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## M.Sc. – I (Semester – I) (CBCS) Examination, 2015
## APPLIED GEOLOGY (Paper – I) (New)
## Mineralogy and Optics

Day and Date : Monday, 16-11-2015 Max. Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

***Instructions*** *: 1) Answer* ***any five*** *questions.*
*2)* ***All*** *questions carry* ***equal*** *marks.*
*3) Question No.* ***I*** *is* ***compulsory****.*
*4) Answer* ***any two*** *questions from Q.* ***II, III*** *and* ***IV*** *and* ***any two*** *questions from Q.* ***V, VI****, and* ***VII****.*
*5) Draw neat and labeled diagrams* ***wherever*** *necessary.*

I. 1) Bladed habit is shown by the mineral
a) Calcite b) Kyanite c) Plagioclase d) Olivine

2) Schillerization is exhibited by the mineral
a) augite b) hypersthene c) diamond c) calcite

3) Chemical composition of olivine is
a) $Mg_2SiO_4$ b) $(Mg, Fe)_2SiO_4$ c) $Mn_2SiO_4$ d) $Fe_2SiO_4$

4) Which of the following mineral is iron carbonate ?
a) goethite b) specularite c) siderite d) haematite

5) Which of the following mineral exhibits parallel extinction ?
a) calcite b) muscovite c) hornblende d) augite

6) A metallic mineral which is easily recognised by its colour, malleability and softness is
a) haematite b) magnetite c) gold d) pyrite

7) Chemical composition of fluorite is
a) $MgF_2$ b) $Bak_2$ c) $CaF_2$ d) $SrF_2$

**P.T.O.**

8) Find the odd one out.
   a) kaolinite b) montmorillonite
   c) bentonite d) muscovite

9) Which one of the following is not mica ?
   a) biotite b) muscovite c) kyanite d) phlogopite

10) Which of the following mineral is highly pleochroic ?
   a) hornblende b) calcite c) plagioclase d) hypersthene

11) Which of the following mineral is isotropic ?
   a) hypersthene b) garnet c) hornblende d) augite

12) Pyrope is a variety of _____ mineral.
   a) feldspar b) pyroxene c) amphibole d) garnet

13) The mineral _____ has very high relief.
   a) olivine b) calcite c) quartz d) microcline

14) The mineral _____ has three sets of clearages.
   a) calcite b) pyroxene c) quartz d) plagioclase

II. Write an essay on mineralogy and optical characters of divine group.

III. Define refractive index. Give in detail the procedures used for determination of refractive index.

IV. Write an essay on the garnet group of minerals.

V. Write short notes on :
   a) Pleochroism
   b) Zeolite group of minerals.

VI. Write short notes on :
   a) Polymorphism and isomorphism.
   b) Alumino silicates.

VII. Write short notes on :
   a) Structure of amphiboles.
   b) Types of twins.

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## M.Sc. – I (Semester – I) (CBCS) Examination, 2015
## APPLIED GEOLOGY (Paper – II) (New)
## Igneous and Metamorphic Petrology

Day and Date : Wednesday, 18-11-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

***Instructions*** *: 1) Answer **five** questions.*
*2) **All** questions carry **equal** marks.*
*3) Question **I** is **compulsory**.*
*4) Answer **any two** questions from Q. No. **II, III** and **IV** and **any two** questions from Q. No. **V, VI** and **VII**.*
*5) Draw **neat** and **labeled** diagrams **wherever** necessary.*

I. Choose the correct answer for the following : **14**

1) The advent of high grade regional metamorphism is by the formation of
   a) Hydrous minerals b) Anhydrous minerals
   c) Zeolite minerals d) Glucophane

2) Find the odd one out
   a) laumontite-ecologite b) hypersthene-granulite
   c) lawsonite-zeolite d) glucophane-blue schist

3) Which one of the following does not belong to thermal-metamorphism ?
   a) Epidote-hornfels b) Sanidinite facies
   c) Buchite facies d) Green schist facies

4) Identify the type area of charnockite.
   a) Cuddapah b) Dharwad c) Pallavaram d) Khondapalli

5) In regional metamorphism the formation of almandine is at the expense of
   a) Biotite b) Sillimanite c) Kyanite d) None

