

2016

## GEOLOGY

(Theory)

Full Marks : 70

Pass Marks : 21

Time : Three Hours and \*Fifteen Minutes

(\*15 minutes are given as extra time for reading questions)

All the questions are compulsory.

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

Select the most appropriate answer of the following (Q. No. 1-4)

1. When bedded sedimentary rocks overlie non-bedded igneous or metamorphic rocks, the type of unconformity is known as 1
- (a) Non-conformity 2
  - (b) Angular unconformity 3
  - (c) Disconformity 2
  - (d) Overlap 2

2. Permian period belongs to 1
- (a) Pre-cambrian era 2
  - (b) Mesozoic era 2
  - (c) Cenozoic era 2
  - (d) Palaeozoic era 2
3. An igneous rock containing less than 40% of silica belongs to 1
- (a) Acid rock 1
  - (b) Basic rock 1
  - (c) Intermediate rock 1
  - (d) Ultrabasic rock 1
4. The best building stone is 1
- (a) Conglomerate 1
  - (b) Rhyolite 1
  - (c) Schist 1
  - (d) Granite 1
5. Name the section of a fold which lies between crest and trough. 1
6. Rewrite correctly (if necessary)
- Faults are formed / produced by tensional as well as compressional forces. 1
7. Give the name of one common rock found in the Barail Formation of Manipur. 1

8. Suggest one common sedimentary rock which hardly records fossil. 1
9. Arrange the *three* main geomorphic subdivisions of India in order of their descending age. 1
10. Indicate the name of one sedimentary rock and another metamorphic rock which are exclusively composed of mineral quartz. 1
11. Mention one metamorphic rock which has similar composition with granite. 1
12. Select the igneous, sedimentary and metamorphic rock of the following : limestone, granite, marble, slate, conglomerate, basalt. 1
13. Give the name of one good aquifer found in Manipur. 1
14. Find one important reason for the cause of soil erosion in the hills of Manipur. 1
15. Write short answers on graded bedding. 2
16. Distinguish between 'contour line' and 'contour interval' in *three to four* sentences. 2
17. Draw a neat labelled diagram to show columnar joint. 2
18. Write short answer on Archaean rocks. 2
19. List out the different criteria adopted in the correlation of widely located strata and mention the most authentic one. 2
20. Give the two reasons of classifying Gondwana system into divisions — a three fold and a two-fold. 2

21. Draw a labelled diagram to show the occurrence of an index fossil and a non-index fossil. 2
22. Define 'Ophitic texture'. 2
23. Write short answers on any two effective methods for prevention of Landslide in the hill areas of Manipur. 2
24. Identify the geological method used for prospecting of ore bodies which are flat and gently dipping. Give your answers in one or two sentences only. 2
25. Define 'joint' and write one point of difference between fault and joint in one or two sentences. 3
26. Illustrate the 'dip' and 'strike' of a bed. 3
27. Write the sub-divisions of geological Time Scale with the approximate time span of each era. 3
28. Define 'magma' and suggest the name of the magma from which basalt is derived. 3
29. Explain the mode of formation of sedimentary rocks in aquatic environment. Give your answer in about ten sentences. 3
30. Justify your answer why 'rhyolite' is fine grained while 'granite' is coarse grained though both have the same mineralogical composition. 3
31. Explain the terms 'porosity' and 'permeability' associated with aquifer in underground water. 3
32. Describe the Tertiary stratigraphic succession of Assam or of Manipur. 5
33. Explain briefly the mineralogical, structural, textural and mode of occurrence of marble or of gabbro. 5
34. Define 'Soil erosion' and write any two preventive measures of soil erosion. 5