

**2020**

**GEOLOGY — HONOURS — PRACTICAL**

**Paper : CC-2P**

**(The Mineral Science)**

**Full Marks : 30**

*The figures in the margin indicate full marks.*

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

1. On a crystal the following interfacial angles are measured :

$$010 \wedge 011 = 60^\circ$$

$$001 \wedge 101 = 60^\circ$$

$$100 \wedge 101 = 30^\circ$$

(a) Name the crystal system with reason.

(b) On a stereogram of 5 cm radius plot 100, 001, 010, 101 and 011.

(c) Also plot 110 and 111 from zonal relationship.

(d) Measure the angle  $111 \wedge 111$  and  $011 \wedge 111$ .

(e) Find the Axial ratio.

4+5+4+4+3

2. Determine the empirical formula of feldspar from the given analysis and plot the same in the feldspar (triangular) diagram. 10

Analysis (values given in wt. %) :

$\text{SiO}_2 = 64.46$ ,  $\text{TiO}_2 = 0.00$ ,  $\text{Al}_2\text{O}_3 = 18.55$ ,  $\text{FeO} = 0.00$ ,  $\text{MnO} = 0.00$ ,  $\text{MgO} = 0.00$ ,  $\text{CaO} = 0.31$ ,  
 $\text{Na}_2\text{O} = 0.49$ ,  $\text{K}_2\text{O} = 16.13$  Total = 99.94.

(Molecular wt. of oxides :  $\text{SiO}_2 = 60.08$ ,  $\text{TiO}_2 = 79.87$ ,  $\text{Al}_2\text{O}_3 = 101.96$ ,  $\text{FeO} = 71.84$ ,  $\text{MnO} = 70.94$ ,  
 $\text{MgO} = 40.30$ ,  $\text{CaO} = 56.08$ ,  $\text{Na}_2\text{O} = 61.98$  and  $\text{K}_2\text{O} = 94.20$ )

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