2026

GEOLOGY

(Theory)

Full Marks : 70

Pass Marks : 21

Time : Three hours

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

All the questions are compulsory .

Select the most appropriate answer for Question Nos. 1 to 8 from the given alternatives A, B, C & D and rewrite it.

1. The horizontal component of the displacement of a fault is called – 1

(A) Throw (B) Heave

(C) Net slip (D) Fault plane

2. A fault which measures the dip angle of 35° is an example of _____. 1

(A) Low angle fault (B) High angle fault

(C) Parallel fault (D) Step fault

3. The oldest period of Palaeozoic era is – 1

(A) Devonian (B) Permian

(C) Ordovician (D) Cambrian

4. The age of dinosaurs is synonymous with which geologic era? 1

(A) Paleozoic (B) Cenozoic

(C) Mesozoic (D) Precambrian

5. In Peridotites, the principal constituent is _____. 1

(A) Olivine (B) Pyroxene

(C) Hornblene (D) Anorthite

6. Which of the following intrusive rock mass is discordant ? 1

(A) Lacolith (B) Lapolith

(C) Batholith (D) Phacolith

7. _____ is a surface prospecting methods. 1

(A) Drilling methods (B) Gravity methods

(C) Siesmic methods (D) Magnetic methods

8. When the unconsolidate earth materials move slowly and continuously down the slope, it is called _____. 1

(A) Rock creep (B) Solifluction

(C) Soil creep (D) Mudflows

Question Nos. 9 and 10 are Assertion and Reason based questions. Two statement are given, one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer from the codes (A), (B), (C) and (D) as given below.

9. Statement-I (A) : Limestones is a carbonate rocks.

Statement-II (R) : They are formed by the chemical precipitation of calcium carbonate from sea water. 1

(A) Both statement-I and II are true and statement-II is the correct explanation of statement-I.

(B) Both statement-I and II are true but statement-II is not relevant to statement-I.

(C) Both statement-I and II are false.

(D) Statement-I is true but statement-II is false.

10. Statement-I (A) : Building step-like levels on steep slopes intercepts run off and reduces soil erosion.

Statement-II (R) : Excavation and extraction processes strip the land of its vegetative cover and can drastically alter the landscape leading to massive erosion. 1

(A) Both statement-I and II are true and statement-II is the correct explanation of statement-I.

(B) Both statement-I and II are true but statement-II is not relevant to statement-I.

(C) Both statement-I and II are false.

(D) Statement-I is true but statement-II is false.

Answer Question No. 11 to 17 in a word or one sentence each.

11. Define dip and strike of a bed. 1

12. The line of intersection of a fold between the axial plane and the surface of the rock bed is called _____. 1

13. Ultrabasic igneous rocks contain less than _____ percentage of silica. 1

14. What kind of minerals are most commonly found in non-clastic sedimentary rocks ? 1

15. Give one example of intrusive igneous rocks. 1

16. What are permeable rocks ? 1

17. Give one of the best construction materials found in Manipur. 1

Answer Question Nos. 18 to 27 in about 30 - 40 words each.

18. Define stratigraphy. 2

19. Differentiate between Eras and Periods of the geological time scale. 2

20. Explain the law of superposition. 2

21. Why are index fossils used for correlating purposes ? 2

22. Draw an outline map of India and indicate the geological distribution of Vindhyan rocks in India. 2

23. Distinguish between clastic and non-clastic sedimentary rocks. 2

24. Why does extrusive igneous rocks show glassy texture? 2

25. Draw and label lacolith of an intrusive igneous body. 2

26. Give any two causes of soil erosion in Manipur. 2

27. Why dams located on rocks dipping upstream represent ideal foundation conditions? 2

Answer Question Nos. 28 to 33 in about 40 - 50 words each.

28. Give reason why the opposite sides of an angular unconformity are not parallel ? 3

OR

Contour lines are an effective device for representing the third dimension on a map, why? Give reason.

29. Drag folds are useful as they indicates the direction of relative movement. Justify. 3

OR

The reverse faults usually indicate shortening of the earth's crust. Justify.

30. Explain the physiography of the peninsular India. 3

OR

Explain the lithology of Dharwar system of Mysore.

31. Contact metamorphism is also known as thermal metamorphism, why? Give reason. 3

OR

The process of diagenetic changes within the sediments is known as diagenesis, why? Give reason.

32. Suggest three preventive measures to control landslides in Manipur. 3

OR

If you were given sandstones and quarzites for use of building construction, which one will you choose over the other and why?

33. Read the following passage and answer the following questions.

(a) During prospecting, drill holes are located at certain intervals in certain directions depending upon the regularity of the ore body and its structure. In most cases, the test holes are drilled systematically in a grid pattern. in this pattern, the system of diminishing squares is adopted. First a grid of large squares is laid out and the holes are drilled at each corner of the squares. Later for closer examination, each grid is subdivided into four small squares and more holes are drilled at their corners.

(i) Why are diminishing squares adopted in drilling methods and how? 3

OR

(b) In tunnels that are driven through synclinal folds, the joint blocks from inverted keystones in the arch causes rockfalls and in case of rocks that happen to be water-bearing, the water flows into the tunnel and causes great difficulties. Whearas in a tunnel that cuts through an anticline, the danger from sudden rockfalls is less and even when water-bearing strata are encountered, the trouble caused by water will also be much lesser in such condition.

(i) Give reason why it is better to built a tunnel along the axis of an anticlinal folds? 3

Answer Question Nos. 34 - 36 in about 150 - 200 words each.

34. Classify joints on the mode of formation and exlpain them briefly. 5

OR

Classify fault on the basis of relationship between the strike of a fault and the attitude of strata and explain any four of them.

35. Describe the geological succession of Vindhyan System. 5

OR

Describe the geological succession of Gondwana System.

36. Describe the mineralogy, structure and mode of occurrence of limestone. 5

OR

Describe the mineralogy, structure and mode of occurrence of gabbro.