6) What type of metamorphism is noticed for the formation of zeolite facies ?
   a) Contact b) Cataclastic c) Burial d) None

7) The onset of epidote-amphibolite facies is marked by the disappearance of Fe-rich chlorite and first appearance of Fe-rich.
   a) Almandine garnet b) Fe-rich pyroxene
   c) Zeolites d) None

**P.T.O.**

8) Komatite is a rock of
   a) Mg-rich ultramafic b) Na-k rich acidic
   c) Si-rich basic d) None

9) Which of the rock is classified as persalic and peralkalic in CIPW norms ?
   a) Granite b) Dolerite c) Lamprophyre d) Dunite

10) As compared to average granite, the Rapakivi granites are enriched in
   a) Quartz b) Plagioclase c) Nepheline d) K-felspar

11) Which processes is termed as fore-runner of carbonatite emplacement ?
   a) Kimberlite b) Fenite c) Syenite d) Gabbro

12) The distinctive rock assemblage containing ultramafic, gabbroic and basaltic rocks often capped by layers of deep sea sediments are termed as
   a) Calc-alkaline b) Eclogite c) Ophiolites d) None

13) The internationally accepted scheme of igneous rock classification (IUGS) was proposed by
   a) Clark b) Washington c) Robert gill d) Streekeisen

14) The myrmekite texture is an intergrowth between
   a) Orthoclase and plagioclase b) Plagioclase and quartz
   c) Orthoclase and biotite d) None

II. What is metamorphic facies ? Write in detail the granulite facies of regional metamorphism citing suitable Indian examples. **14**

III. Bringout the relationship of plate tectonics with metamorphism and magmatism. **14**

IV. Discuss the field occurrence, mineralogy and genesis of carbonatites citting suitable Indian examples. **14**

V. Bringout the salient aspects on the following : **14**
   a) ACF and AKF diagrams
   b) Magmatic differentiation.

VI. Write briefly on the following : **14**
   a) Zeolite facies
   b) Magma at mid oceanic ridge.

VII. Discuss in short on the following : **14**
   a) Windows to mantle rocks
   b) Rocks of contact metamorphism.

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## M.Sc. – I (Semester – I) Examination, 2015
## APPLIED GEOLOGY (Paper – III) (CBCS Pattern) (New)
## SEDIMENTOLOGY AND PALAEONTOLOGY

Day and Date : Friday, 20-11-2015 Max. Marks :70
Time : 10.30 a.m. to 1.00 p.m.

***Instructions :*** *1) Answer **any five** questions.*
*2) **All** question carry **equal** marks.*
*3) Question **1** is **compulsory**.*
*4) Answer **any two** question from **each** Section **A** and Section **B**.*
*5) Draw **neat** and labeled diagram **wherever** necessary.*

I. Multiple choice question. **14**

1) The three most abundant types of sedimentary rocks in order of decrease abundance are
   a) Sandstone, Limestone and Mudstone
   b) Sandstone, Mudstone and Limestone
   c) Limestone, Sandstone and Mudstone
   d) Mudstone, Sandstone and Limestone

2) The two words in Binomial nomenclature designates.
   a) Species and order b) Genus and species
   c) Order and family d) Family and species

3) Absence of bedding in a sedimentary deposit may be due to
   a) The rate of accumulation may have been too rapid for sorting
   b) The materials supplied may have been too uniform in character
   c) Slumping of the materials after their deposition may have destroyed on original bedded structures
   d) All the above

4) Choose in the descending order of nomenclature among the following.
   a) Kingdom-Division-Class-Order-Genus-Species
   b) Division-Kingdom-Order-Class-Species -Genus
   c) Kingdom-Phyllum-Class-Order-Genus-Species
   d) Kingdom-Class-Order-Division-Species-Genus

5) A sedimentary layer whose thickness is less than one centimeter, is known as
   a) Stratum
   b) Lamina
   c) Varve
   d) None of these

6) Those bottom dwellers living between low tide and high tide are termed.
   a) Vagile
   b) Littoral
   c) Nektonic
   d) Planktonic

