

YEAR 8 SCIENCE EXAMINATION SEMESTER 1 2016

QUESTION AND ANSWER BOOKLET

STUDENT NAME:
TEACHER:
DATE:

TIME ALLOWED FOR THIS EXAM:

Reading time **before** commencing work: 10 minutes
Working time for this paper: 1 hour 50 minutes

MATERIAL REQUIRED / RECOMMENDED FOR THIS PAPER:

To be provided by the supervisor:

- This question and answer booklet

To be provided by the candidate:

- Pens, pencils, eraser and ruler

IMPORTANT NOTE TO CANDIDATES

No other items may be taken into the examination room.

It is your responsibility to ensure that you do not have any unauthorised notes or other items of a non-personal nature in the examination room. If you have any unauthorised material with you, hand it to the supervisor **BEFORE** reading any further. All iPads and mobile phones must be turned off and in your bag along with any other devices and notes. Bags are to be closed and placed under the desk.

INSTRUCTION TO CANDIDATES:

1. **Read** through both papers to familiarise yourself with all the questions.
2. Use a **blue or black** ballpoint / ink pen for written answers. Use pencil for drawing graphs or labeling diagrams.
3. **Write** your answers in the booklets.
4. Should you require more space than you have been given please use **the spare sheet** (at the back of this booklet) and ensure that you include your name and the question / statement to which you are responding.

AT THE END OF THE EXAMINATION:

- Any planning sheets or other pieces of paper **MUST** be handed in with this booklet.
- At the end of the examination make sure that your name is on your booklet and any other pieces of paper used.

Do not turn the page over until you are asked to do so

Part A: Multiple Choice

Circle the answer that best fits the statement question.

EARTH SCIENCE (15 marks):

1. The Rock Cycle can explain:

- a) How a sedimentary rock can become metamorphic
- b) How a metamorphic rock can become sedimentary
- c) How all rocks can become igneous
- d) All of the above

2. A seismic survey works by:

- a) Setting an explosive charge in the rocks and collecting the rocks blasted out.
- b) Drilling out a core of rock and chemically testing it for mineral content.
- c) Creating a shock wave in the rock and seeing how much it makes the ground shake.
- d) Sending a shock wave into the Earth and watching for how it reflects off rock layers below.

3. We know about the structure of the Earth because:

- a) The presence of volcanoes
- b) The study of rocks
- c) The study of seismic waves from Earthquakes
- d) All of the above

4. Which of the following is an igneous rock?

- a) Pumice
- b) Diamond
- c) Limestone
- d) Marble

5. Which of the following is a sedimentary rock?

- a) Pumice
- b) Diamond
- c) Limestone
- d) Marble

6. Which of the following is a metamorphic rock?

- a) Pumice
- b) Marble
- c) Limestone
- d) Granite

7. Where are the oldest layers of rock usually found in a cliff made from sedimentary rock?

- a) At the top
- b) In the middle
- c) At the bottom
- d) At the top and in the middle

8. Which type of rock often contains fossils?

- a) Sedimentary
- b) Igneous
- c) Metamorphic
- d) All of them will contain fossils

9. The first type of rock to form in the Earth's crust was most likely:

- a) sedimentary.
- b) metamorphic.
- c) igneous.
- d) clastic sedimentary.

10. Rock that forms from the cooling of magma or lava:

- a) Metamorphic rock.
- b) Igneous rock.
- c) Sedimentary rock.
- d) Volcanic rock.

11. What two factors does a metamorphic rock need to form?

- a) Weathering and erosion
- b) Heat and pressure
- c) Cooling and solidification
- d) Crystallisation and evaporation

12. Rock that forms from the cementing of deposited particles are called:

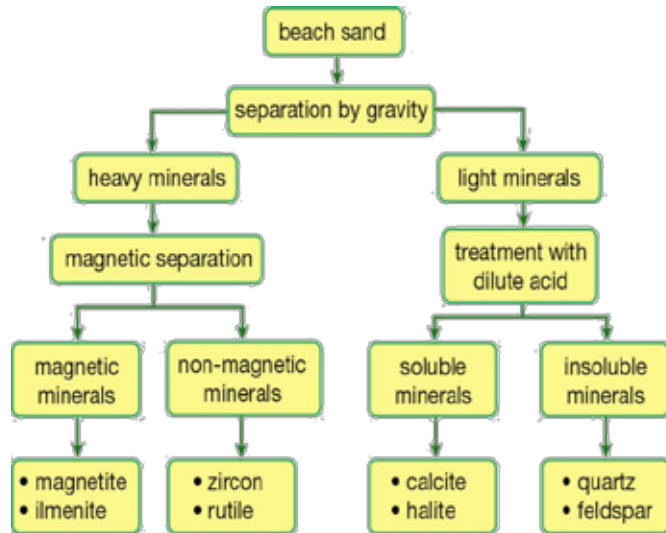
- a) metamorphic rock.
- b) igneous rock.
- c) sedimentary rock.
- d) volcanic rock.

