

PU M Sc Applied Geology

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The average thickness of a lithospheric plate is approximately:-

- 35 km
- 100 km
- 5 km
- 8 km

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Grains that crystallize to a significantly larger size than those of the matrix, in an igneous rocks are called:-

- Relic inclusions
- Porphyroblasts
- Xenoliths
- Phenocrysts

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Structurally quartz is a:-

- Framework silicate
- Ring silicate
- Isolated silicate
- Chain silicate

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A Pyroxine mineral having equal amount of CaO and FeO molecules is known as:-

- Bronzite
- Pigeonite
- Diopside
- Hedenbergite

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The high pressure polymorph of silica, coesite, stishovite, may be associated with:-

- Contact metamorphism
- Impact metamorphism
- Burrial metamorphism

- Hydrothermal metamorphism

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The least stable mineral in clastic detritus is:-

- Quartz
- Olivine
- Hornblende
- Amphibole

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A crystal appears unchanged when rotated 180° . Such an axis of rotation is axis of:-

- 2-fold symmetry
- 3-fold symmetry
- 4-fold symmetry
- 1-fold symmetry

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Fold with alternate sharp and broad hinges are called:-

- Cuspate fold
- Box fold
- Chevron fold
- Concentric fold

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If the axial planar cleavage is steeper than the dip of the fold limb, then limb is called:-

- Overturned limb
- Inverted limb
- Normal limb
- Back limb

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If an aggregate of sediment consists of particles that are all about the same size, it is said to be:-

- Poorly rounded
- Sandstone
- Lithified

- Well sorted

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A coarse grained rock mainly composed of orthopyroxene and plagioclase is called as:-

- Gabbro
- Harzburgite
- Norite
- Lherzolite

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Continental crust is higher in elevation than oceanic crust because:-

- It is denser than oceanic crust
- It is more buoyant than oceanic crust
- It is older than oceanic crust
- It is younger than oceanic crust

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Electronegativity of elements increases:-

- In atoms that have partially filled outer shell
- With decrease in neutrons
- From left to right of the Periodic table
- From right to left of the Periodic table

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Which one of the following is permitted in the Miller's indices?

- Fractions
- Infinity
- Zero
- Real numbers

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Predominant magma that erupted during the Deccan Volcanism is:-

- Tholeritic basalt
- Alkali basalt
- Trachyte

- Andesite

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In the triangular ACF diagrams used to designate the mineralogical and chemical composition of metamorphic facies, the 'A' apex represent:-

- $\text{Al}_2\text{O}_3 + \text{Fe}_2\text{O}_3 - \text{Na}_2\text{O} - \text{K}_2\text{O}$
- Al_2O_3
- $\text{Al}_2\text{O}_3 + \text{Na}_2\text{O} + \text{K}_2\text{O}$
- $\text{Al}_2\text{O}_3 + \text{Fe}_2\text{O}_3 - \text{K}_2\text{O}$

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Which of the following is a concordant intrusive body?

- Cone sheet
- Lopolith
- Stock
- Ring dike

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Anhydrous rocks are characteristically present in rocks belonging to:-

- Granulite facies
- Amphibolite facies
- Greenschist facies
- Eclogite facies

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Which one of the following minerals crystallize in the Orthorhombic system?

- Calcite
- Aragonite
- Dolerite
- Rhodochrosite

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Which of the following is detrital sediment?

- Quartz sand
- Graded bedding

- Broken sea shells
- Ions in solution

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Plagioclase having 30 to 50 % anorthite content is known as:-

- Labradorite
- Anorthoclase
- Andesine
- Oligoclase

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Which of the following can be used to determine paleocurrent direction?

- Cross-bedding
- Graded bedding
- Mud cracks
- Turbidity currents

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Earth's crust consists of continental and oceanic parts. Which of the following statement is **not** true?

- Oceanic crust is more metamorphosed compared to continental crust
- Oceanic crust is younger than continental crust
- Oceanic crust is thinner compared to continental crust
- Oceanic crust has global layering while continental crust doesn't

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A fold which is concave upward is called as:-

- Antiform
- Synform
- Anticline
- Syncline

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When a single pyroxene envelops several well-developed plagioclase laths, the texture is called as:-

- Porphyroblast
- Ophitic texture

- Granoblast
- Poikiloblast

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Which one of the following minerals crystallize in cubic system?

