SLR-RB – 39

Seat No.	

M.Sc. (Applied Geology) (Semester – I) (New) (CBCS) Examination, 2017
GEOCHEMISTRY

Day & Date: Thursday, 20-04-2017 Max. Marks: 70

Time: 10.30 AM to 01.00 PM

Instructions : *1) Answer any **five** questions.*
*2) All question carry **equal** marks.*
*3) Question No. **1 compulsory**.*
*4) Answer any **2** question from questions **2, 3, 4**.*
*5) Answer any **2** question from questions **5, 6, 7**.*

Q.1 Choose the correct answer: **14**

1) Siderites consist essentially of a :
   a) Nickel-iron alloy b) Nickel-iron alloy and silicates
   c) Silicates only d) Silicates and graphite's.

2) The upper layer in the crust is rich in:
   a) Silicon and Iron b) Silicon and Aluminium
   c) Iron and magnesium d) Silicon and magnesium

3) Who had introduced the lithophile (rock-loving), siderophile (iron-loving), chalcophile (ore-loving) and atmophile (gas-loving) terminology.
   a) Goldschmidt (1923) b) Clarke (1924)
   c) Ringwood (1975) d) Cameron (1937)

4) One percent of the oxygen of the present day attained during the Precambrian times is
   a) Lewis point b) Pasteur point
   c) Du mount point d) None

5) According to the cosmic abundance which of the following element is abundant
   a)Iron b) Carbon c) Silicon d) hydrogen

6) The most important temperature controlling mechanism in atmosphere for the greenhouse effect are caused by
   a) GHG b) Carbon-di-oxide
   c) Water vapor d) All the above

7) The upper mantle having _____.
   a) Granitic composition b) Basic composition
   c) Ultrabasic composition d) Felsic composition

8) Which of the following radioactive element has half life of 5730 years?
a) ^{235}Uranium b) Thorium c) ^{14}C d) ^{16}O

9) Hydrogen is converted to helium in the sun this nuclear reaction produces :
a) Solar radiation b) Potential energy
c) Kinetic energy d) Radiation energy

10) The Gibbs free energy id defined by the formula
a) G = E TS + PV b) G = dE TdS + K
c) G = E + TS d) None of the above

11) Which of the following is not a suitable pair.
a) K-Rb b) Al-Ga c) Ca-Sr d) Si-Pb

12) The average salinity of seawater is _____.
a) 35% b) 24% c) 12% d) 62%

13) The element may have differing neurons in the nucleus hence may have different Atomic weight having differing chemical and physical properties they are termed as--
a) Ions b) Isobars c) Isotopes d) Isochrons

14) The Eh – Ph diagrams were first proposed by
a) Krumbien & Garrel b) Sloss & Garret
c) Pettijohn d) None of the above

Q.2 What do you understand by the cosmic abundance of elements? Add a note on the origin of elements. **14**

Q.3 Write a full note on average composition of igneous rock. **14**

Q.4 Using Eh – pH diagram explain why permanganates are not stable in the geological environment. **14**

Q.5 **Write short notes on the following.** **14**
a) Composition of hydrosphere
b) Distribution of elements in the metamorphic rocks

Q.6 **Write in brief:** **14**
a) Rb-Sr dating technique
b) Natural and artificial radioactivity

Q.5 **Discuss in short of the following** **14**
a) Geochemical classification of elements
b) Z/r index

SLR-RB – 40

Seat No.	

M.Sc. (Applied Geology) (Semester – I) (New) (CBCS) Examination, 2017
SEDIMENTOLOGY AND PALAEONTOLOGY

Day & Date: Saturday, 22-04-2017 Max. Marks: 70

Time: 10.30 AM to 01.00 PM

N.B. : *1) Answer any five questions.*
2) All question carry equal marks.
3) Question No. 1 compulsory.
4) Answer any two question from each section A and section B.
5) Draw neat and labeled diagram wherever necessary.

Q.1 A) Multiple choice question : **14**

1) Barchans are deposited in.
   a) Glacial environment b) Fluvial environment
   c) Lacustrine environment d) Aeolian environment

2) Identity the correct sequence
   a) Continental shelf-continental rise-continental slop-deep sea plains
   b) Continental shelf- Continental slop- Continental rise- deep sea plains
   c) Continental shelf- oceanic trench- Continental slope- Continental rise-deep sea plain
   d) Continental rise- Continental shelf- Continental slope-deep sea plains

3) The ___ was an era dominated by the dinosaurs
   a) Precambrian b) Paleozoic
   c) Mesozoic d) Cenozoic

4) Which of these is a plank tonic microfossil?
   a) Lagena b) Nummulite
   c) Globigerina d) Rotalia

5) A layer in which the grain size changes vertically through the layer is called:
   a) Foliated b) Cross-bedded
   c) Graded bedding d) Is not observed in nature

6) Ripple marks are best observed in
   a) Shales b) Limestone c) Conglomerate d) Sandstones

7) Those bottom Dwellers living between low tide and high tide are termed.
   a) Vagile b) Littoral c) Nectonic d) Plank tonic

8) The test of dead pelagic forams sink to the sea bottom to form a layer of grey mud known as :
   a) Radiolarian ooze
   b) Diatomaceous ooze
   c) Foraminifera ooze
   d) None of the above

9) Coal is formed from _____
   a) Natural gas
   b) Oil
   c) Limestone
   d) Preserved plant material

10) Mississipi river produced fluvial dominated delta called as
   a) Bridfoot delta
   b) Cuspate delta
   c) Lobate delta
   d) Arcuate delta

11) Those fossil forms which have short time ranges of their existence And wide geographical distribution, are called
   a) Pseudo fossils
   a) Index fossil
   b) Trace fossils
   b) Living fossil

12) Dinosaurs went extinct before
   a) 95 million years ago
   b) 85 million years ago
   c) 75 million years ago
   d) 65 million years ago

13) A riker channel widens downstream because the
   a) Sediment load decreases
   b) Gradient decreases and discharge increases
   c) Lateral eroding load capacity of the river increases and sediment load decreases
   d) Competence of the river increases

14) _____ belong to lower Gondwana flora
   a) Nilsona
   b) Ptilophyllum
   c) Otozanites
   d) Glossopteris

SECTION-A

Q.2 What is meant by sedimentary environment? give an account on Continental sedimentary environment. **14**

Q.3 Give an account on the Siwalik mammals and their evolution.

