2018

2nd Semester

GEOLOGY

(Honours)

PAPER—C3P

(Practical)

Full Marks : 20

Time : 2 Hours

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Answer all questions.

1. Interpret the following geochemical data by graphical representation :

Sample	1	2	3	4	5	6
SiO_2	65·76	64·56	64·49	63·71	63·64	61·43
TiO_2	0·51	0·58	0·6	0·64	0·65	0·74
Al_2O_3	16·26	16·44	16·53	16·75	16·78	16·99
FeO	3·74	4·18	4·29	4·52	4·53	5·24
MnO	0·08	0·09	0·09	0·09	0·09	0·1
MgO	1·78	2·16	2·33	2·29	2·35	2·89
CaO	4·08	4·51	4·59	4·8	4·82	5·54
Na_2O	4·54	4·35	4·31	4·35	4·31	4·27
K_2O	2·7	2·57	2·52	2·46	2·46	2·17
P_2O_5	0·16	0·17	0·18	0·19	0·2	0·21
Total	100·02	100·06	100·4	100·28	100·32	100·15
Fe_2O_3	4·16	4·64	4·77	5·02	5·03	5·82

1. (a) Create silica variation diagrams (Harker plots) of the following :

(i) MgO Vs SiO_2

(ii) CaO Vs SiO_2

(iii) Na_2O Vs SiO_2

(Continued)

(iv) K_2O Vs SiO_2.

Look at your Harker diagrams for MgO and CaO. What minerals are responsible for the chemical trends shown by these elements as silica increases ?

(b) Plot Na_2O+K_2O and CaO vs SiO_2. Draw best fit straight lines through the two sets of data points. What SiO_2 concentration do these two trends cross ? What is the Peacock alkali-lime index for these group of rocks ?

(c) Plot your data on an AFM diagram. Is the resulting trend tholeiitic or Calc-alkaline ?

(d) Calculate the Mg # for the various samples.

5+5+3+2

2. Laboratory Note Book. 2

3. Viva-Voce. 3
