

Details of Petrographic Study Results

Sl. No.	Sample Number & Location	Texture	Mineral Composition			Description
			Major >5%	Minor <5% – >1%	Accessory <1%	
1	MUPR01	It is a medium to coarse grained rock showing hypidiomorphic granular texture.	Plagioclase Quartz Biotite Microcline Hornblende	Epidote Actinolite-Tremolite	Apatite Sphene Calcite Opaques Diopside	Plagioclase and microcline occur as medium to moderately coarse subhedral prismatic grains. Quartz occurs as fine to medium anhedral grains. Biotite is present as medium to fine disseminated flakes. Hornblende and actinolite-tremolite occur as fine to medium subhedral prismatic grains. Epidote occurs as very fine to fine subhedral grains, developing after hornblende alterations. Apatite is noted as very fine to fine long prismatic and subrounded grains and as inclusions within feldspar. Sphene occurs as very fine to fine wedges and anhedral patches. Calcite is seen present as very fine secondary patchy fillings. Opaques are noted as very fine specks and as fillings along cleavage traces of biotite. Diopside is found present as very fine to fine subhedral prismatic grains in accessories. The specimen is a <u>meta-granodiorite</u> .
2	MUPR02	It is a medium to coarse grained rock showing granular texture.	Plagioclase Biotite	Sphene Apatite	Monazite	Plagioclase and microcline/ orthoclase are present as medium to moderately coarse subhedral prismatic grains. Biotite is present as medium to fine flakes, patches and prismatic grains in dissemination. Quartz occurs as medium to fine anhedral grains. Actinolite-

			Quartz Actinolite- Tremolite Microcline/ Orthoclase			tremolite is present as medium to fine subhedral prismatic grains in association with biotite. Sphene occurs as fine disseminated wedges, anhedral patches and granular aggregates in pockets. Apatite is found present as very fine to fine subrounded and long prismatic grains. Monazite is noted as very fine grains in accessories. The specimen is a <u>meta-granodiorite</u> .
3	MUPR03	It is a medium to coarse grained rock showing gneissosity.	Microcline/ Orthoclase Quartz Plagioclase Biotite	Hornblende	Opakes Sericate Sphene Apatite Zircon	Microcline/ orthoclase and plagioclase are present as medium to moderately coarse subhedral prismatic grains showing crude alignment. Quartz occurs as moderately coarse anhedral grains and patches showing crude alignment. Biotite is present as fine to medium disseminated grains showing parallel alignment. Hornblende occurs as fine to medium subhedral prismatic grains, often being replaced by biotite and showing parallel alignment. Opakes occur as fine anhedral grains. Sericate is present as very fine flakes, seen developing after plagioclase alterations. Sphene occurs as very fine to fine wedges. Apatite occurs as very fine subrounded grains in accessories. Zircon is noted as very fine inclusions within biotite, around which pleochroic haloes are observed. The specimen is a <u>granite gneiss</u> .
4	MUPR04	It is a medium grained rock showing gneissosity.	Microcline/ Orthoclase	Opakes Hornblende	Sericate Epidote	Microcline/ orthoclase and plagioclase are present as medium to fine subhedral prismatic grains showing crude alignment. Quartz occurs as medium to moderately coarse anhedral grains and patches. Biotite

			Quartz Plagioclase Biotite	Calcite	Chlorite Apatite Monazite Zircon	is present as fine disseminated flakes showing parallel alignment. Opaques occur as fine to medium subhedral to anhedral grains in dissemination. Hornblende occurs as fine subhedral prismatic grains. Calcite has intruded as very fine to fine patchy fillings in areas. Sericite occurs as very fine flakes developing after plagioclase alterations and seen associating very fine epidote grains with it. Chlorite occurs as fine flakes and patches replacing biotite and hornblende. Apatite and monazite are noted as very fine subrounded grains in accessories. Zircon is found present as very fine inclusions within biotite around which pleochroic haloes are observed. The specimen is a <u>granite gneiss</u>.
5	MUPR05	It is a medium grained rock showing gneissosity.	Microcline/ Orthoclase Quartz Plagioclase Biotite	Opaques Hornblende	Sericite Epidote Monazite Chlorite	Microcline/ orthoclase and plagioclase are present as medium to fine subhedral grains showing crude alignment. Quartz occurs as fine to medium anhedral grains. Biotite is present as fine disseminated flakes showing parallel alignment. Opaques occur as fine to medium subhedral to anhedral grains, often showing inclusions of quartz within it. Hornblende occurs as fine to medium subhedral prismatic grains showing parallel alignment. Sericite is seen present as very fine flakes and flaky aggregates developing after plagioclase alterations. Epidote occurs as very fine to fine subhedral grains, possibly developing after hornblende and plagioclase alterations. Monazite is noted as very fine subrounded grains in accessories. Chlorite is observed as fine patches replacing biotite