Q.4 Give an account on the classification morphology and geological distribution of trilobite. **14**

SECTION- B

Q.5 **Write note on the following:** **14**
1) Classification of sandstone
2) Gondwana flora

Q.6 **Explain briefly following:** **14**
1) Significance of heavy minerals in provenance studies
2) Evolution of Mesozoic reptiles

Q.7 **Attempt the following:** **14**
1) Sedimentary structures
2) Morphology of trilobite

SLR-RB – 43

Seat No.	

M.Sc. (Applied Geology) (Semester – I) (Old) (CBCS) Examination, 2017
MINERALOGY AND OPTICS

Day & Date: Tuesday, 18-04-2017 Max. Marks: 70

Time: 10.30 AM to 01.00 PM

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

Q.1 Choose the correct alternatives: **14**

1) Adamantine luster is exhibited by the mineral
   a) Calcite b) Quartz c) diamonds d) augite

2) Which of the following mineral is polymorph of calcite?
   a) benzyl b) siderite c) aragonite d) divine

3) Which crystal system minerals are isotropic?
   a) monoclinic b) orthorhombic
   c) hexagonal d) cubic

4) Mineral ____ exhibits parallel extinction.
   a) biokle b) hornblende
   c) calcite d) augite

5) Chemical composition of corundum is _____.
   a) $MgSiO_4$ b) $CuFeS_2$ c) $AlSiO_2$ d) Al_2O_3

6) The mineral _____ is commonly found in pegmatites.
   a) augite b) olivine
   c) hypersthene d) tourmaline

7) Amazone stare is a _____.
   a) bright green microdine b) green chlorite
   c) blue beryl d) pink feldspar

8) Quartz crystallizes in _____ system.
   a) hexagonal b) monoclinic
   c) tetragonal d) isometric

9) Diamond primarily occurs in _____
   a) granite b) basalt c) syenite d) kimberlite

10) Which of the following mineral belongs to the hydrous magnesium silicate group?
a) quartz b) plagioclase
c) augite d) talc

11) Under microscope divine show _____ relief.
a) High b) low
c) intermediate d) none of these

12) Which of the following mineral exhibits parallel extinction?
a) augite b) quartz
c) microcline d) chlorite

13) _____ exhibits isotropic character when seen under microscope.
a) tremolite b) olivine
c) garnet d) hornblende

14) An angle between two optical axes is _____ angle.
a) extinction b) 2V
c) facial d) planar

Q.2 Bring out the salient differences between structure, chemistry and optical properties of orthorhombic and monoclinic pyroxenes. **14**

Q.3 Explain various methods of determination of refractive indexes of minerals. **14**

Q.4 Describe physical and chemical properties of feldspar group. **14**

Q.5 **Write short answer on :** **14**
1) Extinction angle
2) Zeolites

Q.6 **Write short notes on:** **14**
1) Mica group of minerals
2) Structure and chemistry of amphiboles

Q.7 **Write short notes on:** **14**
1) Twin laws
2) Olivine group of minerals

SLR-RB – 44

Seat No.	

M.Sc. (Applied Geology) (Semester – I) (Old)
(CBCS) Examination, 2017
LGNEOUS AND METAMORPHIC PETROLOGY

Day & Date: Thursday, 20-04-2017 Max. Marks: 70

Time: 10.30 AM to 01.00 PM

N.B. : *1) Attempt any **five** question.*
*2) Question No.*I *is **compulsory**.*
*3) Answer **two** questions from Q. No. **2, 3** and **4** and **two** Question from Q.No.**5, 6 and 7**.*
*4) All question carry **equal** marks..*

Q.1 Fill in the blank with appropriate word: **14**

1) Which of the following minerals might be found in a granite dike?
a) Amphibole b) Muscovite c) Biotite d) All the above

2) During crystallization of a melt plagioclase become richer in ____.
a) Potassium b) Sodium c) Calcium d) Krypton

3) Which of the following is concordant intrusive rock?
a) Dyke b) Sill c) Stock d) Batholith

4) What type of igneous rock would contain 10 mm long plagioclase crystals surrounded by 0.5 mm long crystals?
a) Porphyry b) Obsidian c) Phaneritic d) Aphanitic

5) Crystals of igneous rocks that can be seen with naked eyes are known as _____.
a) Phaneritic b) Aphanitic c) Porphyry d) Pyroclastic

6) The rate of cooling of a magma or lava is reflected by the ____ of the rock.

a) Mineralogy b) Texture
c) Colour d) Density

7) According to Bowen's reaction series, which of the following pairs of phases are likely to be incompatible?
a) Quartz and alkali feldspar
b) Ca- Plagioclase and Olivine
c) Quartz and olivine
d) Na-plagioclase and amphibole

8) Which type of pressure will result in the alignment of metamorphic minerals?
   a) Contact pressure b) Directed pressure
   c) Confining pressure d) None of the above

9) What type of metamorphism is caused by high temperature and high pressure imposed over a large volume of crust.
   a) Burial b) Contact c) Regional d) Cataclastic

10) Metasomatism is _____.
   a) The change in the bulk composition of a rock during metamorphism.
   b) Metamorphism caused by tectonic movements along faults.
   c) Metamorphism caused by tectonic movements along faults.
   d) The parallel alignment of minerals in a metamorphic rock.