13. The two most common processes that change a pile of sediment into a sedimentary rock are:

- a) compaction and cementation.
- b) weathering and erosion.
- c) deposition and sedimentation.
- d) cooling and crystallisation.

Information for Questions 14 and 15

The flow chart below shows the processes (in a simplified way) used to separate valuable minerals from beach sand. Study it carefully before answering the following questions.



14 Identify the properties of ilmenite based on the key.

- a) a heavy, magnetic material
- b) found in beach sand and can be separated from other minerals by using a magnet
- c) a magnetic material soluble in dilute acid
- d) a beach sand that is heavy and that does not react with acid

15 Identify a likely mining method used with these mineral sands.

- a) open cut
- b) underground
- c) dredging
- d) audits

PHYSICS (15 marks):

16. Kinetic energy is also known as

- a) Heat energy
- b) Movement energy
- c) Stored energy
- d) Light energy

17. Thermal energy is also known as

- a) Heat energy
- b) Movement energy
- c) Stored energy
- d) Light energy

18. Potential energy is also known as

- a) Heat energy
- b) Movement energy
- c) Stored energy
- d) Light energy

19. Four vehicles are travelling at the same speed. Which has the least kinetic energy?

- a) A bike
- b) A car
- c) A bus
- d) road train

20. A car weighing 943kg has the least kinetic energy at

- a) 30km/h
- b) 50km/h
- c) 70km/h
- d) 90km/h

21. Which of the following is not a form of energy?

- a) Nuclear
- b) Elastic
- c) Friction
- d) Kinetic

22. Four balls are positioned 10m above the ground. Which has the least gravitational potential energy?

- a) Ping pong ball
- b) Golf ball
- c) Cricket ball
- d) Bowling ball

23. An astronaut weighs less on the moon because the moon has

- a) Weaker gravity
- b) Thinner atmosphere
- c) Colder temperature
- d) Softer surface

24. Reactions that always give out heat are called

- a) Exothermic
- b) Electrochemical
- c) Endothermic
- d) Geothermal

25. Reactions that always take in heat are called

- a) Exothermic
- b) Electrochemical
- c) Endothermic
- d) Geothermal

26. Elastic potential energy is found in

- a) Uranium
- b) Batteries
- c) Rubber Bands
- d) Sunlight

27. An archer shoots an arrow from a bow. The useful energy change as he releases the arrow is

- a) Elastic → kinetic
- b) Kinetic → elastic
- c) Chemical → gravitational
- d) Gravitational → sound

28. If an appliance converts most of the energy going in into the energy we want coming out, we say it is

- a) Useful
- b) Effective
- c) Efficient
- d) Energetic

29. Which of the following will not affect how much gravitational potential energy an object has?

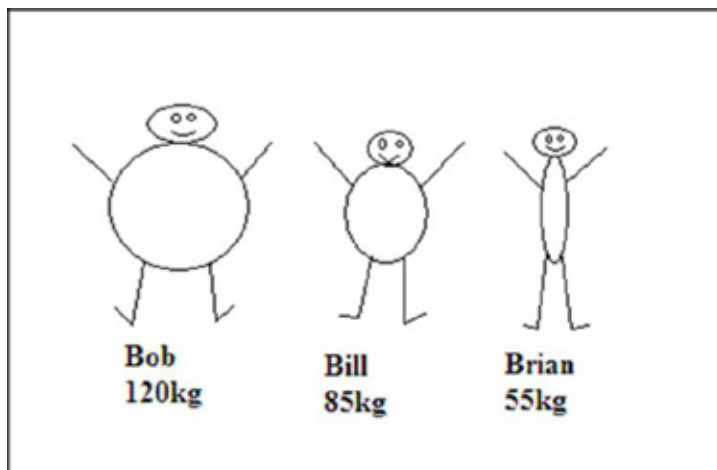
- a) Height above the ground
- b) Mass of the object
- c) Force of gravity
- d) Wind resistance

30. Energy

- a) Can be created, but not destroyed.
- b) Cannot be created or destroyed.
- c) Can be created and destroyed
- d) Cannot be created, but can be destroyed.

SHORT ANSWERS (40 marks):

PHYSICS (20 MARKS)



1. Bob, Bill and Brian are three friends. They all have mass. Bob has a mass of 120kg, Bill has a mass of 85kg and Brian has a mass of 55kg. There is a very weak force of attraction between them.

a. What is the name of this attractive force between them?