						and hornblende in areas. The specimen is a <u>granite gneiss</u> .
6	MUPR06	It is a medium grained rock showing gneissosity.	Microcline/ Orthoclase Quartz Plagioclase Biotite	Muscovite Chlorite	Apatite Monazite Zircon	Microcline/ orthoclase and plagioclase are present as medium to moderately coarse subhedral grains showing crude alignment. Quartz occurs as medium to fine anhedral grains. Biotite is present as medium to fine disseminated flakes showing parallel alignment. Muscovite is seen present as fine flakes in association with biotite. Chlorite occurs as anhedral patches replacing biotite and feldspar in areas. Apatite occurs as very fine subrounded grains. Monazite and zircon are noted as very fine inclusions within biotite around which pleochroic haloes are observed. The specimen is a <u>granite gneiss</u> .
7	MUPR07	It is a medium to fine grained rock showing granular texture.	Hornblende Plagioclase Biotite Opaques (Magnetite)	Chlorite Quartz	Apatite	Hornblende occurs as medium to fine subhedral prismatic and rhombic grains. Plagioclase occurs as fine to medium subhedral grains. Biotite is present as fine disseminated flakes. Opaques occur as fine to medium subhedral to anhedral grains and as moderately coarse poikiloblastic grains, where very fine quartz grains are sieved within. Quartz is also seen present as fine to very fine grains in the assemblage. Chlorite occurs as pseudomorphic patches developing after hornblende replacement. Apatite is noted as very fine subrounded and prismatic grains in accessories.

						The specimen is an <u>amphibolite</u> .
8	MUPR08	It is a medium to coarse grained rock showing crude gneissosity.	Microcline Plagioclase Quartz	Biotite Muscovite/ Sericite	Apatite Zircon Monazite	Microcline and plagioclase occur as medium to moderately coarse subhedral grains. Quartz occurs as medium to coarse anhedral grains. Biotite is present as fine to medium disseminated flakes and patches. Muscovite/ sericite are seen developing after plagioclase alterations. Apatite occurs as very fine to fine hexagonal and subrounded grains and as inclusions within feldspar. Zircon is noted as very fine inclusions within biotite, around which pleochroic haloes are observed. Monazite is seen present as very fine subrounded grains in accessories. The specimen is a <u>granite gneiss</u> .
9	MUPR09	It is a medium to coarse grained rock showing crude gneissosity.	Microcline Quartz Plagioclase	Muscovite Biotite	Ferruginous matter Opakes Zircon	Microcline occurs as medium to moderately coarse subhedral grains showing perthitic exsolutions in areas. Quartz occurs as medium to coarse anhedral grains and patches. Plagioclase is present as fine to medium subhedral prismatic grains in the assemblage. Muscovite and biotite are seen present as fine flakes and flaky aggregates showing parallel alignment. Reddish ferruginous patches and fillings have intruded in areas. Opakes occur as fine subhedral to anhedral grains. Zircon is noted as very fine inclusions within biotite, around which pleochroic haloes are observed. The specimen is a <u>granite gneiss</u> .
10	MUPR10	It is a fine to medium grained rock showing	Biotite	Sphene	Zircon	Biotite occurs as fine to medium disseminated flakes showing crude alignment. Quartz and plagioclase are

		schistosity/ gneissosity.	Quartz Plagioclase		Actinolite	present as fine to medium subhedral to subhedral grains. Sphene occurs as very fine to fine disseminated wedges and anhedral patches. Zircon is noted as very fine slender prismatic grains and as inclusions within biotite. Actinolite is seen present as very fine flakes in accessories. The specimen is a <u>biotite-quartz-plagioclase schist/gneiss.</u>
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