11) Which of the following index minerals forms at the highest metamorphic grade?
   a) Sillimanite b) Garnet c) Quartz d) All the above

12) During metamorphonism, changes in the bulk composition of a rock occur primarily as a result of _____?
   a) Increase in pressure b) Increases in temperature
   c) Reaction with hydrothermal fluids d) All of these

13) What is the most prominent textural feature of regional metamorphic rocks?
   a) Foliation b) Bedding c) Cataclasis d) Ripples

14) Which of the following processes will cause metamorphism?
   a) A change in the chemical environment
   b) An increase in temperature
   c) An increase in pressure
   d) All of these

Q.2 Discuss in detail Petrogenetic. Chemical, Mineralogical and field aspects Deccan flood Basalt. **14**

Q.3 What is Metamorphic facies, Explain in detail Granulite facies. **14**

Q.4 Explain in detail Orthoclase- Albite phase system. **14**

Q.5 **Explain in short:** **14**
a) Paired metamorphic belts
b) Decarbonation reaction

Q.6 **Discuss in brief:** **14**
a) Isograde and borrowian metamorphic zones
b) Zeolite facies

Q.7 **Describe the following:** **14**
a) Kimberlite
b) Cooling behavior of magma

Seat No.	

M.Sc. (Applied Geology)(Semester – I)(Old) (CBCS) Examination, 2017
SEDIMENTOLOGY AND PALAEONTOLOGY

Day & Date: Saturday, 22-04-2017 Max. Marks: 70

Time:10:30 AM to 01.00 PM

N.B. : *1) **Answer** any **Five** Questions*
*2) All Questions **carry** equal **marks***
*3) Question **No. 1** is **Compulsory***
*4) **Answer** any two question from each **section A** and **Section B**.*
*5) Draw neat and labeled **diagram** wherever **necessary.***

Q.1 Multiple choice question: **14**

1) Rain prints can occur in:
   a) Ligneous rocks only b) Sedimentary rocks only
   c) Metamorphic rocks only d) All the above

2) Out of these which subclass of Cephalopods yield species:
   a) Nautiloidea b) Ammonoidea
   c) Coleoidea d) Both (a) and (b) are correct

3) Variation of palaeocurrent direction is minimum in the deposits formed by:
   a) Glacial processes b) Fluvial processes
   c) Aeolian processes d) Beach processes

4) Which type of coiling is rate in Gastropods?
   a) Dextral b) Sinistral
   c) Both the type of coiling d) Armestral

5) For dipping sedimentary rocks, the stratigraphic thickness id obtained by:
   a) Width x tangent of dip
   b) Width x dip
   c) Measuring distance between lower bedding plane and the upper bedding plane normal to the bedding plane
   d) None of these.

6) Which of these are not a Mesozoic Lamellibranch?
   a) Trigonia b) Gryphaea c) Exogyra d) Cardita

7) Roundness of particle is determined by using the formula:
   a) =V/N b) =rR/N c) =R/N d) =r/R.N

8) Out of the following plant fossils, which one is ranging in age from Jurassic to Cretaceous?
   a) Ptillophyllum b) Nilssonia
   c) Otozamites d) All of the above

9) Grain size distribution of particles can be graphically represented by:
   a) Histogram b) Cumulative curve
   c) Scatter diagram d) All the above

10) "Fusilinids" are the characteristic fossil of:
   a) Devonian
   b) Carboniferous
   c) Upper Devonian to Lower Carbonifereous
   d) Upper Carbonifereous to Lower Permian

11) Heavy minerals are those minerals whose density is above:
   a) 2.2 b) 2.6 c) 2.9 d) 3.5

12) The well-known Coral Island in the Arabian Sea is:
   a) Great barrier reef b) Lakshadweep
   c) Andaman Nicobar d) Both (a) and (b) are correct

13) The liquid, used to separate heavy minerals from light minerals is:
   a) Chloroform b) Bromoform
   c) Kerocene d) Ethelene

14) In Intertappean beds Physa is reported from:
   a) Panjal trap b) Deccan trap
   c) Rajmahal trap d) Both (b) and (c) are correct

Section A

Q.2 Write on the significance of the microfossils in oil exploration.

Q.3 Give a detailed account on grain size analysis. Add note on usefulness of grain size data in the study of Reservoir Rocks.

Q.4 What are the Primary sedimentary structures? Enumerate your answer with special reference to Ripples and Cross-Bedding.

Section B

Q.5 Write in brief on the following:
   a) Physical weathering
   b) Devonian fish

Q.6 Discuss in short:
   a) Diagenetic Processes (Cementation)
   b) Important characters and stratigraphic range of Regular Echinoids

Q.7 Explain the following:
   a) Classification of sandstone
   b) Petrified wood

SLR-RB – 47

Seat No.	

M.Sc. (Applied Geology) (Semester – II) (New) (CBCS) Examination, 2017
IGNEOUS AND METAMORPHIC PETROLOGY

Day & Date: Wednesday, 19-04-2017 Max. Marks: 70

Time: 10.30 AM to 01.00 PM

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

Q.1 Tick mark the correct answers: **14**

1) With increasing grade of metamorphism, kyanite develop.
   a) After staurolite and before sillimanite
   b) Before staurolite and after sillimanite
   c) Before chlorite and biotite
   d) After staurolite and sillimanite

2) Sillimanite usually occurs in _____.
   a) Thermally metamorphosed calcareous rocks
   b) Thermally metamorphosed argillaceous rocks
   c) Pegmatite
   d) Serpentine

3) Alkaline rocks are most abundant in _____.
   a) Continental rift zone b) Mid oceanic ridge
   c) Island arc d) None

