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1 (Sem-1) GLG

2023

**GEOLOGY**

Paper : GLG0100104

**(Earth Systems Science)**

Full Marks : 45

Time : Two hours

**The figures in the margin indicate full marks for the questions.**

**All questions in Q. No. 1 are compulsory.**

1. Choose the correct option : **(any five)**

1×5=5

(i) The age of the earth is about

(a) 4.7 million years

(b) 4.6 billion years

(c) 46 million years

(d) 46 billion years

Contd.

(ii) The components of the earth's climate system are

- (a) Atmosphere and hydrosphere
- (b) Atmosphere, hydrosphere and lithosphere
- (c) Atmosphere, hydrosphere, lithosphere and biosphere
- (d) Atmosphere, hydrosphere, cryosphere, lithosphere and biosphere

(iii) Which of the following is an eolian landform ?

- (a) Barchan
- (b) Moraine
- (c) Sediment bar
- (d) Barrier island

(iv) Which of the following forms the topmost soil horizon in an ideal soil profile ?

- (a) A-horizon
- (b) B-horizon
- (c) C-horizon
- (d) O-horizon

(v) 'Meghalayan Age' is a subdivision of

- (a) Pleistocene
- (b) Pliocene
- (c) Holocene
- (d) Cenozoic

(vi) The 'Gulf stream' is a hot water ocean current developed in

- (a) South Atlantic ocean
- (b) North Atlantic ocean
- (c) Pacific ocean
- (d) Indian ocean

(vii) The largest reservoir of carbon in the earth system is

- (a) The rocks
- (b) The deep sea
- (c) The biosphere
- (d) The atmosphere

(viii) The slowest form of mass movement is

- (a) Flow
- (b) Fall
- (c) Creep
- (d) Slide

2. Write short notes on **any five** of the following:  $2 \times 5 = 10$

- (a) Law of uniformitarianism
- (b) Composition of the earth's atmosphere
- (c) Pacific ring of fire

(d) Polar wandering

(e) Hadley cell

(f) ITCZ

(g) Anthropocene

(h) Law of faunal succession

(i) Sand dunes

(j) Moraine

3. Write explanatory notes on : **(any four)**

$5 \times 4 = 20$

(a) Earth's climate system

(b) Geological time scale

(c) Physical and chemical properties of sea water

(d) Coriolis effect

- (e) Soil profile
- (f) Internal structure of the earth
- (g) Thermohaline circulation
- (h) Fluvial landforms

4. Answer **any one** of the following :

- (a) Define weathering. Explain the various processes of weathering on earth. 10
- (b) Write an illustrated account on the theory of plate tectonics. Use suitable sketches for explanation. 10
- (c) What are the different theories on origin of the earth? Briefly explain **any one** of them. 3+7=10
- (d) How the earth's belts are generated? Explain with suitable sketches how the pressure belts regulate the atmospheric circulation. 5+5=10

- (e) What is the difference between relative and absolute chronology? Explain **any one** method of determining absolute ages of rocks. 2+8=10