7) Antidunes are formed
   a) At the lowest velocities of the current flow
   b) At the highest velocities of the current flow
   c) At the moderate velocities of the current flow
   d) When there is no flow

8) Which of these Protozoans is not a member of Foraminifera group ?
   a) Radiolaria
   b) Globigerina
   c) Nummulites
   d) Lagena

9) The thickest cross beddings are most often found in
   a) Alluvial deposits
   b) Aeolian deposits
   c) Glacial deposits
   d) Lake deposits

10) Nummulites dominated the geological arena for a short while, point out that period
   a) Cretaceous to Miocene
   b) Lower Cretaceous to Oligocene
   c) Early Tertiary
   d) Middle Tertiary

11) Ripple marks are developed under.
   a) Deep water conditions
   b) Shallow water conditions
   c) Both deep and shallow water conditions
   d) Very deep water conditions

12) Which out of these is a Planktonic microfossil ?

a) Lagena b) Nummulite c) Globigerina d) Rotalia

13) Ripple marks are best observed in

a) Limestones b) Shales c) Conglomerate d) Sandstones

14) During the fossilization soft parts decompose and harder parts are impregnated with minerals and turn into stony shapes, they are

a) Coprolites b) Moulds

c) Casts d) Petrified wood

SECTION – A

II. What are the Siliciclastic sedimentary Rocks ? Give an account of the general characteristics of major classes of sandstones. **14**

III. Write on the application of microfossils in Biostratigraphy and well to well correlation. Add a note on their industrial use. **14**

IV. What are the Primary depositional setting ? Enumerate your answer with special reference to physiographic and sediment characteristics of Deltaic system. **14**

SECTION – B

V. Write note on the following : **14**

i) Classification of foraminifera

ii) Sedimentary textures

VI. Explain briefly the following. **14**

i) Evaporites

ii) Upper Gondwana Flora

VII. Attempt the following : **14**

i) Cross stratification

ii) Mass Extinction.

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# M.Sc. – I (Semester – I) (CBCS) Examination, 2015
## APPLIED GEOLOGY (Paper – IV) (New)
## Structural Geology and Morphotectonics

Day and Date : Monday, 23-11-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

***Instructions*** *: 1)* ***All*** *questions carry* ***equal*** *marks.*
*2) Attempt* ***five*** *questions.*
*3) Question* ***1*** *is* ***compulsory****.*
*4) Answer* ***any two*** *questions from Questions No.* ***2, 3*** *and* ***4****.*
*5) Answer* ***any two*** *questions from Questions No.* ***5, 6*** *and* ***7****.*
*6)* ***Draw*** *neat and labelled diagrams* ***wherever*** *necessary.*

1. Fill in the blanks with correct choice : **14**

1) Coastlines of submergence are produced by

I) Subsidence of land

II) Rise in sea level

a) I only b) II only c) Both I and II d) None of the above

2) An imaginary plane that divides the fold into two equal halves is known as _____

a) Axis b) Axial plane c) Fault plane d) Crest

3) The dripstones hanging from the top of the limestone caves are called as _____

a) Stalactite b) Stalagmite

c) Geode d) Stalactite and stalagmite

4) Natural levee is an example of _____

a) Point bar deposit b) Channel fill deposit

c) Alluvial fan deposit d) Flood plain deposit

**P.T.O.**

5) In the case of normal faults the hade is towards _____
   a) Downthrows side b) Up throw side
   c) Either downthrows or up throw d) None of above

6) "Sequential change in landforms through time" is concept of _____
   a) Davis cycle of erosion b) Penk cycle of erosion
   c) King cycle of erosion d) None of above

7) Kettle holes and drumlins topography is encountered in the regions of _____
   a) Glacial environment b) Fluvial environment
   c) Deltaic environment d) Arid environment

8) Low lying lands where the water table has reached the land surface are called as _____
   a) Swamps b) Lagoons c) Ox-bow lake d) Oasis

9) In which of the following fold an axial plane may not be present ?
   a) Ptygmatic fold b) Monoclines
   c) Antiform d) Syncline

10) Which of the following sediments shows very well sorted nature _____
   a) Aeolian sand b) River sand
   c) Deltaic sand d) Beach sand