- Spinel
- Hematite
- Corundum
- Siderite

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If a set of equivalent crystal faces are related to each other by a three fold axis of rotation, what will be angle between these faces?

- 60
- 120
- 30
- 90

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Which of the following is a K-feldspar?

- Andesine
- Orthoclase
- Anorthite
- Oligoclase

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A rock containing Phenocrysts of Olivine set in a fine grained matrix of pyroxene and plagioclase is known as:-

- Diorite
- Basalt
- Gabbro
- Norite

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In case of Barrovian metamorphism, the lowest grade of metamorphism is marked by the mineral:-

- Biotite

- Kyanite
- Chlorite
- Garnet

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Which of the following regions would have thicker crust?

- Precambrian Shield
- Mountain belt
- Island arc
- Mid Oceanic ridges

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Which one of the following mineral belongs to spinel group?

- Hematite
- Magnetite
- Zircon
- Ilmenite

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Metamorphic grade refers to:-

- Intensity of metamorphism
- Texture and structure of the rock types
- Critical mineral assemblages
- Particular rock type

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At the binary eutectic which of the following phases coexist?

- A crystal phase and a liquid
- Two different crystal phases
- Three different crystal phases
- Two different crystal phases and a liquid

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If the strike of a dip slip normal fault is N30°E, then the trend of the net slip will be:-

- N30°W

- N60°E
- S30°W
- S60°E

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A fold in which younging direction is away from the fold core is called:-

- Synform
- Antiform
- Anticline
- Syncline

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Complete solid solution is exhibited at 1 atmospheric pressure by:-

- Diopside Enstatite
- Albite Anorthite
- Actinolite Tremolite
- Enstatite Ferrosilite

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Pyroclastic deposits are usually found associated with:-

- Ropy lava
- Shield volcano
- Pahoehoe flow
- Explosive volcano

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A mineral is scratchable by quartz but not by apatite. Hardness of this mineral on Mohs scale is:-

- Less than apatite
- less than 5
- less than 7
- more than 7

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Komatites are typically found in:-

- Tertiary valconic provinces

- Proterozoic mobile belts
- Proterozoic sedimentary basins
- Archean greenstone belts

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The major minerals present in granite are:-

- Sanidine, quartz and labradorite
- Nepheline, quartz and labradorite
- Orthoclase, quartz and nepheline
- Microcline, quartz and albite

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Sedimentary breccia is a rare rock type because:-

- Sand deposits are typically well sorted
- Gravel is rounded quickly during transport
- Feldspars are chemically unstable
- Clay is less abundant than other sedimentary particles

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The reaction Ferrosilite + Diopside = Enstatite + Hedenbergite, is a kind of:-

- Oxidation reaction
- Ion-exchange reaction
- Solid-solid net-transfer reaction
- Devolatilization reaction

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Which of the metamorphic zone of Barrow is similar to the greenschist facies?

- Biotite zone
- Staurolite zone
- Sillimanite zone
- Garnet zone

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If rake/pitch of the net slip on the fault plane is 90, then the fault will be:-

- Dip-slip fault

- Oblique slip fault
- Strike-slip fault
- Hinge fault

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Which of the following mineral is a chain silicate?

- Augite
- Biotite
- Olivine
- Anorthite

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Volcanic equivalent of the plutonic rock granodiorite is:-

- Rhodacite
- Rhyolite
- Dacite
- Andesite

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Which one of the following is an open form?

- Prism
- Octahedron
- Tetrahedron
- Pyramid

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Metamorphic facies are defined by the:-

- Critical mineral assemblages
- Pressure-Temperature condition
- Particular rock type
- Texture and structure of the rock types

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The mineral omphacite is characteristic of:-

- Blueschist facies

- Granulite facies
- Greenschist facies
- Eclogite facies

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Which one of the following forms belongs to the isometric system?

