SLR-MB-33

Seat No.		Set	P

M.Sc. (Semester - I) (CBCS) Examination Oct/Nov-2017
Applied Geology
MINERALOGY AND OPTICS

Day & Date: Thursday, 16-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

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

Q.1 Fill in the blanks with correct answer:- 14

1) Minerals which show isotropic nature are crystallized in _____ system.
   a) Tetragonal b) Cubic
   c) Hexagonal d) Triclinic

2) Phlogopite is a variety of _____ groups of minerals
   a) Mica b) Feldspar
   c) Clay d) garnet

3) Find odd one out
   a) Color b) Luster
   c) Hardness d) Enhedral

4) Mineral matter is said to be _____ when it exists as part of a crystal or aggregation of crystals.
   a) Amorphous b) Cryptocrystalline
   c) Crystalline d) None

5) Which of the following is not a rock forming mineral?
   a) Olivine b) Garnet
   c) Quartz d) Mica

6) Mica group of minerals are classed as _____.
   a) Framework Silicates b) Sheet silicate
   c) Double chain d) Single chain

7) Which of the following is not a Zeolite?
   a) Cavensite b) Scapolite
   c) Stilbite d) Heulandites

8) Becke line method is employed for determination of _____.
   a) 2v b) R.I.
   c) Pleochroism d) Extinction

9) Determination of 2v is possible in minerals of _____.
   a) Cubic b) Tetragonal
   c) Hexagonal d) orthorhombic

10) Zeolite minerals belong to _____ silicates.
   a) Neso b) Chain
   c) 3 D d) Tekto

11) Find the odd one out:-
   a) Kaolinite
   b) Montmorillonite
   c) Bentonite
   d) Muscovite

12) In the interference figure of uniaxial mineral the intersection of isogyres through which the optic axis emerge is termed as _____.
   a) Isochrones
   b) optic aperture
   c) Melatopes
   d) None

13) Which of the following plates is called ¼ Lamda?
   a) Gypsum plate
   b) Quartz wedge
   c) Mica plate
   d) None

14) Which of the following is a biaxial mineral?
   a) Muscovite
   b) Quartz
   c) Rutile
   d) Beryl

Q.2 Describe the determination of optic sign with the help of biaxial interference figure. **14**

Q.3 Describe crystal structure, chemistry and diagnostic property of Feldspar group of minerals. **14**

Q.4 Explain uniaxial and biaxial interference figures and add a note on optic axial angle. **14**

Q.5 **Write short notes on :** **14**
a) Qualities of gemstones
b) Types of Twins

Q.6 **Explain in short :-** **14**
a) Difference between Clinopyroxene and Orthopyroxene.
b) Twinning in feldspars.

Q.7 **Write notes on:** **14**
a) Optical properties and paragenesis of Zeolites.
b) Structure and optical property of Garnets.

SLR-MB-34

Seat No.	

Set P

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

Day & Date: Saturday, 18-11-2017 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 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 Choose the correct alternatives: **14**

1) Which method is used for dating relatively recent geological event?
   a) K-Ar b) U-Pb
   c) Carbon – 14 d) Rb-Sr

2) The salinity of sea water can be determined from a measurement of :
   a) Density b) Refractive index
   c) Electrical conductivity d) All of above

3) Weather phenomena confined to the :
   a) Troposphere b) Stratosphere
   c) Inosphere d) Mesosphere

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

5) The Gibbs free energy is defined by the formula
   a) G = E – TS + PV b) G = dE – Tds + K
   c) G = E + TS d) None of these

6) The most stable form of manganese in the secondary environment is
   a) Psilomelane b) Pyrolusite
   c) Hausmanite d) Manganite

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

8) The term isotope is used for the elements :
   a) Same chemical properties and same atomic weight
   b) Differing in atomic weight and stability but not appreciably in chemical properties.
   c) Same in atomic weight and stability but differing in chemical properties
   d) With the same atomic weight but different in neutrons and protons value

9) Stability of mineral may be defined in respect of :
   a) Temperature b) Pressure
   c) Chemical environment d) All of the above

10) Which of the following radioactive element has half life of 703.8 million years?
   a) ^{235}Uranium b) Thorium
   c) ^{14}C d) ^{16}O

11) The relative concentration of "O" in crust in comparison with its concentration in mantle is
   a) Higher b) Lower
   c) Same d) All the above

12) Which of the elements that have the shortest residence time in the ocean.
   a) Na-K b) Si-Al
   c) Mg-Cl d) None of the above

13) Goldschmidt has classified sand/quartz as
   a) Carbonates b) Oxidates
   c) Resistates d) None

14) The densities of Fe-Meteorites are around _____.
   a) 8 gm/cm^3 b) 9 gm/cm^3
   c) 10 gm/cm^3 d) 12 gm/dm^3

Q.2 Write the full note on composition of Mantle and core. **14**

Q.3 What are decay clocks? Give various materials in dating decay clocks. **14**

Q.4 Write a full note on composition of atmosphere. **14**

Q.5 **Write short notes on the following :** **14**
a) Distribution of elements in the Igneous rocks.
b) Natural and artificial radioactivity

Q.6 **Write in brief :-** **14**
a) Primary differentiation of earth
b) Difference between sea and river water composition.