11) A limited area of older rocks surrounded by younger rocks is called as _____
   a) Outlier b) Overlap c) Offlap d) Inlier

12) Pot holes are the characteristic features of _____ of river.
   a) Youth stage b) Mature stage c) Old stage d) Birth stare

13) Ventifacts and Yardanges are formed in _____ environment.
   a) Fluvial b) Aeolian c) Glacial d) Marine

14) Karst topography is found dominantly in terrain of _____
   a) Limestone b) Shale c) Sandstone d) Granite

2. What is fluvial geomorphology ? Write in detail account on erosional and depositional features produced by river. **14**

3. What are faults and shear zones ? Describe genetic classification of faults. Add note on microstructures in shear zone. **14**

4. Write in detail, the account of erosional and depositional landforms produced in Aeolian environment. **14**

5. Write short notes on : **14**
   a) Rejuvenation
   b) Glacial stratified deposits.

6. Write in brief on : **14**
   a) Lineation and foliation
   b) Drainage patterns.

7. Write notes on : **14**
   a) Types of Unconformities and their significance
   b) Stress and strain analysis.

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## M.Sc. – I (Semester – II) (New – CGPA) Examination, 2015
## APPLIED GEOLOGY
## Economic Geology (Paper – V)

Day and Date : Tuesday, 17-11-2015 Max. Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

***Instructions*** *: 1)* ***All*** *questions carry* ***equal*** *marks.*
*2) Attempt* ***five*** *questions.*
*3) Question* ***1*** *is* ***compulsory****.*
*4) Answer* ***any two*** *questions from questions no.* ***2, 3*** *and* ***4****.*
*5) Answer* ***any two*** *questions from questions no.* ***5, 6*** *and* ***7****.*
*6)* ***Draw*** *neat and labeled diagrams* ***wherever*** *necessary.*

1. Fill in the blank with correct choice : **14**

1) Galena is source mineral for _____
   a) Au b) Pb
   c) Zn d) Fe

2) Gossans is a _____
   a) Ferruginous residue
   b) Siliceous residue
   c) Calcareous residue
   d) Organic residue

3) Which one of the following represent magmatic segregation ?
   a) Asbestos in serpentine
   b) Chromite in Ultramatic
   c) Diamonds in Kimberlite
   d) None of the above

4) The Mn ore of M.P. and Maharashtra are associated with _____
   a) Kouretas rocks b) Khondalite rocks
   c) Lateritic formation d) Gondite rocks

5) Wolframite is a ore of _____
   a) Tungsten b) Zinc
   c) Copper d) Iron
6) Epigenetic deposits are formed _____
   a) Simultaneously with host rock
   b) Before the host rock
   c) After the host rock
   d) None of the above
7) Fissures are example of _____
   a) Induced cavity b) Original cavity
   c) Both a) and b) d) None of the above
8) In India most of the Baryte occurrences/deposits are of _____
   a) Vein type b) Stringer type
   c) Fissure type d) Bedded type
9) Which one of these is not a precious metal ?
   a) Silver b) Aluminium
   c) Platinum d) Gold
10) Malachite and Azurites are _____
   a) Sulphides b) Carbonates
   c) Oxides d) Hydroxides
11) Supergene sulphide enrichment zone is found _____
   a) Above the water table
   b) Below the water table
   c) Near the ground surface
   d) None of the above
12) Ladder veins commonly observed in _____
   a) Cavity filling deposits
   b) Sedimentary deposits
   c) Evaporite deposits
   d) All the above

13) Diamond in Kimberlite pipe are good example of _____ deposits.
   a) Filter pressing  b) Injection
   c) Segregation  d) Dissemination

14) A mineral is found in sublimate form is_____
   a) Mercury  b) Sulphur
   c) Cinnabar  d) Realgar

2. Write a full note on mechanical concentration deposits. **14**

3. Explain in detail geology, stratigraphy and depositional environment of Khetri Copper Deposit. **14**

4. Write in detail National Mineral Policy. **14**

5. Write short notes on : **14**
   a) Ore bearing fluid.
   b) Fluid inclusion.

6. Write in short : **14**
   a) Skarn deposits.
   b) Strata bound and stratiform ore deposits.

7. Discuss in short the following : **14**
   a) Short note on controls of ore localization.
   b) Textures of ore minerals.