4) Liquid immiscibility is explained as the process of formation of _____.
   a) Carbonatite b) Lamprophyre
   c) Phonolite d) Kimberlite

5) The process of production of different magma and from a single parent magma.
   a) Partial melting b) Magma variation
   c) Magma differentiation d) Magma mixing

6) The mineral assemblage of Khondalite is _____.
   a) Plagioclase- garnet-hypersthene-quartz schist
   b) Plagioclase-hypersthene- diopside-garnet schist
   c) Quartz- perthite- hypersthenes- garnet schist
   d) Garnet-sillimanite- graphite schist

7) Which of the following lists is arranged in order from lowest to highest grade of metamorphic rock?
   a) Gneiss, slate, schist, phyllite
   b) Slate, gneiss, phyllite, schist
   c) Gneiss, schist, phyllite, slate
   d) Slate, phyllite, schist, geniss

8) Ophitic texture is commonly exhibited by_____.
   a) Andesite b) Trachyte c) Dolerite d) lamprophyre

9) What type of metamorphism is responsible for the formation of hornfelsic rock?
   a) Regional b) Contact c) Burial d) Cataclastic

10) Greenschist are metamorphic rock of ____ igneous composition.
   a) Mafic b) Acidic c) Calcareous d) intermediate

11) Find the odd man out.
   a) Sandstone - Quartzite
   b) Basalt - Amphibolite
   c) Granite - garnet-gneiss
   d) Peridotite - Sillmanite schist

12) Miyashiro recognized sub-parallel belts of high P-T adjacent to low P-T metamorphic rocks parallel to the trench as.
   a) Paired metamorphic belts b) Contact metamorphic
   c) Regional metamorphic d) None of the above

13) The plagioclase feldspar that is characteristic of anorthosite is _____.
   a) Albite b) Oligoclase c) Labradorite d) Bytownite

14) Syenite in which plagioclase becomes approximately equal in amount to the alkali feldspar are called_____.
   a) Monzonite b) Shoshonite c) Diorite d) All of the above

Q.2 Explain in brief Eskola's classification of metamorphic facies. IIlustrate a diagram showing P&T condition of metamorphic facies. **14**

Q.3 Explain in detail the petrogenesis, chemistry and distribution of Kimberlites in India. **14**

Q.4 Discuss in detail with ACK diagram the granulite facies. Add a note on mineralogical assemblage of charnockite and khondalites of South India. **14**

Q.5 **Explain in short:** **14**
a) Paired metamorphism belts
b) Diopside- Anorthite system

Q.6 **Discuss in brief:** **14**
a) Calc- alkaline rocks
b) Fractional crystallization of magma

Q.7 **Describe the following:** **14**
a) Incongruent melting phase system
b) Grades of metamorphism.

SLR-RB – 48

Seat No.	

M.Sc. (Applied Geology) (Semester – II)(New) (CBCS) Exam.2017
Indian Stratigraphy (HCT 2.2)

Day & Date: Friday, 21-04-2017 Max. Marks: 70

Time: 10.30 AM to 01.00 PM

N.B. :*1) Answer any Five Questions*
2) All Question carry equal marks
3) Question No. 1 is Compulsory
4) Attempt any two from Q.No.2,3 and 4
5) Attempt any two from Q. No. 5,6 and 7

Q.1 Fill in the blank with appropriate word. **14**

1) The lowermost formation of Siwalik Group is _____
   a) Kamlial Formation
   b) Dhokpathan Formation
   c) Pinjor Formation
   d) Nagri Formation

2) On which basement the sediments of Dharwar Supergroup were laid over ___
   a) Marble & Conglomerate
   b) Phyllite& Slates
   c) Quartzite & Limestone
   d) Sargur Schist & Peninsular Gneisses

3) Rich Manganese deposit observed in ___ of Saucer group of Central India.
   a) Sitasaong Formation
   b) Lohangi Formation
   c) Mansar Formation
   d) Chorbaoli Formation

4) The term ‘Arvalli System’ was introduced by _____
   a) Heron
   b) King
   c) Wadia
   d) Medlikott

5) The Triassic and Jurassic rocks of the Tethyan Himalaya are predominantly composed of ___ facies.
   a) Greenschist facies
   b) Carbonate facies
   c) Granulite facies
   d) Zeolite facies

6) Alwar Group of rocks are underlain by which of the following group of rocks
   a) Mangalwar Complex
   b) Ajabgarh Group
   c) Raiolo Group
   d) All the above

7) In the Spiti-Kinnaur sub-basin of Himalaya, the Lipak formation is conformably overlain by a thick successin of shales and quartzites that has been named as
   a) Muth quartzite
   b) Po Formation
   c) Fenestella shales
   d) All the above

8) The age of Muth quartzite is___
   a) Middle to Late Permian
   b) Permian
   c) Early Carboniferous
   d) Late Silurian to Early Devonian

9) In Son-Mahanadi area, the Barakar Formation of Lower Gondwana is overlain by ____-
   a) Talchir Formation
   b) Karharbari Formation
   c) Barren Measures
   d) Kamthi Formation

10) Mass extinction of Dinosaurs was occurred in ____ time.
   a) Palaeozoic
   b) Proterozoic
   c) Archaean
   d) Mesozoic

11) The Triassic succession of Kishtwar and Chamba regions consists of a carbonate sequence known as
   a) Kalhel Limestone
   b) Daonella Shales
   c) Namikla Flysch
   d) Jomsom Limestone

12) The lowermost Mesozoic formation in the Kutch region is _____ Formation.
   a) Umia
   b) Katrol
   c) Patcham
   d) Chari

13) It is postulated that the Deccan Traps eruption of Maharashtra was associated with a _____
   a) Deep mantle plume
   b) At triple junction
   c) At subduction zone
   d) All the above

14) Rise of Himalaya took place in _____ period.
   a) Triassic
   b) Late cretaceous
   c) Tertiary
   d) Recent

Q.2 Give an account on classification, tectonic and the depositional environment of Vindyanbasain

Q.3 Give an account on Marine Mesozoic formations of Extra peninsula of India.