- Sphenoid
- Pyramid
- Prism
- Octahedral

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Slices of oceanic crust that have been emplaced (obducted) onto continental crust:-

- Granulite
- Mylonite
- Migmatite
- Ophiolite

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The axial ratio of a crystal is determined as 0.82 : 1.94. Which crystal system this may belong to?

- Hexagonal or Tetragonal
- Isometric or Hexagonal
- Isometric or Tetragonal
- Orthorhombic or Monoclinic

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If the orientation of the principal stress axes X, Y and Z does not change during the deformation, the deformation is known as:-

- Simple shear
- Triaxial stress
- Pure shear
- Axial strain

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Outer core is liquid while the inner core is solid because:-

- Inner core is rich in iron and nickel while outer core is not
- Outer core is in contact with liquid mantle
- Melting point of material in outer core is less than the ambient temperature while it is more for the material in inner core due to higher pressure
- Outer core is heated more than the inner core

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In a crystal 4 non-parallel faces intersect in a point. Form of these faces is:-

- Dome
- Prism
- Pinacoid
- Pyramid

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Which of the following metamorphic facies is characterized by maximum temperature and minimum pressures?

- Greenschist
- Blueschist
- Sanidinite facies
- Hornblende-hornfels facies

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Bedding or stratification in a sedimentary rock:-

- Represents variations which took place during deposition
- Is always exactly horizontal
- Results from heat
- Is due to directed pressure from earth forces

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Paired metamorphic belt is a characteristic feature of:-

- Continental collision zone
- Sea floor spreading zone
- Continental rift zone
- Subduction zone

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Which one of the following statements about Andalusite, Kyanite and Sillimanite is WRONG?

- Commonly one of them is present in Metamorphosed peptic rocks
- If all the three are present the pressure and temperature conditions can be determined
- They have same chemical formula
- They have same crystal structure

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The thorax and the pygidium can be differentiated by their:-

- movable and immovable character
- number of furrow
- shape and size
- the nature of furrows

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A drainage pattern in which streams flow in and out of lakes with irregular flow directions is:-

- Rectangular
- Deranged
- Radial
- Longitudinal

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Petrified wood is an example of:-

- Desiccation
- Encrustation
- Altercation
- Substitution

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Which of these environments can produce cross beds?

- Alluvial fans
- River Deltas
- Sand dunes
- All the above

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Which group provides the fast moving invertebrate?

- Gastropoda
- Cephalopoda
- Echinodermata
- Brachiopoda

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What is the age of Muth quartzite?

- Carboniferous
- Devonian
- Ordovician
- Silurian

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Neogene period includes:-

- Oligocene, Miocene & Pliocene
- Miocene & Pliocene
- Paleocene, Eocene & Oligocene
- Paleogene & Eocene

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In which of the following do foreset beds occur?

- Alluvial fans
- Point bars
- Deltas
- Natural levees

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Meaning of Coelenterates is:-

- chambered body
- segmented body
- hollow inside
- stomach foot

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In uniform flat rocks, drainage patterns tend to be:-

- Trellis
- Dendritic
- Braided
- Radial

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The Olive series is developed in:-

- Kashmir
- Salt range
- Simla
- Kumaon

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Which would be least likely to indicate a desert environment?

- Evaporite
- Mud cracks
- Large cross-beds
- Limestone

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Petroleum and Natural gas are chiefly composed of:-

- Oxygen
- Hydrogen & Carbon
- Hydrogen
- Nitrogen

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Mud cracks are most likely to form by:-

- Periodic exposure to the air and drying out
- Fast-moving water that gradually slowed down
- Rapidly changing patterns of erosion and deposition
- Gently oscillating waves

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When did the Trilobite disappear from the Earth?