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## M.Sc. I (Semester – II) (CGPA) Examination, 2015
## APPLIED GEOLOGY (Paper – VIII) (Old)
## Geochemistry

Day and Date : Tuesday, 24-11-2015 Max. Marks : 70

Time : 10.30 a.m. to 1.00 p.m.

***Instructions** : 1) Answer **any five** questions.*
*2) **All** question carry **equal** marks.*
*3) Question No. **1** is **compulsory**.*
*4) Answer **any two** question from **each** Section.*
*5) Draw **neat** and labeled diagrams **wherever** necessary.*

I. Choose the correct answer :

1) Goldschmidth has classified clay minerals as
   a) Resistates b) Hydrolysates
   c) Oxidates d) Evaporates

2) Which of the following geochemical group have 8 electrons in the outermost shell ?
   a) Lithophile b) Chalcophile
   c) Siderophile d) None

3) _____ are different elements with the same neutron number N with different values of A and Z.
   a) Isobars b) Isotopes
   c) Isotones d) Isotherm

4) The stable form of Manganese mineral in the secondary environment is
   a) $Mn(OH)^2$ b) MnOOH c) $Mn^3O^4$ d) $MnO_2$

5) Which of the following elements classified into energy elements ?
   a) C b) Fe c) P d) Mo

**P.T.O.**

6) The average composition of igneous rocks was proposed by
   a) Goldschmidt b) Schonbein
   c) Clarke and Washington d) All the above

7) The average salinity of the oceans is
   a) $15\,^{0}/_{00}$ b) $25\,^{0}/_{00}$
   c) $35\,^{0}/_{00}$ d) $62\,^{0}/_{00}$

8) According to cosmic abundance of elements which of the following element is most abundantly found in our solar system
   a) Fe b) H c) O d) Si

9) Which of the following layers of the earth is referred as oxysphere ?
   a) Lithosphere b) Asthenosphere
   c) Atmosphere d) Biosphere

10) The angle between the bonds joining the hydrogen nuclei to the center of the oxygen atom is
   a) 105° b) 180° c) 72° d) All the above

11) The carbonates in water produce
   a) Permanent hardness b) Alkalinity
   c) Temporary hardness d) Total hardness

12) Pyroxenes are example of
   a) Nesosilicate b) Single chain
   c) Double chain d) Phyllosilicates

13) An element or compound that can exist in more than one crystal form is said to be
   a) Isomorphism b) Pseudomorphism
   c) Polymorphism d) None

14) The pH of the environment, the solubility of silica increases slightly, but alumina is insoluble.
   a) pH < 4 b) pH 5 – 9 c) pH 1 d) None

## SECTION – A

II. Describe the composition of different layers of the earth. Add note on the types of meteorites and state how they are used in understanding the composition of Earth interior.

III. Discuss various physico-chemical factors in the distribution of elements in sedimentary environment.

IV. Explain in detail primary differentiation and Geochemical classification of elements.

## SECTION – B

V. Enumerate the salient aspects on :

1) Average composition of Igneous rocks.

2) Radioactive decay.

VI. Write short notes on the following :

1) Formation of Soil.

2) Gains and losses to atmosphere during geological time.

VII. Write briefly on the following :

1) Composition of sea and terrestrial water.

2) Geochemical cycle.

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## M.Sc. – II (Semester – III) Examination, 2015
## APPLIED GEOLOGY (Paper – IX) (CGPA) (New)
## Geotectonics and Physical Oceanography

Day and Date : Monday, 16-11-2015 Max. Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

***Instructions*** *: 1) Answer **any five** questions.*
*2) **All** question carry **equal** marks.*
*3) Question **1** is **compulsory**.*
*4) Answer **any two** question from **each** Section **A** and Section **B.***
*5) **Draw** neat and labelled diagram **wherever** necessary.*

I. Choose the correct answer for the following : **14**

1) Causes of Sea level change
   a) Tectono-eustatic b) Glacial isostasy
   c) Sedimento-eustatic d) All of the above