Q.4 Discuss in details Structure, Stratigraphy & Tectonic evolution of Cuddapah Basin.

Q.5 **Write short note on;**
a) Siwalik group
b) Delhi Super group

Q.6 **Write short note on;**
a) Archaean- Proterozoic boundary problem in India
b) Cretacepus of Tiruchirapalli

Q.7 **Discuss in brief:**
a) Sausar group
b) Charnockite-Khondalites of South India

SLR-RB – 49

Seat No.	

M.Sc. (Applied Geology) (Semester – II) (New) (CBCS) Examination, 2017
HYDROGEOLOGY

Day & Date: Monday, 24-04-2017 Max. Marks: 70

Time: 10.30 AM to 01.00 PM

N.B. *:1) Answer any **Five** Questions.*
*2) ALL question carry **equal** marks.*
*3) Question No. **1** is **compulsory**.*
*4) Attempt **any two** from Q.No.**2**, **3** and **4**.*
*5) Attempt **any two** from Q. No. **5**, **6** and **7**.*
6) Draw neat and labeled diagrams wherever necessary.

Q.1 Choose the correct alternatives: **14**

1) The permissible limit of Na (%) in groundwater for irrigation purpose is _____.
a) 20-40 b) 40-60 c) 60-80 d) 80-90

2) An unconfined aquifer which occurs within the zone of aeration is known as _____.
a) Artesian Aquifer b) Perched Aquifer c) Aquifuse d) Both a & b

3) When the piezometric surface lie above the groundwater surface, which of the following type of well result?
a) Ordinary Well b) Well which have no water
c) Drawdown well d) Flowing Well

4) In irregular terrain, underground water basin is artificially charged by ____ method.
a) Basin b) Ditch or Furrow c) Flooding d) Natural channel

5) Water saturated unconsolidated sediments shows ___ in Seismic velocity.
a) Increase b) Decrease
c) No effect d) Sometimes increases & sometime decreases

6) Water with hardness of ($CaCO_3$ ppm) ____ is used for domestic purpose
a) >200 ppm b) >150 ppm c) <150 ppm d) <100 ppm

7) Specific Yield of a material will be maximum for ____ material.
a) Coarse grained b) Fine grained
c) No relation with d) For coarse & fully saturated

8) For dating of underground water, the most useful radioisotope is ___.
   a) C^{14} b) Tritium c) Thorium(th) d) ^{235}U

9) Hydraulic Conductivity can be determined by ____.
   a) Tracer test b) Auger hole test
   c) Pumping test of Wells d) All of the above

10) A map which shows the surface contours of an imaginary surface to which water would rise in drilled well is termed as____.
   a) GW map b) Water contour map
   c) Piezometric map d) Water table map

11) The field capacity of any soil in any depends upon ____.
   a) Storage Coefficient b) Porosity of soil
   c) Hygroscopic co-efficient d) None of above

12) Total evaporation & transpiration from the catchment area is known as ____.
   a) Evaporation b) Transpiration
   c) Evapo-transpiration d) dehydration

13) Which will be the correct sequence in order of increasing specific yield.
   a) Sand-gravel-clay b) Silt-gravel-clay
   c) Clay-sand-gravel d) None of the above

14) In soft formation the method most suitable for groundwater prospecting is ___method.
   a) Self-potential b) Resistivity c) Inductive d) Telluric current

Q.2 Explain in detail hydrological cycle. **14**

Q.3 Describe the various structures and methods of artificial groundwater recharge **14**

Q.4 Describe the method of groundwater quality assessment and impact of over exploitation on Groundwater quality. **14**

Q.5 **Write short notes on:** **14**
a) Different methods of determination of hydraulic conductivity.
b) Types of aquifer

Q.6 **Explain in short:** **14**
a) Seismic refraction method
b) Porpsity& Permeability

Q.7 **Write note on:** **14**
a) Ghyben-Herzberg equation for seawater intrusion
b) Computer application in hydrogeological studies

SLR-RB – 55

Seat No.	

MS.C-II (Semester – III) (New) (CBCS) Examination, 2017
APPLIED GEOLOGY (Paper –XIV)
GEOTECTONIC AND PHYSICAL OCEANOGRAPHY

Day & Date: Tuesday, 18-04-2017 Max. Marks: 70

Time: 2:30 PM to 05.00 PM

N.B. : *1) Answer any **five** questions.*
*2) All questions carry **equal** marks.*
*3) Question one is **compulsory**.*
*4) Answer any two **essay** questions from **Q.2, 3** and **4**.*
*5) Answer any two short notes questions from **Q.5, Q.6 and Q.7***
*6) Draw neat labelled **diagram** wherever necessary.*

Q.1 Choose the correct answer: **14**

1) Sedimentary rocks laid down in a slowly subsiding basin along a reading continental margin are called _____.
   a) Continental shelt deposites b) Ophiolite suites
   c) Melange deposits d) Fluvial deposits

2) The theory of sea floor spreading was formulated by
   a) Hess & Dietz b) Wegner
   c) Taylor d) All the above

3) Which of the following mountains did not form as a result of collision between two continents?
   a) Appalachians b) Urals
   c) Andes d) Himalayas

4) The continental margin characterized by a narrow shall with French below the slope is known as
   a) Mariana French b) Chilean type
   c) Atlantic type d) None of the above

5) Near the mid ocean ridge system the Lithos pherie plates attaint.
   a) Maximum thickness b) Uniform thickness
   c) Minimum thickness d) None of the above

