

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December- 2021

Course Name: Igneous Petrology
Programme Name: B. Sc, Geology (Hons)
Course Code: PEGS 2024

Semester: III
Time: 03 hrs
Max. Marks: 100

SECTION A

(Scan and upload)

(5Qx 4M = 20 Marks)

Q 1	a. The two main mechanisms through which rocks melt are ---- and ----- b. With respect to silica percentage, two extreme types of magmas are ----- & -----	04	CO1
Q 2	Mark True/ False a. Rhyolitic magmas are the most viscous one b. Rocks consisting of more than 90% mafic minerals are termed as Melanocratic c. Gabbro is devoid of quartz d. Plagioclase replaced by nepheline in nepheline-syenite	04	CO1
Q 3	a. Sills linked by relatively short dike-like segments known as ----- b. Volcanic glass is otherwise known as ----- c. Anhedral grains give rise to -----texture d. Transformation of glass to crystalline matter is known as -----	04	CO1
Q 4	a. In Poikilitic texture, smaller grains(chadacryst) are accommodated in large grains(oikocryst ---- b. CIPW Classification based upon two types of minerals, namely ----- & -----	04	CO2
Q 5	a. Mutually touching phenocrysts in interstitial matrix give rise to ----- texture b. Sandpaper is an example of ----- abrasive. c. In CIPW, the input mineral composition must be in ----- form d. Plutons of area < 100 sq. km is known as -----	04	CO2

SCETION B

(Scan and upload)

(4Qx10M = 40 Marks)

Q 6	Differentiate between vesicular and amygdaloidal texture and defend their occurrence in volcanic rocks	10	CO3
Q 7	Explain the formation mechanism of porphyritic texture highlighting the role of physio-chemical condition	10	CO2
Q 8	Defend the statement "Reaction texture termed as Reaction structure".	10	CO3
Q 9	Compare Tamman & Ostwald theories and suggest the most appropriate one governing crystallization of uni-component magma.	10	CO4

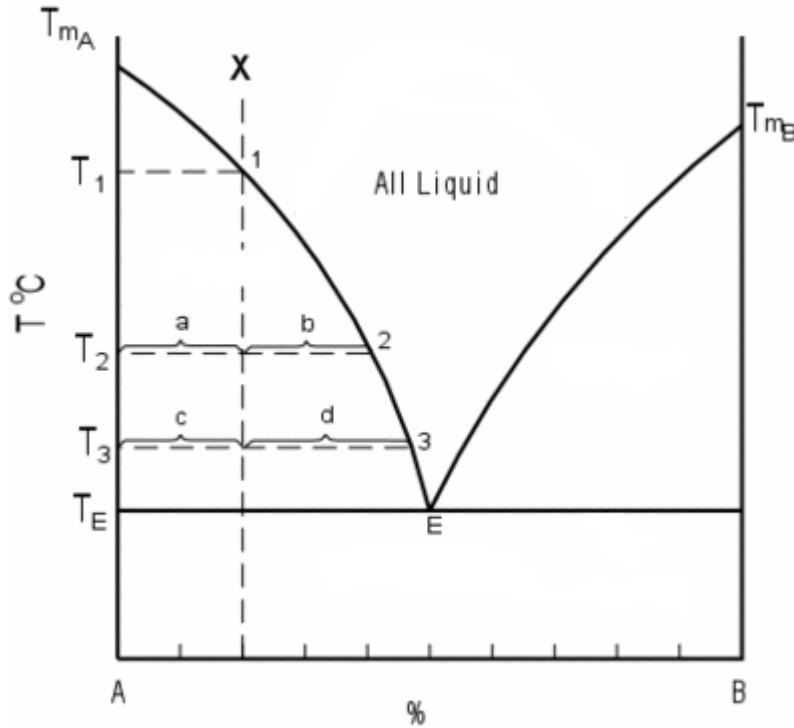
OR

Examine & validate the statement “Uni-component system should have a maximum of two degree of freedoms”.

SECTION C
(Scan and upload)

(2Qx20M = 40 Marks)

Q 10



Label the Binary phase diagram where A & B are the two components of a binary system. With suitable assumptions, examine congruency/ incongruence of it.

5+15
10=20

CO3

Q 11

Using QAPF Diagram, give suitable nomenclature to the below mentioned composition
Rock is a silica under saturated one. Composition is as follows

- Quartz: 25%
- Anorthite: 20%
- Orthoclase: 20%

OR

Using CIPW Norm, find out the Salic and Femic minerals, their abundance and the rock class.

The spread-sheet is attached below.

20

CO4