2) Continental shelves with _____ margins are narrow and bordered by ocean trenches, often marked by irregular sea cliffs.
   a) Active margin b) Shore line
   c) Passive margin d) None

3) The deep earthquakes generated along inclined surface of the subducting plate occur in
   a) Subduction zone b) Obduction zone
   c) Benioff zone d) Epicentre zone

4) The seismic wave velocity layers corresponding to the ophiolitic sequence :
   A) Layer-2 1) Sheeted dykes
   B) Layer-3 2) Pillow lava
   C) Layer-4 3) Layered Gabbro
   a) A-2, B-1, C-3 b) A-3, B-2, C-1
   c) A-1, B-2, C-3 d) A-2, B-3, C-1

**P.T.O.**

5) Which of the following is an example of chain on islands ?
   a) Hawaiian island b) Andaman nicobar island
   c) Barren island d) All of the above

6) Which of the following feature is associated with convergent plate margin ?
   a) Mid oceanic ridge b) Island arc
   c) Transform fault d) Sea mount

7) _____ are subcircular reefs enclosing a lagoon about 40 m depth.
   a) Fringing reefs b) Barrier reefs
   c) Atolls d) All of the above

8) Channels for sea ward transport of sediments through the continental rise.
   a) Delta b) Sea channels
   c) Submarine canyons d) None of the above

9) Which of the following is the example of Intraplate volcanism ?
   a) Island chain b) Sea mount
   c) Hot spot d) All of the above

10) The oldest deep oceanic crust dated either geophysically or by paleontologically is _____
   a) Archean age b) Jurassic age
   c) Proterozoic age d) Cenozoic age

11) _____ are highly variable, shallow marine environments separated from the open sea by barrier island composed largely of well sorted sand.
   a) Lagoons b) Barriers
   c) Estuaries d) None of the above

12) _____ sediments are oceanic sediments derived from the land.
   a) Biogenic b) Terrigenous c) Pelagic d) Hamipelagic

13) Iceland is an exposed part of _____
   a) Mid oceanic ridges b) Iceland arcs
   c) Shield areas d) Plateau

14) Moving object are deflected to the right in the Northern hemisphere and to the left in the southern hemisphere due to earth's rotation. This is referred to as _____
   a) Doppler effect b) Greenhouse effect
   c) Coriolis effect d) None

SECTION – A

II. Explain magnetism, seismicity and volcanism at the plate boundaries.

III. Explain in brief the topographic features of ocean.

IV. Give an account on Tectonic evolution of the Himalayas.

SECTION – B

V. Discuss in short the following :

a) Continental drift

b) Deltas.

VI. Describe briefly :

a) Active oceanic margin.

b) Terrigenous sediments.

VII. Write short note on :

a) Ophiolite complexes.

b) Types of estuary.

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## M.Sc. (Semester – III) (New CGPA) Examination, 2015
## APPLIED GEOLOGY (Paper – X)
## Mineral Exploration

Day and Date : Wednesday, 18-11-2015 Max. Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

***N. B.*** *: 1) Answer **any five** questions.*
*2) **All** questions carry **equal** marks.*
*3) Question No. **I** is **compulsory**.*
*4) Answer **any two** questions from Q. **II, III** and **IV** and **any two** questions from Q. **V, VI** and **VII**.*
*5) Draw **neat** and labeled diagrams **wherever** necessary.*

I. 1) Large areas of earth's crust characterised by an unusual abundance of ore of a particular metal or ore is termed as **14**

a) Productive pluton b) Petrogenic province
c) Metallogenic province d) All the above

2) Hydromorphic anomalies are those which are the one's that result due to solubility of metals in

a) Acid b) Water
c) Neutral waters d) Bases

3) Kimberlite pipes hosting diamond can best be identified by

a) Radioactivity b) Resistivity
c) Gravity d) Seismic

4) During a reconnaissance survey we determine

a) Sample density
b) Elements to be analysed
c) Draw attention to local areas of interest
d) All the above

5) Galmi flora are the geobotanical indicators of

a) BHQ b) Gypsum c) Sulphide d) None of the above

6) The line on the earth where the magnetic needle is horizontal (I = O) is called as
   a) Magnetic equator b) Magnetic pole
   c) Magnetic latitude d) None of the above