..... (1 mark)

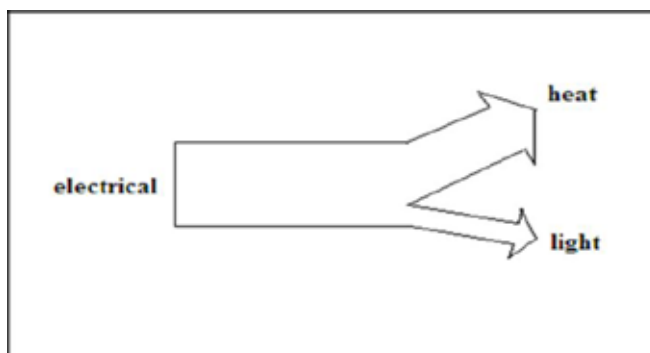
b. Which one of them has the weakest attractive force?

..... (1 mark)

c. Give a reason for your answer to part b.

..... (1 mark)

2. Below is an energy transfer arrow for a light bulb:



It shows that a light bulb converts electrical energy into a lot of heat energy and a little bit of light energy.

Create energy transfer diagrams for the following:

a) Electrical heater 2 marks

b) Playing music on your phone 2 marks

c) Watching a YouTube clip on a tablet 4 marks

3. Petrol is burnt in a car engine to get the car moving; however, a lot of energy is wasted.

a) Name two forms of wasted energy produced in a car. 2 marks

b) What happens to this wasted energy? 1 mark

4. There are 3 main types of stored energy:

a) _____ eg. a stretched rubber band, windup toy. 1 mark

b) _____ eg. candle (wax) is burning to give out light and heat 1 mark

c. Gravitational Potential energy eg. _____ 1 mark

5. Frypan handles are usually made of plastic or wood. Explain why.

2 marks

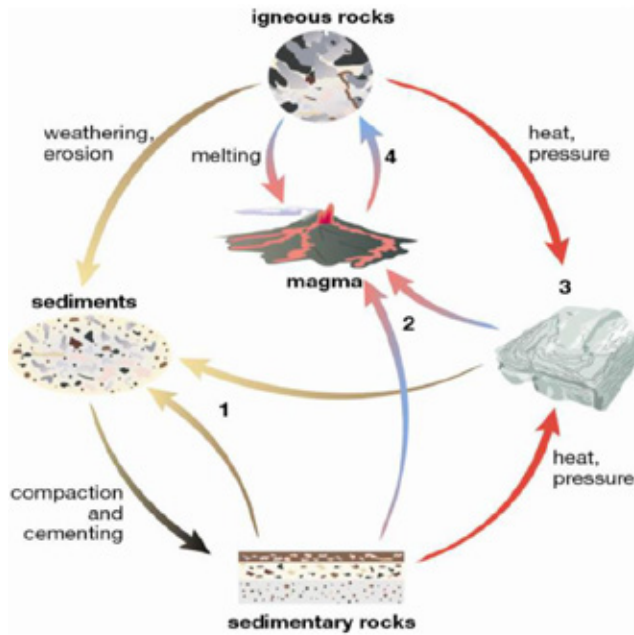
6. The sun provides us HEAT and LIGHT energy. Name the method of heat transfer from the Sun to the Earth.

1 mark

EARTH (20 marks)

