Total number of printed pages–7

3 (Sem–1/CBCS) GLG HC 1

2021

(Held in 2022)

GEOLOGY

(Honours)

Paper : GLG–HC–1016

(Earth Systems Science)

Full Marks : 60

Time : Three hours

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

1. Choose the correct option : 1×7=7

   (a) The terrestrial planets of the solar system are

      (i) Mercury, Venus, Earth, Mars

      (ii) Mercury, Venus, Earth

(iii) Mercury, Earth, Mars

(iv) Mercury, Venus, Mars

(b) Age of the earth is about

(i) 5 billion years

(ii) 5 million years

(iii) 4.6 million years

(iv) 4.6 billion years

(c) The earth's atmosphere is predominantly composed of the inert gas

(i) oxygen

(ii) nitrogen

(iii) argon

(iv) hydrogen

(d) Other than the earth, the terrestrial planet with features suggesting fluvial deposits is

(i) Jupiter

(ii) Venus

(iii) Mars

(iv) Mercury

(e) The 'Pacific Ring of Fire' is associated with

(i) divergent plate margin

(ii) convergent plate margin

(iii) transform faults

(iv) hot spots

(f) The finest pyroclastic material (<2 *mm*) is

(i) lapilus

(ii) ash

(iii) tephra

(iv) block

(g) The rock type having the highest relative abundance in the earth's crust is

(i) sedimentary

(ii) metamorphic

(iii) sedimentary plus metamorphic

(iv) igneous

2. Briefly explain, why : 2×4=8

(a) configuration of the Moho at depth is the inverse of the topographic relief at the surface;

(b) thickness of the earth's lithosphere increases with time and distance from the mid-oceanic ridge;

(c) north-eastern region of India is highly earthquake-prone;

(d) density of the earth increases from crust through mantle to the core.

3. Write short notes on : ***(any three)*** 5×3=15

(a) The layered structure of the earth's atmosphere

(b) Earth's magnetic field

(c) Geological time scale

(d) Index fossil and key beds

(e) Type of volcanoes

(f) Law of faunal succession

4. Answer the following : 10×3=30

(a) Giving suitable examples and sketches, write an explanatory note on *any one* of the following : 10

(i) Geomorphic divisions of India

Or

(ii) Geomorphology of the Indo-Gangetic and Brahmaputra plain

(b) (i) Write a detailed account on origin of earth with special emphasis on Big Bang and nebular hypothesis. 10

Or

(ii) Define half life and decay constant. What are radioactive elements suitable for geochronology ? Explain the basic principle and usefulness of a radioactive dating method suitable for Precambrian geochronology. 10

(c) (i) Write an illustrated account on the theory of plate tectonics. 10

Or

(ii) What are solar insolation and solar constant ? Briefly explain earth's heat budget. 2+8=10