7) Quantitative interpretation of electrical resistivity data is done by
   a) Auxiliary point b) Inverse slope
   c) Curve matching d) All the above

8) What is the unit of measuring gravity anomaly called
   a) Gals b) Gamma
   c) Microns d) None of the above

9) According to the theory of elasticity the energy in a medium travel as
   a) P-waves b) S-wave
   c) L-waves d) All the above

10) Halophytic flora are those having cells to with stand high osmotic pressure are good indicator plants of
   a) Evaporates b) Sulphides
   c) Groundwater d) None of the above

11) In which of the following productive pluton do we find cassiterite deposits ?
   a) Anorthosite b) $\alpha$-Granite
   c) Ultramafics d) All the above

12) The background radiations due to geological formation should not exceed
   a) 1500 SV b) 1000 SV
   c) 750 SV d) 500 SV

13) Find the odd one out
   a) Gravimeter b) Magnetometer
   c) GM counter d) Flame photometer

14) Non transient natural phenomenon is
   a) Earth quakes b) Meteorite fall
   c) Magnetic field d) All the above

II. Give an outline of various geochemical surveys. Add a note on sample collection, preparation and analysis. **14**

III. Differentiate Schlumberger and Wenner array of electrode arrangement in electrical resistivity survey. **14**

IV. What are deposits of India exhibit geological criteria in significant level for exploration. **14**

V. Write in brief on the following : **14**

a) Elements of magnetic field.

b) Geological criteria for Au-deposits.

VI. Write the salient aspect on the following : **14**

a) Correction in gravity data.

b) Productive plutons.

VII. Write short notes on the following : **14**

a) Seismic reflection for hydrocarbons.

b) Geobotanical survey.

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**SLR-MM – 39**

| Seat No. | |
|---|---|

## M.Sc. (Semester – III) Examination, 2015
## APPLIED GEOLOGY (Paper – XI) (New) (CGPA)
## Engineering and Mining Geology

Day and Date : Friday, 20-11-2015 Max. Marks : 70
Time : 2.30 p.m. to 5.00 p.m.

***Instructions :*** *1) Answer **any five** questions.*
*2) **All** questions carry **equal** marks.*
*3) Question No. **1** is **compulsory**.*
*4) Answer **any two** questions from Q. No. **2**, **3** and **4** and **two** questions from Q. No. **5**, **6** and **7**.*
*5) Draw neat and labeled diagrams **wherever** necessary.*

I. Select the correct answer from the choices given below. **14**

1) Toughness property in rocks is tested in aggregates with the help of instrument
   a) Impact testing machine
   b) Deval's attrition testing machine
   c) Jack tester
   d) All the above

2) Type example of cantilever bridge is
   a) Thames bridge of London
   b) Dhannshakoti bridge of Rameshwaram
   c) Howarah bridge of Calcutta
   d) All the above

3) During grouting treatment _____ method is used.
   a) First calcium chloride is introduced and then sodium silicate is pumped inside
   b) First sodium silicate is pumped and then concentrated calcium chloride is introduced
   c) Any one method mentioned above
   d) None of the above

4) The most difficult direction for breaking of granite rock is
   a) Rift direction b) Grain direction
   c) Hard direction d) None of the above

5) The unfavourable site for dam site is
   a) Anticline b) Syncline
   c) Downstream dipping beds d) None of the above

6) The central portion of the dam that directly overlie on the channel is known as
   a) Crest b) Heel c) Axis of dam d) River section

7) The excess of quantity of rock broken and removed from the proposed tunnels is known as
   a) Caving b) Over break
   c) Excavation d) Caving and excavation both

8) In tabling process the distribution of ore material is according to
   a) Sp. gravity and sizes b) Colour and hardness
   c) Surface and diaphanity d) Shape and colour

9) The waste material which is present above the ore is called
   a) over burden b) over hand c) over break d) skip ways

10) A vertical or inclined excavation or a principal opening through which mine is exploited is called as
   a) level b) cross cut c) winze d) shaft

