

2018

GEOLOGY

(Major)

Paper : 2·2

(Physical and Descriptive Mineralogy)

Full Marks : 60

Time : 3 hours

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

1. Choose the correct answer : $1 \times 7 = 7$

(a) Which of the following minerals exhibits phyllosilicate structure?

- (i) Quartz
- (ii) Feldspar
- (iii) Olivine
- (iv) Mica

(b) Which mineral has a adamantine lustre?

- (i) Gypsum
- (ii) Tourmaline
- (iii) Nepheline
- (iv) Diamond

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(Turn Over)

- (c) The specific gravity of a crystalline substance depends on
- (i) the kinds of atoms of which it is composed of
 - (ii) the manner in which the atoms are packed together
 - (iii) Both (i) and (ii)
 - (iv) None of the above
- (d) Which of the following are soda pyroxenes?
- (i) Diopside and augite
 - (ii) Pigeonite and hedenbergite
 - (iii) Aegirine and jadeite
 - (iv) Spodumene and wollastonite
- (e) In sorosilicate, the silicon-oxygen ratio is
- (i) 3 : 2
 - (ii) 2 : 7
 - (iii) 2 : 6
 - (iv) 1 : 3
- (f) Sphene is a mineral of
- (i) titanium
 - (ii) arsenic
 - (iii) antimony
 - (iv) molybdenum

(g) Which mineral has a hardness of four(4) in Mohs' scale of hardness?

- (i) Apatite
- (ii) Fluorite
- (iii) Feldspar
- (iv) Garnet

2. Answer/Write on any *four* of the following :

2×4=8

- (a) Write the characteristic features of nesosilicates with suitable examples.
- (b) Mohs' scale of hardness
- (c) Perthite and antiperthite
- (d) Lustre of a mineral
- (e) Write a short note on calcite.

3. Write a note on silicate structure. Give suitable examples of minerals belonging to different groups of silicate structure.

10

4. Describe briefly the atomic structure, chemical composition and physical and optical properties of amphibole group of minerals.

3+3+4=10

5. Write short descriptions of any *three* of the following minerals : $5 \times 3 = 15$

(a) Sillimanite

(b) Zircon.

(c) Tourmaline

(d) Haematite

(e) Rutile

6. What is the silicate structure of pyroxene group? Write the physical, chemical and optical characters of pyroxene group of minerals. $1+3+3+3=10$