6) _____ depth above which carbonate rich rediments accumulate and below which carbonate free rediments accumulate.
   a) OMZ b) CCD c) CCRD d) Lysocline

7) Minerals recrystallize to form new minerals as pressure and temperature change at _____.
   a) Low velocity zone b) Phase transition
   c) Discontinuity d) None of the above

8) The part of the beach that is covered by water only during storms and is above normal high tide.
   a) Inshore zone b) Foreshore zone
   c) Backshore zone d) Off share zone

9) Tensional stress, basaltic lavas and shallow earthquakes are associated with _____.
   a) Subduction zone b) Continent continent convergence
   c) Spreading centers d) Transform poundaries

10) The oldest deep oceanic crust dated about _____ age.
   a) 250 m. y b) 170 m. y c) 500 m. y d) 76 m. y

11) Crusted blocks that occur within organic belts whose rocks and structures contrast sharply with adjacent proviness are called _____.
   a) Ophiolites b) Sutures c) Microplates d) Island ares

12) Lines on the sea floor that connect rocks of the same age are called _____.
   a) Isograds b) Isotopes c) Isochrons d) Isostary

13) _____ reefs lie further offshore, with a lagoon of varying depths separating them from the land.
   a) Barrier red b) Fringing reef
   c) Patch reef d) Atoll

14) Partial melting and the production of magma takes place at _____.
   a) Diverging plate boundaries
   b) Ocean- ocean convergent plate boundaries
   c) Ocean- continent d) All the above

Q.2 What is ophiolite? Explain the oceanic crust with its structure, petrology and sources of formation.

Q.3 Describe the geological features related to plate boundaries.

Q.4 Discuss in detail the various types of continental margins.

Q.5 Discuss briefly the following:
a) Sea level changes
b) Ekman theory

Q.6 Write short note on the following:
a) Drifting of Indian sub continent
b) Magmatism at plate boundaries

Q.7 Describe the following:
a) Upwelling and down welling currents
b) Ring of fire

SLR-RB – 60

Seat No.	

M.Sc – Applied Geology (Semester – III) (Old) (CGPA) Examination, 2017
MINERAL EXPLORATION

Day & Date: Thursday, 20-04-2017 Max. Marks: 70

Time: 02.30 PM to 05.00 PM

Instruction: *1) Answer any **five** questions.*
*2) All question **carry** equal **marks**.*
*3) Question **No. 1** compulsory.*
*4) Answer **any 2** question from **questions 2, 3, 4.***
*5) Answer **any 2** question from **questions 5, 6, 7.***

Q.1 A) Fill in the blanks **14**

1) The conductivity of rock formations can be measured by means of _____.
   a) Electrical logging b) Sonic logging
   c) Induction logging d) Radiation logging.

2) The self potential (SP) and induced Potential (IP) to locate ore bodies is done by _____.
   a) Seismic Method b) Magnetic Method
   c) Radiometric Method d) Electromagnetic Method

3) The Average gravitational force of Earth is _____.
   a) 98cm/S^2 b) 980 cm/S^2 c) 9800 cm/S^2 d) 980 cm/ S

4) The Value of Universal Gravity constant in S.I. Unit is _____.
   a) 6.67×10^{-8} b) 6.67×10^{-9} c) 6.67×10^{-8} d) 6.67×10^{-12}

5) The difference between the observed and predicted gravity values after applying all the corrections is described as _____.
   a) Free- air anomaly b) Free- air correction
   c) Bouger anamoly d) Bouger correction

6) The Gravity prospecting methods are useful in the exploration of oil and gas to determine _____.
   a) The thickness of sedimentary column b) The nature of trap rock
   b) The potential of oilfield c) None of the above.
7) The total magnetic field is weakest at _____.
   a) 0^0 Latitude b) 30^0N-30^0 S Latitude
   c) 90^0 Latitude d) 60^0 N-60^0S Latitude
8) The unit used to express the magnetic field strength in M.K.S. Unit system is called _____.

a) Oersted b) Tesla c) Weber d) Maxwell

9) Trenching involves _____.
   a) Linear excavations
   b) Linear excavations in which one dimension is longer than the other
   c) Drilling wedge shaped bore holes
   d) Digging even sized pits.

10) Diamond drilling can be used to bore holes into _____.
   a) Horizontal direction only b) Vertical directions only
   c) Horizontal and vertical directions d) In all the directions.

11) The most useful type of drilling for penetrating hard or abrasive ground is _____.
   a) Diamond drilling b) Rotary Drilling
   c) Percussion Drilling d) Churn Drilling

12) Sampling is defined as _____ fraction of the bulk.
   a) Recoverable b) Representative c) Resource d) Reserve

13) Which of the following is a pathfinder for Au deposits?
   a) As b) Se c) V d) Mo

14) Geochemical sol anomalies are mostly due to _____.
   a) Hydrothermal accumulations b) Heavy mineral accumulation
   c) Residual accumulation d) Selective concentration

Q.2 Define geochemical dispersion of the elements. Explain the strategy for exploration of kimberlite pipes. **14**

Q.3 Write various geological criteria of prospecting ore deposits, cite suitable Indian example. **14**

Q.4 State the principles of gravity method for prospecting the ore deposits. Add a note on various corrections related to gravity date. **14**

Q.5 **Write short notes on:** **14**
a) Mineral Provinces
b) Magnetometers

Q.6 **Discuss in brief:**
a) Reduction of Magnetic Anomaly
b) Mineral Provinces

Q.7 **Write shorts note on:**
a) Choice of sequence of prospecting.
b) Well Logging

SLR-RB – 67

Seat No.	