11) In _____ type of crusher a coffee grinder principle is used.
   a) Gyratory b) Blake c) Dodge d) Cone

12) Screens are generally classified as
   a) fixed and moving b) under and lower
   c) left and right d) front and back

13) Land restoration starts in _____ stage of a mine.
   a) mature b) youthful c) old d) beginning

14) In ore dressing process an ore is _____ in grade.
   a) reduced b) improved c) maintained d) highly reduced

II. What are the suitable and unsuitable geological conditions at a reservoir site ? **14**

III. Discuss in detail the geological considerations while choosing a tunnel alignment. **14**

IV. Explain different types of sampling methods in mining. Add a note on sampling calculations. **14**

V. Discuss the following questions. **14**

A) Significance and preservation of cores.

B) Types of bridges

VI. Explain in short the following. **14**

A) Grouting

B) Methods of drilling

VII. Describe in short the following. **14**

A) Heavy media separation method

B) Types of crushers.

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**SLR-MM – 40**

| Seat No. | |
|---|---|

# M.Sc. – II (Semester – III) (New-CGPA) Examination, 2015
## APPLIED GEOLOGY (Paper – XII)
## Remote Sensing and GIS

Day and Date : Monday, 23-11-2015 Total Marks : 70

Time : 2.30 p.m. to 5.00 p.m.

***Instructions*** *: 1) Answer* ***any five*** *questions.*

*2)* ***All*** *questions carry* ***equal*** *marks.*

*3) Question* ***1*** *is* ***compulsory*** *and should be answered in the question paper.*

*4) Answer* ***any two*** *essay questions from* ***2, 3, 4****.*

*5) Answer* ***any two*** *short note questions from* ***5, 6, 7****.*

*6) Draw* ***neat*** *and labeled diagrams* ***wherever*** *necessary.*

1. Fill in the blanks with appropriate choice. **14**

1) Ratio between map distance and ground distance

a) Map scale b) Projection c) Resample d) Datum

2) ETM stands for _____

a) Enrich Thematic Mapper b) Enhance Temporal Mapper

c) Enhance Thematic Mapper d) Enhance Thematic Model

3) The process of transformation of spherical Geographic grid to plane coordinate system is term as _____

a) Map design b) Map Scale c) Map projection d) Map model

4) The word RADAR is an acronym for _____

a) Radio Detection and Rays b) Reflection Detection and Range

c) Radio Device and Range d) Radio Detection and Ranging

5) The first aerial photograph taken from kite is credited to an English meteorologist _____

a) E.D.Archibald b) Warner c) D. Watson d) G.Smith

6) Which of the following is user friendly software for image processing ?

a) ERADAS IMAGINE b) ILWI

c) WEKA d) GEOMEDIA

7) The distance between two successive crest or trough is called _____

a) Amplitude b) Frequency c) Wave number d) Wavelength

8) The SPOT satellites are sun synchronous satellite orbits at height _____

a) 832 km b) 900 km c) 850 km d) 890 km

9) Non selective scattering all wavelengths are scattered equally then cloud appears _____

a) white b) black c) red d) blue

10) _____ is the worlds first commercial high resolution imaging satellite.

a) EO-1 b) IKONOS c) Orb View-2 d) Quick bird

11) The _____ satellites are located 36000 km above earth surface.

a) Spy b) Atmospheric c) Georotatary d) Geostationary

12) _____ reflections occur when the surface is rough relative to wave length.

a) Diffuse b) Specular c) Selective d) Platform

13) DIP is known as _____

a) Digital Image Process b) Dot Image Process

c) Digital Image Product d) All of the above

14) Full form of TIN is _____

a) Triangulated Irregular Net b) Triangulated Irregular Network

c) Triple Irregular Network d) None of the above

2. Define and explain Database. Explain types of DBMS. **14**

3. What is meant by Topology ? Explain in details its types. **14**

4. Explain in detail Electromagnetic Radiation. **14**

5. Write note on the following : **14**

   a) DEM

   b) Across track scanning.

6. Describe in brief : **14**

   a) Components of GIS

   b) Along track scanning.

7. Write brief account on the following : **14**

   a) Topological errors

   b) Geoprocessing.

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