CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD

General Certificate of Education Examination

0755 GEOLOGY 1

JUNE 2017 **ADVANCED LEVEL**

Centre Number	
Centre Name	
Candidate Identification No.	
Candidate Name	

Mobile phones are NOT allowed in the examination room.

MULTIPLE CHOICE QUESTION PAPER

One and a half hours

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you start answering the questions in this paper. Make sure you have a soft HB pencil and an eraser for this examination.

1. USE A SOFT HB PENCIL THROUGHOUT THE EXAMINATION.
2. DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

Before the examination begins:

3. Check that this question booklet is headed "**0755 GEOLOGY 1 - Advanced Level**"
4. Fill in the information required in the spaces above.
5. Fill in the information required in the spaces provided on the answer sheet using your HB pencil:
   Candidate Name, Exam Session, Subject Code and Candidate Identification Number.
   Take care that you do not crease or fold the answer sheet or make any marks on it other than those asked for in these instructions.

How to answer the questions in this examination

6. Answer **ALL** the 50 questions. All questions carry equal marks.
7. Non-programmable calculators are allowed.
8. Each question has FOUR suggested answers: **A, B, C** and **D**. Decide on which answer is appropriate. Find the number of the question on the Answer Sheet and draw a horizontal line across the letter to join the square brackets for the answer you have chosen.
   For example, if **C** is your correct answer, mark **C** as shown below:
   [A] [B] [C] [D]
9. Mark only one answer for each question. If you mark more than one answer, you will score a zero for that question. If you change your mind about an answer, erase the first mark carefully, then mark your new answer.
10. Avoid spending too much time on any one question. If you find a question difficult, move on to the next question. You can come back to this question later.
11. Do all rough work in this booklet using the blank spaces.
12. **At the end of the examination, the invigilator shall collect the answer sheet first and then the question booklet. DO NOT ATTEMPT TO LEAVE THE EXAMINATION HALL WITH ANY.**

Turn Over

1. Where within the Earth does the Earth's magnetic field come from?
   A The outer core
   B The inner core
   C Mantle
   D Crust

2. The principle of continental blocks being in buoyant equilibrium is:
   A Convection
   B Rebound
   C Isostasy
   D Subduction

3. Small planet-like bodies in orbit beyond Mars are called:
   A Planetesimals
   B Asteroids
   C Comets
   D Meteroids

Use the diagram below (figure 1) to answer questions 4 and 5.

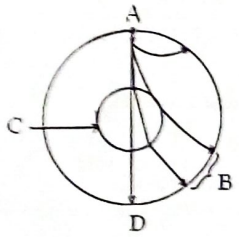

Figure 1

4. What is A?
   A Apex
   B Shadow Zone
   C Focus
   D Epicentre

5. What is the name of the earthquake wave that appears at D?
   A L - wave
   B S - wave
   C P - wave
   D Surface wave

Study the crystal model below (figure 2) and answer questions 6, 7 and 8.

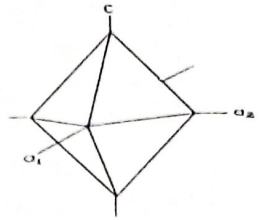

Figure 2

6. What is the diagnostic property of this crystal?
   A Four three-fold axes of symmetry
   B One four-fold axis of symmetry
   C Five axes of symmetry
   D One four-fold vertical axis of symmetry

7. The crystal is best called?
   A A tetragonal bipyramid
   B Octahedron
   C A bipyramid of the second order
   D Tetragonal bipyramid of the first order

8. What is the angle between c and a_1?
   A 105^0
   B 90^0
   C 45^0
   D 60^0

Study the diagram of a silicate mineral below (figure 3) and answer questions 9, 10 and 11.

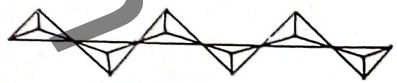

Figure 3

9. What is the silicon : oxygen ratio of this mineral?
   A 2 : 5
   B 1 : 4
   C 1 : 3
   D 2 : 7

10 This mineral can be identified in hand specimen from the :
   A Colour
   B Habit
   C Lustre
   D Cleavage

11. To which silicate group does this mineral belong?
   A Inosilicates
   B Sorosilicates
   C Nesosilicates
   D Phyllosilicates

12. The mineral quartz displays a conchoidal fracture which is similar to that found in the rock:
   A granite
   B limestone
   C basalt
   D obsidian

Study the diagram below (figure 4) of the Bowen's Reaction Series and answer questions 13, 14 and 15.