- End of Ordovician
- End of Devonian
- End of Jurassic
- End of Permian

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Graded bedding usually signifies:-

- Stagnant water
- Fast-moving water that gradually slowed down
- Slow-moving water that gradually speeded up
- Deposition on dry land

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The dry lake beds in many deserts are:-

- Inselbergs
- Pediments
- Playas
- Bajadas

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Mass wasting refers to material moved primarily by:-

- Ice
- Gravity
- Wind
- Running water

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The process whereby hydrogen and hydroxyl ions of water replace ions in minerals is:-

- Lateritisation
- Hydrolysis
- Oxidation
- Carbonization

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Erosional remnants of floodplains that are higher than the current level of a stream are:-

- Cut banks
- Natural bridges
- Incised meanders
- Stream terraces

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India is a major producer of one of the following metals.

- Aluminium
- Lead
- Uranium
- Gold

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In a lateritic bauxite deposit, the uppermost litho-unit is:-

- partially weathered bedrock
- lithomarge
- bauxite
- laterite

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One of the following sulphide minerals can be translucent or transparent.

- Pyrite
- Chalcopyrite
- Sphalerite
- Galena

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Ore deposits of one of the following economic minerals are always formed by magmatic process.

- Pyrolusite
- Sphalerite
- Chromite
- Magnetite

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One of the following occurs in the form of pipe.

- Diamond bearing kimberlite
- Porphyry copper
- Volcanogenic massive sulphide
- Mica pegmatite

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One of the following represents the chemical composition of magnetite.

- $\text{Fe}^{2+}\text{Fe}^{3+}\text{O}_3$
- $\text{Fe}^{3+}_2\text{O}_3$
- $\text{Fe}^{2+}\text{Fe}^{3+}_2\text{O}_4$
- $\text{Fe}^{3+}\text{Fe}^{2+}_2\text{O}_4$

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Copper is not a constituent element of one of the following ore minerals.

- Covellite
- Pyrrhotite
- Bornite
- Chalcocite

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191 PU_2015_367_New

One of the following represents the chemical composition of pyrrhotite.

- $\text{Fe}_2\text{S}_{1-x}$
- FeS_{1-x}
- $\text{Fe}_{1-x}\text{S}_2$
- Fe_{1-x}S

89 of 100

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The largest zinc deposit in India is located at:-

- Sargipalle, Orissa
- Agucha, Rajasthan
- Agnigundla, Andhra Pradesh
- Zawar, Rajasthan

90 of 100

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One of the following pairs is an example of "oxide mineral : sulphide mineral".

- Spessartite : Sphalerite
- Gibbsite : Galena
- Cassiterite : Chalcopyrite
- Pyrrhotite : Pyrite

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The largest bauxite mines in India is located at:-

- Yercaud, Tamil Nadu
- Kolli Hills, Tamil Nadu
- Korba, Madhya Pradesh
- Panchpatmali, Orissa

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Identify the wrong pair of "ore mineral : host rock".

- Hematite : Banded Iron Formation
- Galena : Carbonate rock
- Chalcopyrite : Quartz monzonite
- Chromite : Norite

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Hydrothermal ore deposits often occur in the form of:-

- Stock
- Vein
- Bed
- Dyke

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190 PU_2015_367_New

One of the following oxide minerals can be translucent or transparent.

- Chromite
- Wolframite
- Cassiterite
- Pyrolusite

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182 PU_2015_367_New

One of the following economic minerals is commonly associated with high grade metamorphic rocks.

- Chromite
- Magnetite
- Talc
- Graphite

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One of the following metals is generally extracted as a byproduct from sulphide ore of copper.

- Silver
- Gold
- Cadmium
- Gallium

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Emerald and ruby are gem varieties of _____ respectively.

- Garnet and Beryl
- Corundum and Beryl
- Beryl and Corundum
- Topaz and Corundum

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The fossil contents of elementary canal of animals are known as:-

- Coprolites
- Mould
- Trails
- Burrows

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188 PU_2015_367_New

Which one of the following statement about the petrological microscope is true?

- Both the polarizers are fitted below the circular stage
- Two polarizers, one above and another below the circular stage are present
- Both the polarizers are fitted above the circular stage
- A circular stage and a polarizer are present

100 of 100

195 PU_2015_367_New

Wall rock alteration is a characteristic feature of:-

- Sedimentary deposits
- Metamorphic deposits
- Hydrothermal deposits
- Magmatic deposits