

The Open University of Sri Lanka

B.Sc. Degree Programme - Level 05 (2016/17)

PYU3266 – Essentials of Geology



CLOSE BOOK TEST -3 (NBT 3)

Date: 25th October 2017

Time Allowed: **One Hour (4.00 pm-5.00 pm)**

Registration No.

ANSWER THE ALL QUESTIONS in Parts A and B

Part A –Multiple Choice Questions

For each question there are four suggested answers labelled (a), (b), (c), (d). Underline the correct answer. *(3 marks each)*

A-1. The largest reservoir of freshwater on Earth is:

- | | |
|-------------------|--------------------------------|
| (a) polar ice cap | (c) water vapour in atmosphere |
| (b) groundwater | (d) rivers and lakes |

A-2. Sedimentary rocks/sediments formed in the Jurassic Period are found in;

- | | |
|----------------|--------------|
| (a) Pallama | (c) Jaffna |
| (b) Aruwakkalu | (d) Usangoda |

A-3. The Peak metamorphism of the Sri Lankan Precambrian crust is widely believed to be occurred during;

- | | |
|---------------|--------------|
| (a) ~ 3000 Ma | (c) ~ 550 Ma |
| (b) ~ 1100 Ma | (d) ~ 340 Ma |

A-4. Three peneplain theory was introduced by Coates in 1935 to explain the formation of Precambrian crust in Sri Lanka. His theory is based on;

- (a) Block uplift of the Sri Lankan Crust
- (b) Differential Weathering and Erosion
- (c) Gondwana Tectonics
- (d) Thrusting of two Precambrian Blocks



A-5 What is the most suitable mineral used to determine the age of a Precambrian metamorphic rock?

- (a) mica (b) feldspar (c) zircon (d) apatite

A-6 Groundwater in the crystalline rocks are found most probably in

- (a) pore spaces between mineral grains
(b) permeable layers
(c) rock fractures
(d) springs

A-7. Subsurface water filled completely in pore spaces in regolith and bedrock is known as

_____.

- (a) saturated water (c) aquifer
(b) groundwater (d) all of above

A-8. Which rock type below is likely to possess the highest porosity?

- (a) sandstone (c) siltstone
(b) conglomerate (d) shale

A-9 The decline in the level of the water table around a pumping well is known as:

- (a) the porosity parameter
(b) the permeability gradient
(c) the cone of depression
(d) the sphere of influence

A-10 What holds up a perched water table?

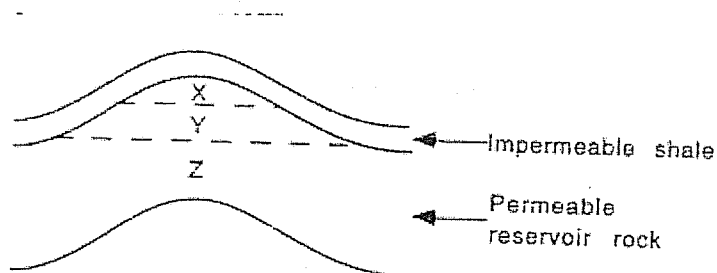
- (a) A sinkhole (b) An aquiclude
(c) The cone of depression (d) An aquifer

A-11. Permeable rock that contain hydrocarbon fluids and gasses is called

- (a) fractured Rock (c) source Rock
(b) reservoir Rock (d) cap Rock



A-12. Cross section of an oil trap. X, Y, and Z represent three distinct fluid layers within the permeable reservoir rock. What would be most likely occur in the oil trap as X, Y and Z respectively?



- (a) water, gas, oil
 (b) gas, water, oil
 (c) oil, water, gas,
 (d) water, oil, gas

A-13. Which of the following rock types would most likely be the best oil reservoir?

- (a) granite (b) shale (c) sandstone (d) limestone

A-14. Most of the coal deposits in the world are formed in the period of Geological time scale

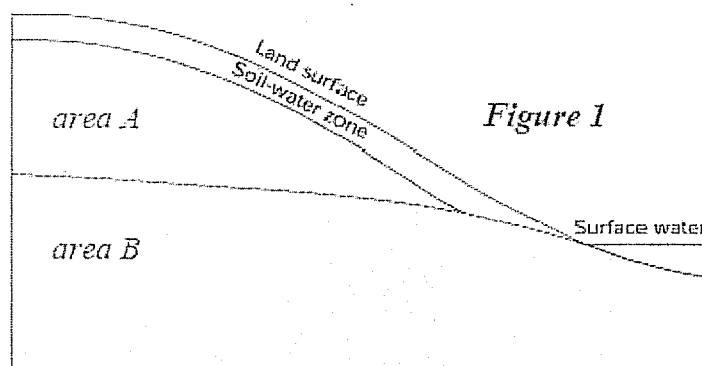
- (a) Pennsylvanian (c) Triassic
 (b) Jurassic (d) Miocene

A-15 An aquifer is:

- (a) body of saturated rock or sediment through which water can move easily.
 (b) a body of rock that retards flow of ground water.
 (c) A body of rock that is impermeable
 (d) a body of rock containing water

A-16 In the figure in the right, what is the proper name for area A?

- (a) saturated zone
 (b) unsaturated zone
 (c) polyunsaturated zone
 (d) free fall zone



A-17 An aquifer containing groundwater that has an impermeable layer below but not above it is called a:

- (a) unconfined aquifer
- (b) confined aquifer
- (c) upper aquifer
- (d) restricted aquifer

A-18 a factor relating to groundwater flow; it is coefficient that takes into account the permeability of the aquifer and the viscosity of the fluid

- (a) non flowing artesian well
- (b) hydraulic gradient
- (c) karst features
- (d) hydraulic conductivity

A-19 Which out of the following minerals is formed by the decomposition of surface rocks, and leaves a residual mass of weathered material?

- (a) Gold
- (b) Bauxite
- (c) Zinc
- (d) Coal

A-20 What is the highest grade coal called?

- (a) Bituminous
- (b) Anthracite
- (c) Lignite
- (d) Peat

20 x 3 marks = 60 marks

Part B – Short Answers

The short answer questions can be answered with a few well-written sentences in a given space only. *(10 marks each)*

B-1. Draw labelled diagram to explain the difference between a confined aquifer and an unconfined aquifer.

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B-3. What is the difference between reserves and resources in the sense of mineral deposits?

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B-4. Where does most mineral deposits in Sri Lanka formed? Explain the answer.

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4 x 10 marks = 40 marks