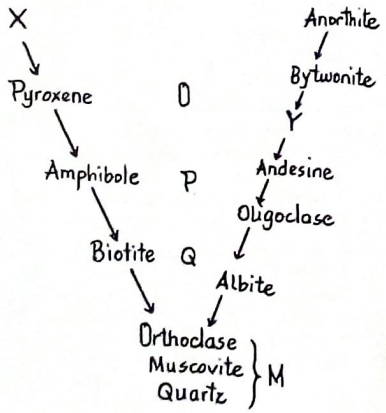

Figure 4

13. Name the minerals represented by X and Y respectively.
   A Olivine and Anathocite
   B Augite and Labradorite
   C Olivine and Labradorite
   D Olivine and sanidine

14. What texture will a rock formed at Q in a plutonic environment have?
   A Porphyritic
   B Amygdaloidal
   C Medium grained
   D Coarse grained

15. What factor determines the minerals to be placed in the order shown in the diagram above?
   A Pressure
   B Temperature
   C Hardness
   D Temperature and Pressure

16. Which of the following volcanic landforms is characteristic of Hawaiian type of eruption?
   A Ash and cinder cones
   B Volcanic domes
   C Strato volcanoes
   D Shield volcanoes

17. The viscosity of magma is dependent on:
   A Iron content
   B Type of eruption
   C Magnesium content
   D Silica content

18. Which of the following factors are all responsible for the movement of magma to the surface?
   A Pressure, temperature, density
   B Volatile components, pressure, density of magma
   C Temperature, pressure, volatile components
   D Volatile components, temperature, pressure, density of magma

19. A metamorphic texture characterized by equidimensional grains welded into a regular mosaic with micas having a random orientation is:
   A granuloblastic
   B Hornfelsic texture
   C Granulitic texture
   D Poikiloblastic texture

20. When a silica rich limestone is affected by contact metamorphism, the resulting rock is:
A Forsterite marble
B White marble
C Wollastonite marble
D Brucite marble

21. Which of these groups of minerals will likely occur within the metamorphic aureole produced in an argillaceous rock?
A Kyanite - Andalusite - Sillimanite
B Kyanite - Chiastolite - Cordierite
C Andalusite - Cordierite - Sillimanite
D Kyanite – Sericite - Chiastolite

22. If a stream is carrying sand, silt, clay and small pebbles, which one is deposited last as the stream begins to slow down?
A Clay
B Silt
C Sand
D Small pebbles

23. The aspect of wind denudation which is concerned with the removal by blowing away of loose material is known as:
A Attrition
B Abrasion
C Deflation
D Transportation

24. The ability of a stream or river to transport a maximum particle size (load) from one place to another over a specific time is :
A Stream capacity
B Stream velocity
C Stream competence
D Stream discharge

25. A river type whose direction of flow is controlled by fractures or folds or by differences in the hardness of the underlying rocks is:
A Subsequent river
B Antecedent river
C Consequent river
D Superimposed river

26. In the initial stage of coal formation, peat is derived from vegetation growing in a swamp. The next stage involves formation of lignite and is most likely to occur if:
A Sea level rises and layers of sediment cover the swamp
B The area is covered by sandy sediments
C The geothermal gradient rises due to deep burial
D Sea level falls and swamp drains

Study the information given below for a sediment and answer questions 27, 28 and 29 The sediment contains the following particle sizes:

Boulders – 40%
Pebbles – 10%
Sand - 10%
Silt - 15%
Clay - 25%

27. In which environment was this sediment most likely to have been deposited?
A Desert environment
B Fluvial environment
C Glacial environment
D Piedmont environment

28. What is the most common structure displayed by this sediment?
A Cross bedding
B Massive bedding
C Graded bedding
D Slump bedding

29. This sediment is most likely to be a:
A Greywacke
B Sandy conglomerate
C Conglomeratic shale
D Boulder clay

30. In a cumulative frequency curve, a very steep curve indicates:
A Well sorted
B Moderately sorted
C Sorted
D Poorly sorted

31. What do you understand by strain?
A Force per unit area acting on a material
B Deformation of a material caused by applied forces
C When a body obeys Hooke's law
D When a body response by plastic flow

32. If a rock layer strikes north east to south west, its dip will be to the:
A North west
B South east
C North west or south east
D North east or south west

33. Which of the following folds are classified based on the attitude of the axial plane?
A Synform
B Gentle
C Antiforms
D Upright

Use the diagram of the fossil below (figure 5) to answer questions 34, 35 and 36.

