Total No. of Printed Pages—8

HS/XII/Sc/Gl/13

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GEOLOGY

Full Marks : 70

Time : 3 hours

The figures in the margin indicate full marks for the questions

General Instructions :

(i) Write all the answers in the Answer Script.

(ii) Attempt Part—A (Objective Questions) serially.

(iii) Attempt all parts of a question together at one place.

(PART : A—OBJECTIVE)

(*Marks* : 35)

1. Choose and write the correct answer of the following : 1×5=5

(a) The most important agent of chemical weathering is

(i) water

(ii) gas

(iii) acid

(iv) ice

(b) The term 'body whorl' is associated with

(i) brachiopod

(ii) lamellibranch

(iii) cephalopod

(iv) gastropod

(c) The Tipams are of the age of

(i) Paleocene

(ii) Eocene to Oligocene

(iii) Lower Miocene

(iv) Lower Pleistocene

(d) A concentration of naturally occurring solids, gases or liquids that economic extraction of valuable materials is currently possible or potentially possible in future is called

(i) deposit

(ii) ore deposit

(iii) reserve

(iv) resource

(e) The components of environment are

(i) lithosphere

(ii) lithosphere and biosphere

(iii) lithosphere, biosphere and atmosphere

(iv) lithosphere, biosphere, atmosphere and hydrosphere

2. State whether the following statements are *True* or *False* : 1×5=5

(a) The most common of all sedimentary structures are beds.

(b) In spirally coiled forms of cephalopods, all the whorls lie on one plane.

(c) The Vindhyans are unfossiliferous while the Paleozoic rocks of Spiti are fossiliferous.

(d) Banded iron formations are a great source of iron ores in India.

(e) Generally landslides preceed rainfall.

3. Fill in the blanks : 1×10=10

(a) Arenaceous rocks range in size from ——.

(b) A common example of transitional environment is —— environment.

(c) Transverse partitions within the shell of cephalopods are called ——.

(d) The valves of lamellibranchs are opened and closed with the help of the ——.

(e) The —— group is bounded by diamondiferous conglomerate horizons in the Vindhyans.

(f) Trilobites are abundant in the —— rock succession.

(g) Chalcopyrite is an ore of ——.

(h) An example of organic ore deposit is ——.

(i) A generally wet rock possesses high ——.

(j) Beds dipping —— is very favourable if sedimentary rocks serve as foundation rocks.

4. Express the following in *one* word each : 1×3=3

(a) Polygonal system of cracks in mud tapering downwards

(b) Ease through which fluids move through a rock

(c) Physical and chemical processes inside the earth's crust, associated with magma, having a bearing on ore deposits

5. Match *Column—A* with *Column—B* and write the corresponding numbers : 1×6=6

Column—A		*Column—B*	
(a)	Pigmatitic deposits	*(i)*	Unequal valves
(b)	Groundwater	*(ii)*	Contact metamorphism
(c)	Correlation	*(iii)*	Equal valves
(d)	Lamellibranch	*(iv)*	Aquifer
(e)	Lithification	*(v)*	Sedimentary rocks
(f)	Cu–Pb	*(vi)*	Age
		(vii)	Volatiles
		(viii)	Igneous rocks

6. Write very briefly on any *six* of the following : 1×6=6

(a) Clastic sedimentary rocks

(b) Conditions for preservation of fossils

(c) Jaintia group

(d) Syngenetic and epigenetic mineral deposits

(e) Sedimentary environment

(f) Early magmatic deposits

(g) Gossan

(h) Current bedding

(PART : B—DESCRIPTIVE)

(*Marks* : 35)

Answer **five** questions, selecting at least **one** from each Group

GROUP—A

(Sedimentology)

7. Distinguish sedimentary texture from structure. List seven sedimentary structures of physical origin and write brief notes on each of them with neat sketches. 1+6=7

8. Write notes on any *two* of the following : 3½×2=7

(a) Decomposition of rocks

(b) Nonclastic sediments

(c) Transportation and deposition of sediments

GROUP—B

(Paleontology)

9. Outline the morphological features of a typical brachiopod shell. Draw neat sketches. 7

10. Write notes on any *two* of the following : 3½×2=7

(a) Gondwana flora

(b) Common modes of preservation of fossils

(c) Scope of Paleontology

GROUP—C

(Stratigraphy)

11. Write the stratigraphy of Upper Assam in tabular form with brief petrographic notes. 7

12. Write notes on any *two* of the following : 3½×2=7

(a) Fossils of the Paleozoic rocks of Spiti

(b) Types of rocks of the Dharwar supergroup

(c) Correlation

GROUP—D

(Mineral and Energy Resources)

13. Write an explanatory note on the origin of petroleum. What is migration and accumulation of petroleum? Add a note on the distribution of petroleum in NE India. 3+2+2=7

14. Write notes on any *two* of the following : 3½×2=7

(a) Impact of mining on the environment

(b) Causes of landslides

(c) Factors controlling occurrence of groundwater

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