7. Complete the missing labels on the diagram of the rock cycle below.

4 marks



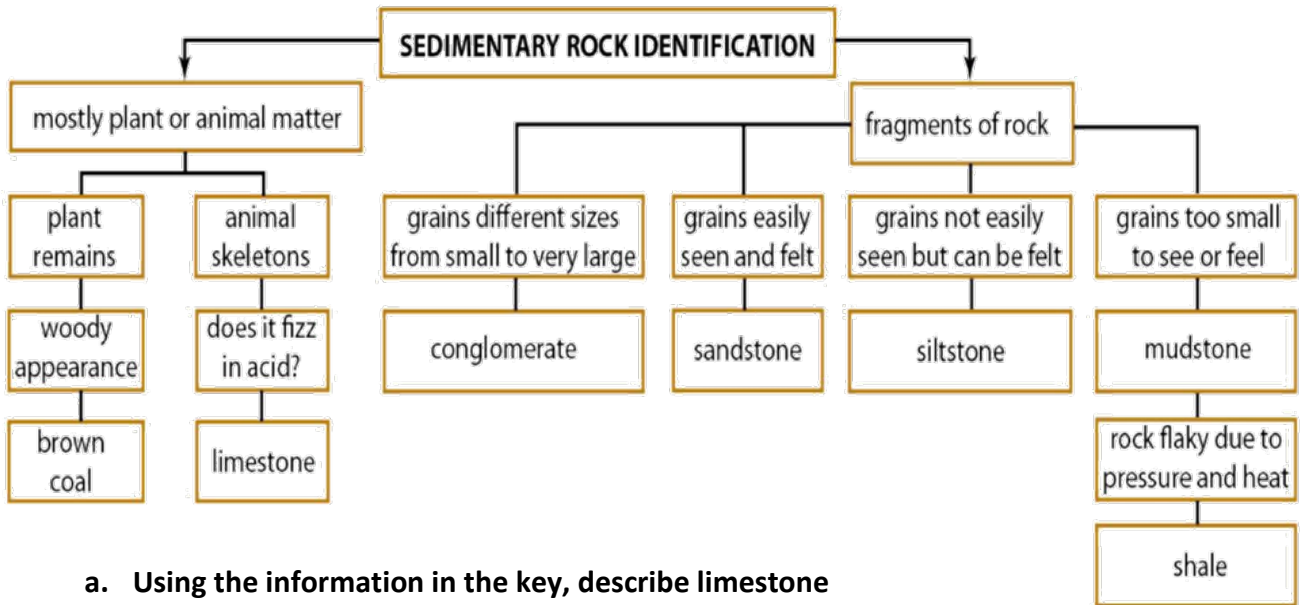
1-

2-

3-

4-

8. Use the **sedimentary rock classification key** below to answer these questions.....



a. Using the information in the key, describe limestone

b. Using the information in the key, describe siltstone

c. State the major difference between conglomerate and sandstone.

d. Compare siltstone and mudstone.

e. Gemma found a rock with grains in it that were easily visible and of roughly the same size (0.5 mm). Identify this rock.

e) Tyrone found a rock that he recognised as a mudstone, and it had abundant fossil shells in it. Assess the limitations of this key in light of Tyrone’s discovery.

9.

a) Define weathering

1 mark

b) Describe weathering by temperature change

1 mark

c) Describe two ways weathering can occur by water

2 marks

d) Contrast erosion and weathering.

1 mark

10. List 3 different mining methods and briefly state what each method involves.

Method 1

2 marks

Method 2

2 marks

Method 3

2 marks

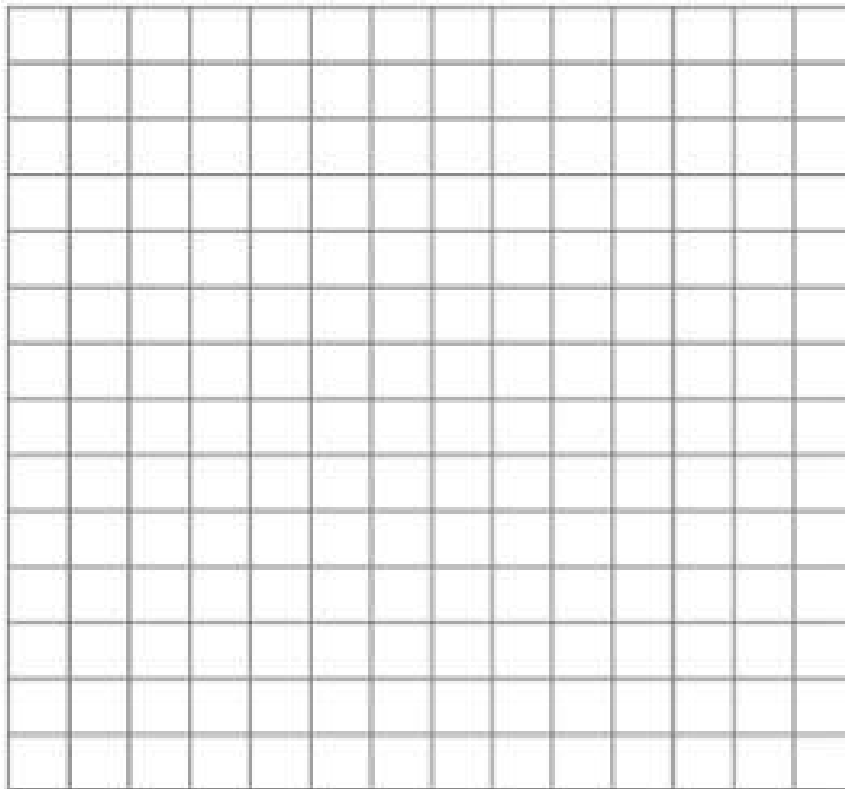
Investigation

A pair of students wished to test which material was the best insulator, so they conducted an experiment where they wrapped a cup of hot chocolate in the various materials and measured how far the temperature dropped after 5 minutes. The results are in the table below.

<u>Material</u>	Temperature drop 1	Temperature drop 2	Temperature drop 3	Average Temperature drop
Tin Foil	2	2.5	3	2.5
Paper	10	11	9	
Wool	4	1	4	

1) Complete the table by filling in the average temperature drops 2 marks

2) Graph the results on to the graph paper provided 5 marks



e) For this experiment state the:

Independent Variable

1 mark

Dependant Variable

1 mark

Two Control Variables

2 marks

- 4) Which material was the best insulator?
Discuss why this material was the best, referring to the methods of heat transfer. 4 marks

END OF EXAM