Applied Geology(Semester – IV) (New) (CBCS) Examination, 2017
ENVIRONMENTAL GEOLOGY & DISASTER MANAGEMNET

Day & Date: Wednesday, 19-04-2017 Max. Marks:

Time: 02.30 PM to 05.00 PM

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

Q.1 A) Choose the correct alternative given in the bracket. **14**

1) An estimate of the amount of energy released by a given earthquake is _____
   a) Seismogram b) Richter magnitude
   c) Hypocentral distance d) Richter intensity

2) Green house gases which is present in high quantity is
   a) Propane b) Methane
   c) Carbondioxide d) Ethane

3) Wildlife Week is celebrated on
   a) 1st October to 7th October
   b) 1st June 1 to 21st June
   c) 15th October to 2 1st October
   d) 15th June to 21st June

4) The land fill method for treatment of waste is adopted for _____
   a) Sewage Waste b) Municipal solid waste
   c) Hazardous waste d) Chemical industry waste

5) Water saturated material is shaken so violently that the sediment loses strength and begin to flow is termed as.
   a) Liquefaction b) Solifluction
   c) Creep d) Attenuation

6) The strength of rocks depend upon _____
   a) Composition b) Water content
   c) Temperature d) All of the above

7) The typical of Reservoir Induced Seismicity (RIS) of India is
   a) Koyna dam b) Srisailam dam
   c) Jayakwadi dam d) Almatti dam

8) If soli infiltration capacity is high before a rainstorm, other things being equal, flood hazard is _____

a) Reduced, because the soil can sack up some of the precipitation.
b) Reduced, because more precipitation will runoff.
c) Increased, because more precipitation will runoff.
d) Unaffected, because the flood risk is unrelated to soil infiltration capacity

9) The natural disastrous events like eruption of volacanoes, earthquakes, cyclones, fires etc. bring about environmental distribances, which are _____
a) Irreversible b) Reversible
c) Both a and b d) None

10) Factors that determine how much damage a flood will cause are:
a) Intensity and duration of precipitation
b) Sediment transport and deposited
c) Landuse on floodplain
d) All of the above

11) The controls of slope stability are.
a) Te nature of surface material
b) The abundance of water
c) The slople angle
d) All of the above

12) Loess originates from weathering by _____.
a) Rivers b) Glacier c) Wind d) Animals

13) _____refers to imperceptible downslope movement of surface material over a long period of time.
a) Solifluction b) Subsidence
c) Creep d) Sturzstroms

14) Earth day is celebrated on _____.
a) 5th June b) 22nd June c) 22nd April d) None

Q.2 What is pollution? Describe the various type of pollution with suitable Indian examples. **14**

Q.3 Define Drought. Explain the causes and suggest the mitigation measures for drought prone area. **14**

Q.4 Explain the various types of waste. Add a note on solid waste disposal. **14**

Q.5 **Write briefly on the following:** **14**
1) Soil salinity and alkalinity
2) Seismic zones of India

Q.6 **Describe the following:** **14**
1) Landslide
2) Structure of Atmosphere

Q.7 **Explain in short :** **14**
1) Role of Remote sensing and GIS in disaster management
2) Tsunami India

SLR- RB – 68

Seat No.	

M.Sc.(Applied Geology) (Semester – IV) (New)(CBCS) Examination, 2017
Remote Sensing and GIS

Day & Date: Friday, 21-04-2017 Max. Marks: 70

Time: 02.30 PM to 05.00 PM

N.B. : *1) Answer any Five Questions*
2) ALL Question carry equal marks
3) Question No. 1 is Compulsory
4) Attempt any two from Q.No.2,3 and 4
5) Attempt any two from Q. No. 5,6 and 7
6) draw neat and labeled diagrams wherever necessary

Q.1 A) Fill in the blanks: **14**

1) The number of attributes for Raster data
a) 2 b) 1 c) 4 d) 7

2) A Buffer zone around a point object is
a) Square b) Circle c) Rectangle d) hexagonal

3) GIS day is held in conjunction with Geographers awareness week which falls on ____
a) Third Wednesday of November
b) First Sunday of February
c) First Thursday of December
d) 10^{th} of July

4) GIS software
a) ArcGIS b) Mapinfo c) ERDAS d) All of the above

5) The number of LISS-III sensors is _____
a) 4 b) 2 c) 3 d) 1

6) The Geospatial data best suited of quantitative analysis using mathematical techniques is ____
a) Raster data b) Vector data c) Both d) None

7) Water appears in _____ color on FCC infrared images
a) Black b) Blue c) Red d) Green

8) Digital Terrain Models (DTM) can be created from
a) Toposheet b) Using an algorithm c) From coordinates d) None

9) The scale of measurements used to represent area is _____

a) Nominal b) Interval c) Ordinal d) Ratio

10) The number of GPS satellites
a) 15 b) 20 c) 24 d) 30

11) A Raster model consists of
a) Points, lines and Polygons
b) Cartesian coordinates
c) Matrix of cells organized as rows and columns
d) None of the above

12) Among the following parameters that can be modeled using DTM is
a) Geology b) Land use c) Runoff d) Conductivity

13) The GPS has _____ orbits
a) 9 b) 8 c) 7 d) 6

14) GPS satellites transmit ____ to obtain coordinates of a point on the earth
a) Ephemeris b) Cartesian coordinates
c) Latitude, Longitude and elevation d) Time only

Q.2 Discuss the use of remote sensing in geomorphology **14**

Q.3 Discuss with a case history mineral exploration using remote sensing **14**

Q.4 Explain the importance of map projections in GIS **14**

Q.5 Write notes on: **14**
a) Spatial reference
b) Spatial entities

Q.6 Write notes on: **14**
a) Scale
b) Resolution

Q.7 Write notess on **14**
a) Photogrammetry
b) Electromagnetic Spectrum

SLR-RB-69

Seat No.	

