

# MIZORAM PUBLIC SERVICE COMMISSION

## GENERAL COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO THE POST OF JUNIOR GRADE OF MIZORAM FOREST SERVICE i.e. ASSISTANT CONSERVATION OF FOREST (ACF) UNDER ENVIRONMENT, FOREST & CLIMATE CHANGE DEPARTMENT, GOVERNMENT OF MIZORAM, 2018

### GEOLOGY

Time Allowed : 3 hours

Full Marks : 100

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

*Question No. 1 is Compulsory. Answer any 9 (nine) questions taking atleast 4 (four) questions from Section -A and Section - B.*

1. Choose the correct answer using code (a) or (b) or (c) or (d) (10×1=10)
- (i) Ozone layer is a part of  
(a) Troposphere (b) Stratosphere  
(c) Mesosphere (d) Thermosphere
- (ii) A Rock beds lies beneath the Deccan Traps in certain parts of Narmada Valley and Western India is called  
(a) Lameta Beds (b) Inter-Tapean Beds  
(c) Jabalpur Beds (d) Nagpur Beds
- (iii) The location below the earth's surface where the earthquake originate is called  
(a) Epicenter (b) Hypocenter  
(c) Fault plane (d) Rupture
- (iv) An optical phenomenon in which a substance has different colors when observed at different angles is called  
(a) Pleochroism (b) Extinction Angle  
(c) Birefringence (d) Dispersion
- (v) In geology, a heavy mineral is one with a density that is greater than  
(a) 1.9 g/cm<sup>3</sup> (b) 2.9 g/cm<sup>3</sup>  
(c) 3.1 g/cm<sup>3</sup> (d) 3.9 g/cm<sup>3</sup>
- (vi) The mineralogical maturity of the heavy mineral assemblages of the sediments is quantitatively defined by  
(a) QFL index (b) QAP index  
(c) ZTR index (d) ZFL index

- (vii) In Electrical Methods fresh rock is generally a
- (a) Good conductor (b) Poor conductor  
(c) No conductor (d) None of these
- (viii) Rocks cannot retain magnetism when the temperature is above
- (a) Freezing point (b) Neel point  
(c) Principal point (d) Curie point
- (ix) World Environment day is \_
- (a) 22 March (b) 22 April  
(c) 05 June (d) 08 June
- (x) The Most Abundant Elements In The Earth's Crust is
- (a) Iron (b) Oxygen  
(c) Silica (d) Aluminium

### **SECTION - A**

2. (a) Describe the seismically defined layer of the Earth with neat diagram. (5)  
(b) Write explanatory notes on **any two** of the following:- (2×2.5 =5)  
(i) Isostasy (ii) Continental drift  
(iii) Causes of volcanoes
3. (a) Describe the advantages & Limitations of aerial photographs. (5)  
(b) Explain various types of drainage pattern. (5)
4. (a) Write the classification of faults. Support your answer with neat sketches. (5)  
(b) Write explanatory notes on **any two** of the following:- (2×2.5 =5)  
(i) kink band (ii) Lineation  
(iii) Box fold
5. (a) Why are marine animals better suited for preservation as fossils than land animals? (5)  
(b) Discuss the evolutionary trend in Hominidae. (5)
6. Write notes on **any two** of the following (2×5=10)  
(a) Himalayan orogeny (b) Classification of aquifers  
(c) Landslide causes & prevention
7. (a) Describe the distribution & classification of Precambrian rocks in India. (5)  
(b) Discuss the effects of climatic condition and igneous activities in shaping the Indian sub-continent. (5)
8. (a) Write a note on the engineering properties of rocks. (5)  
(b) Discuss the Geological consideration for the constructions of dams. (5)

**SECTION - B**

9. Write short notes on **any four** of the following:- (4×2.5 =10)
- (i) Characteristics of crystal
  - (ii) Hardness of minerals
  - (iii) Oxidation
  - (iv) Crystal face
  - (v) Symmetry axes of a cube
10. (a) Explain why basaltic magma and granitic magma behave differently as they rise toward the Earth's surface. (5)
- (b) How does contact metamorphism differ from regional metamorphism? (5)
11. (a) Write the Classification of clastic and non-clastic rocks. (5)
- (b) Write short notes on **any two** of the following (2×2.5=5)
- (i) Sandstone classification
  - (ii) Current ripples and cross lamination
  - (iii) Erosional structures
12. (a) Write notes on the distribution of coal & petroleum in India. (5)
- (b) Write short notes on **any two** of the following:- (2×2.5=5)
- (i) Gangue & Tenor of ore
  - (ii) Metallogenic epochs
  - (iii) National Mineral Policy
13. (a) Describe geo-environmental impacts of Urbanization in Mizoram. (5)
- (b) Write short notes on **any two** of the following:- (2×2.5 =5)
- (i) Polymorphism
  - (ii) Coordination number
  - (iii) Trace Elements
14. Write notes on **any two** of the following:- (2×5=10)
- (a) Origin and occurrence of aluminium
  - (b) Geophysical prospecting
  - (c) Ore dressing
15. (a) Discuss the environment protection laws in India. (5)
- (b) Write a note on the types of coastal erosion and their mitigation measures. (5)