Figure 5

34. Name the parts labelled X and Y respectively.
A Hinge plate and pallial sinus
B Umbo and ligament
C Ligament and pallial sinus
D Cardinal teeth and pallial sinus

35. What is the function of X?
A Opens and closes the valves
B Used for attachment as a mode of life
C Used for feeding
D Holds the valves together

36. What is the possible mode of life of the above fossil?
A Byssally attached
B A cemented form
C A burrower
D A borer

37. An example of a petrifying mineral in fossil preservation is:
A Carbon
B Aragonite
C Calcite
D Quartz

38. An echinoid has a heart-shaped test. What is its mode of life?
A Attached
B Burrower
C Lies covered by a thin layer of sediment
D Vagrant

39. The tenor of an ore can be defined as:
A The metal of an ore body
B The quality of ore mineral in an ore
C The proportion of minerals in an ore
D The valuable part of an ore body whose tonnage is economical

40. A relatively small percentage of ground water which originates from deep within the Earth by igneous processes is called:
A Connate water
B Spring
C Juvenile water
D Meteoric water

41. When drilling an oil well, you drill through a horizontal red rock layer after that you hit a zone of sheared and broken rocks. Later you hit the red rock layer again. You have encountered:
A An anticlinal trap
B An unconformity trap
C A stratigraphic trap
D A fault trap

The diagram below (figure 6) illustrates types of plate boundaries. Use the diagram to answer questions 42, 43 and 44.

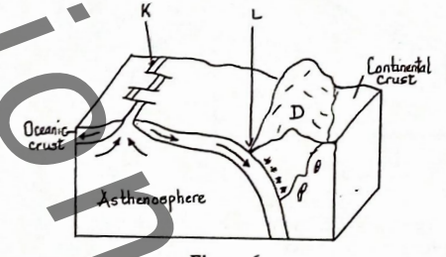

Figure 6

42. What type of rocks will be formed at D?
A Basalt
B Blue schist
C Gabbro
D Andesite

43. The types of plate boundaries represented by K and L respectively are:
   A Conservative and constructive plate boundaries
   B Conservative and destructive plate boundaries
   C Constructive and conservative plate boundaries
   D Constructive and destructive plate boundaries

44. Name one ore mineral that can be formed at D.
   A Copper
   B Diamond
   C Cassiterite
   D haematite

The diagram below (figure 7) gives the field relationship of geological events that occurred in the area. Study the diagram and answer questions 45 and 46.

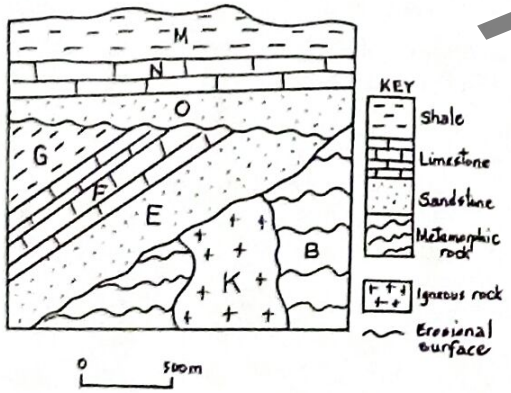

Figure 7

45. The types of unconformities shown on the diagram above are:
   A Heterolytic and angular
   B Parallel and angular
   C Heterolytic and non-depositional
   D Non-depositional and angular

46. If the age of K is Silurian what is the possible age of B?
   A Carboniferous
   B Ordovician
   C Silurian
   D Devonian

47. The principle of uniformitarianism states that:
   A The depositional features and structures on the surface of sediments enable the way up of strata to be determined
   B The processes occurring at present can be used to explain what happened in the past
   C In an undisturbed sedimentary sequence the oldest rocks are at the bottom
   D Marker beds are useful in determining the relative ages of the rocks in a sequence

48. An environmental problem created by the burning of fossil fuel is:
   A Desertification
   B Global warming
   C Decrease in the CO_2 content
   D Pollution of the atmosphere

Below is a brief description of two rock types encountered in the field and recorded in a student's field notebook. Use this information to answer questions 49 and 50.

Rock X: It is porphyritic with pyroxene and feldspar as essential minerals. Outcrops as a lava flow.

Rock Y: It is a tough, hard fine grained rock that contains andalusite and sillimanite together with cordierite and biotite.

49. Rocks X and Y respectively are:
   A Dolerite and clay
   B Dolerite and slate
   C Basalt and hornfels
   D Basalt and mudstone

50. One economic use of rock X is:
   A Road surfacing
   B Roofing houses
   C The manufacture of ceramics
   D The manufacture of cement

STOP - GO BACK AND CHECK YOUR WORK