M.Sc. Applied Geology (Semester- IV)(New)(CBCS) Examination, 2017
Climatology and Planetary Geology

Day & Date: Monday, 24-04-2017 Max. Marks: 70

Time: 02.30 PM to 05.00 PM

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

Q.1 A) Multiple choice questions **14**

1) What is the correct sequence of the atmospheric layers from bottom to top.
   a) Troposphere, stratosphere, mesosphere, exosphere
   b) Stratosphere, mesosphere, ionosphere, exosphere
   c) Inonosphere, exosphere, mesosphere, thermosphere
   d) All the above

2) Which instrument is suitable to measure the relative humidity in air
   a) Hydrometer b) Hygrometer
   c) Hygrograph d) Barometer

3) The deflection of winds to the right in the northern hemisphere is
   a) Revolution of the earth b) Rotation of the earth
   c) Uneven heating of the earth d) All the above

4) Where does most of the weather phenomenon takes place
   a) Lonosphere b) Troposphere
   c) Stratosphere d) Thermosphere

5) Tropical monsoon and equatorial climate are kinds of
   a) Polar climate b) Temperate climate
   c) Tropical climate d) Frontal climate

6) Temperature can be measured as
   a) Degree Celsius b) Degree Fahrenheit
   c) Percentage d) Both a and b

7) Process in which water vapors are releases in air by leaves

of plants is called.

a) Respiration
b) Precipitation
c) Evaporation
d) Transpiration

8) High pressure sub-tropical calm belts known as 'Horse Latitudes' lie between

a) $0^o \; and \; 10^o$
b) $15^o and \; 25^o$
c) $20^o \; and \; 25^o$
d) $30^o \; and \; 35^o$

9) The main cause of global climatic change is……

a) Increase in the content of carbon dioxide in the atmosphere.
b) Emissions of industrial gases.
c) Adding of dust.
d) Changes in plant cover.

10) Which region of the Earth's surface is called doldrums?

a) Equatorial low pressure belt
b) Sub-tropical high pressure belt
c) Between $10^o \; to \; 231/2^o$ North and South Latitudes
d) Sub-polar low pressure belt

11) Which one of the following is the example of planetary winds?

a) Monsoon
b) Trade wind
c) Land and sea breezes
d) Chinook

12) As compared to cold air, warm air is

a) Unsaturated
b) Lighter
c) Heavier
d) Saturated

13) Instrument which measures pressure of air in atmosphere is classified as

a) Barometer
b) Hematology analyze
c) Spectrophotometer
d) Gas chromatograph

14) In atmosphere of Earth, percentage of nitrogen is

a) 75% b) 88% c) 78% d) C

Q.2 Define earth's atmosphere? Describe the evolution, composition and structure of atmosphere. **14**

Q.3 What are winds? Discuss the latitude wise distribution of winds over the globe **14**

Q.4 What ismeteorites? Discuss in details **14**

Q.5 **Explain the following :** **14**

a) Planetary Volcanism
b) Forms of condensation

Q6 **Write short note on :** **14**

a) Asteroid belt
b) Frontogenesis

SLR-RB –70

Seat No.	

M.Sc. (Applied Geology)(Semester – IV) (New) (CBCS) Examination, 2017
RESEARCH METHODOLOGY

Day & Date: Saturday, 29-04-2017 Max. Marks: 70

Time: 02.30 PM to 05.00 PM

N.B. : *1) Q. no. **1** is **compulsory**.*
*2) Attempt **any two** questions from Q. no. **2, 3** and **4** and **two** questions from Q. no. **5, 6** and **7**.*
*3) Attempt **five** questions.*
4) Draw neat and labelled diagrams wherever necessary.
*5) All question carry **equal** marks.*

Q.1 Choose the correct answer: **14**

1) Research related to abstract ideas or concepts is
   a) Empirical research b) Conceptual research
   c) Quantitative research d) Qualitative research

2) Which of the following searches websites by keyword(s)?
   a) Web bugs b) Search engine
   c) Spyware d) Portals

3) _____ is the first step of Research process.
   a) Formulation of a problem b) Collection of Data
   c) Editing and Coding d) Selection of a problem

4) Which of the following is an example of system software?
   a) Fire fox b) Notepad
   c) Windows98 d) Avira

5) Research Report is a format statement of ____.
   a) Research Process b) Research problem
   c) Data collection d) Data Editing

6) RAM is ____.
   a) Non-volatile b) Secondary storage
   c) Permanent storage d) Volatile

7) The original source from which researcher collects information is
   a) Primary Source b) Secondary Source
   c) Both primary and Secondary d) None of these

8) Which of the following is not an internet search engine?
   a) Google b) Yahoo c) MSN d) windows

9) A two way systematic conversation between an investigator and respondent is called____
   a) observation b) schedule
   c) interview d) simulation

10) Which of the following is not an example of secondary storage device?
   a) Hard disks b) RAM c) Magnetic tapes d) CD

11) In which sample population is divided into different strata and sample is taken from different strata?
   a) Quota Sampling b) Snow ball sampling
   c) Stratified sampling d) Purposive Sampling

12) Which of the following is an Antivirus Software?
   a) Photoshop b) Norton c) Yahoo d) Flash

13) Questionnaire is filled by _____.
   a) Respondent b) Everybody
   c) Enumerator d) None of the above

14) Research conducted to find solution for an immediate problem is ___
   a) Fundamental research b) Analytical research
   c) Survey d) Action research

Q.2 Discuss in detail the preparation of research report. **14**

Q.3 Define research. Explain the types of research. **14**

Q.4 Explain ISBN. Add a note on function and structure of ISBN. **14**

Q.5 **Write short note on the following:** **14**
a) Sampling methods
b) Application of internet browsing in research

Q.6 **Discuss in briefly the following:** **14**
a) Difference between research methods and research methodology.
b) Types of data collection.

Q.7 **Explain the following:** **14**
a) Citation index.
b) Design the research project.