan tahun dahulu.
Magma within the Earth comes out to the Earth's surface through volcanoes thousands of years ago.

S: Batuan igneus hancur menjadi batuan sedimen akibat tekanan dan suhu yang tinggi selama beribu-ribu tahun.
The igneous rocks were crushed into sedimentary rocks by high temperature and pressure over thousands of years.

Antara berikut, yang manakah menunjukkan proses pembentukan batuan yang betul?
Which of the following shows the correct processes of the formation of rocks?

- | | |
|------------------------|------------------------|
| A P → R → Q → S | C R → P → Q → S |
| B P → R → S → Q | D R → P → S → Q |

- 10** Antara berikut, yang manakah cara untuk mengelaskan batuan?
Which of the following are the ways to classify the rocks?

- I Ketumpatan batuan
Density of rocks
- II Tekstur batuan
Texture of rocks
- III Cara pembentukan
The way of formation
- IV Ketahanan terhadap suhu dan haba
Endurance to temperature and heat

- A I dan II
I and II
- B III dan IV
III and IV
- C II dan III
II and III
- D I dan IV
I and IV

9.3 Proses Utama Bumi Main Processes of the Earth

- 11** Apakah perbezaan antara proses endogen dengan proses eksogen?
What is the difference between endogenic process and exogenic process?

	Proses endogen Endogenic process	Proses eksogen Exogenic process
A	Berlaku di permukaan Bumi Occurs on the Earth's surface	Berlaku di dalam Bumi Occurs within the Earth
B	Daya luaran Bumi The Earth's external force	Daya dalaman Bumi The Earth's internal force
C	Contoh ialah plat tektonik An example is plate tectonics	Contoh ialah susut jisim An example is mass depletion
D	Bukan merupakan proses utama Bumi It is not the main process of Earth	Merupakan proses utama Bumi It is the main process of Earth



Tip Cemerlang

Proses endogen menyebabkan pergerakan secara tiba-tiba atau pantas manakala proses eksogen menyebabkan pergerakan yang perlahan.
Endogenic process causes sudden or rapid movements while exogenic process causes slow movements.

- 12** Antara berikut, yang manakah contoh proses eksogen?

Which of the following is an example of exogenic process?

- A Luluhawa
Weathering
- B Aktiviti magma
Magma activity
- C Proses olakan mantel
Mantle convection process
- D Pergerakan kerak Bumi
Earth's crust movement

9.4 Fenomena Geobencana Geohazard Phenomena

- 13** Rajah berikut menunjukkan fenomena geobencana yang sering berlaku di dunia.
The following diagram shows a geohazard phenomenon that always occurs in the world.



Apakah fenomena geobencana ini?
What is this geohazard phenomenon?

- A Pasir jerlus
Quicksand
- B Gempa bumi
Earthquake
- C Lubang benam
Sinkhole
- D Letusan gunung berapi
Volcanic eruption

- 14** Apakah alat yang digunakan untuk mengesan gempa bumi?

What is the device used to detect earthquake?

- A Tsunameter
Tsunameter
- B Seismometer
Seismometer
- C Pemetaan LIDAR
Light Detection and Ranging (LIDAR)
- D Alat pengumpul hujan asid
Acid rain collector

- 15** Antara berikut, yang manakah langkah-langkah untuk menghadapi geobencana?
Which of the following are the measures to prepare for geohazards?

- I Kurangkan aktiviti pembalakan hutan
Reduces forest logging
- II Menggalakkan penggunaan klorofluorokarbon di dalam peti sejuk
Encourages the use of chlorofluorocarbons in refrigerators
- III Pembangunan di kawasan tanah tinggi
Development in highlands
- IV Menyediakan alat mengesan geobencana
Provides the devices to detect geohazards

- | | |
|-----------------------------------|-----------------------------------|
| A I dan II
I and II | C II dan III
II and III |
| B III dan IV
III and IV | D I dan IV
I and IV |

9.5 Usia Bumi Age of the Earth

- 16** Rajah berikut menunjukkan sejenis fosil.
The following diagram shows a fossil.



Apakah jenis fosil ini?
What is this type of fossil?

- A** Fosil ikan
Fish fossil
- B** Fosil haiwan
Animal fossil
- C** Fosil serangga
Insect fossil
- D** Fosil tumbuhan
Plant fossil



Tip Cemerlang

Fosil merupakan bahan Bumi yang terbenam dan tertimbus seperti tumbuhan, haiwan dan serangga untuk jangka masa yang sangat lama.

Fossils are Earth's materials such as plants, animals and insects which have been submerged and buried for a very long period of time.

- 17** Antara berikut, yang manakah kaedah-kaedah untuk menentukan usia Bumi?
Which of the following are the methods to determine the Earth's age?

- I Pentarikhan karbon
Carbon dating
- II Ujian uranium
Uranium test
- III Pentarikhan radiometrik
Radiometric dating
- IV Teori kandungan air laut
Sea water content theory

- | | |
|-----------------------------------|-----------------------------------|
| A I dan II
I and II | C II dan III
II and III |
| B III dan IV
III and IV | D I dan IV
I and IV |

9.6 Sumber Bumi dan Geologi Gunaan Earth's Resources and Applied Geology

- 18** Antara pernyataan berikut, yang manakah benar tentang air permukaan?
Which of the following statements is true about the surface water?

- A** Air di bawah permukaan tanah
The water under the Earth's surface
- B** Contoh air permukaan ialah mata air
An example of surface water is spring
- C** Kurang terdedah kepada pencemaran
Less exposed to pollution
- D** Sumber utama untuk kegunaan harian
The main source for daily usage



- 19** Antara berikut, yang manakah merupakan mineral ekonomi?
Which of the following are the economic minerals?

- A** Petroleum, pasir dan timah
Petroleum, sand and tin
- B** Arang, serium dan gas asli
Charcoal, cerium and natural gas
- C** Skandium, petroleum dan emas
Scandium, petroleum and gold
- D** Bauksit, garam dan batu kapur
Bauxite, salt and limestone



Tip Cemerlang

Mineral ekonomi terdiri daripada mineral logam, mineral bukan logam dan mineral nadir Bumi.

Economic minerals consist of metallic minerals, non-metallic minerals and rare Earth minerals.