Q.7 **Discuss the short of the following:-** **14**
a) Composition of crust
b) Geochemical classification of elements.

SLR-MB-35

Seat No.		Set	P

M.Sc. (Semester - I) (CBCS) Examination Oct/Nov-2017
Applied Geology
SEDIMENTOLOGY AND PALAEONTOLOGY

Day & Date: Tuesday, 21-11-2017 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 two questions from each section A and section B.
5) Draw neat and labeled diagram wherever necessary.

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

1) Cross-bedding observed in sand dunes can be used
   a) To determine the direction the wind was blowing
   b) To determine the speed of the wind
   c) To determine the height of the sand done
   d) All of the above

2) 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

3) Those bottom dwellers living between low tide and high tide are termed:
   a) Vagile b) Littoral
   c) Nectonic d) Planktonic

4) Paradoxide is a genus which possess _____ type facial suture.
   a) Hypoparian b) Proparian
   c) Opisthoparian d) Gonatoparian

5) A sedimentary rock composed of angular particles of gravel is called :
   a) Breccias b) Conglomerate
   c) Sand stone d) Gravelstone

6) Particles of sediment from 1/16 mm to 2 mm diameter are called :
   a) Gravel b) Sand
   c) Silt d) Clay

7) _____ belong to lower Gondwana flora.
   a) Nilsonia b) Ptilophyllum
   c) Otozamites d) Glossopteris

8) Glossopteris is a genus of sub-class _____.
   a) Pteridospermae b) Cycadophyta
   c) Coniferophyta d) Angiospermae

9) Subcritical flow is deep, slow flow with a low energy state and has a Froude number
   a) Less than 1 (F<1) b) Is equal to 1 (F =1)
   c) Greater than 1(F>1) d) None of above

10) The Froude number is defined as the ratio of _____.
   a) Gravitational forces to inertial forces
   b) Gravitational forces to compressional forces
   c) Inertial forces to gravitational forces
   d) Inertial forces to compressional forces

11) 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

12) Those fossil forms which have short time ranges of their existence and wide geographical distribution, are called as
   a) Pseudo fossils
   b) Index fossil
   c) Trace fossils
   d) Living fossil

13) Arkose is a rock containing at least _____ feldspar.
   a) 45%
   b) 25%
   c) 35%
   d) 55%

14) After burial the hard part of the organisms removed in solution and hallows left with the rock bed is called as
   a) Casts
   b) Moulds
   c) Petrification
   d) Carbonization

Section - A

Q.2 Describe the processes for formation of sedimentary rocks. **14**

Q.3 What is clastic sedimentary rock? How they are formed?

Q.4 Write about classification, morphology, geology distribution of trilobites **14**

Section - B

Q.5 **Write note on the following:** **14**
a) Classification of sandstone
b) Classification of foraminifera

Q.6 **Explain briefly following:** **14**
a) Reynold Number and Froude number
b) Gondwana flora

Q.7 **Attempt the following:** **14**
a) Sedimentary structures
b) Modes of preservation of fossils.

SLR-MB-36

Seat No.		Set	P

M.Sc. (Semester - I) (CBCS) Examination Oct/Nov-2017
Applied Geology
ECONOMIC GEOLOGY

Day & Date: Thursday, 23-11-2017 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 two questions from Q. no.2, 3 and 4 and from Q. no.5, 6 and 7.
5) Draw neat and labeled diagram wherever necessary.

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

1) Method of mining for placer gold is _____.
   a) Open cast b) Panning
   c) Stoping d) Underground

2) Most of bauxite deposits of central and western India have been formed from _____.
   a) Granite b) Syenite
   c) Nepheline syenite d) Basalt

3) Supergene Sulphide enrichment zone is found _____.
   a) Above water table b) Below water table
   c) Near ground surface d) In Oxidising zone

4) Copper in calcareous environment is _____.
   a) Mobile b) Immobile
   c) Both d) None of these

5) Zawar mine is famous for _____ deposits.
   a) Phosphorite b) Zinc
   c) Copper d) Iron

6) The ore deposits formed due to weathering do not form any metallogenic epoch. Because _____.
   a) Weathering is not ore forming process.
   b) Weathering process operated at all times in earth's history
   c) Weathering cannot form are deposits
   d) Weathering process includes chemical and mechanical process

7) A mineral which exhibits sublimation is _____.
   a) Sulphur b) Mercury
   c) Cinnabar d) Realgar

8) _____ are deposits later in origin than host rock.
   a) Syngenetic b) Telethermal
   c) Epithermal d) Epigenetic

9) Malachite mineral is _____.
   a) Copper corbonate mineral b) Iron Silicate mineral
   c) Iron sulphide mineral d) Iron oxide mineral

10) _____ alteration generally characteristics by chlorite, epidote , Albite and Carbonate.
   a) Chloritisation
   b) Sertilisation
   c) Prophylitic
   d) None

11) Khetri and Singhbum copper mainly occur as _____.
   a) Cuprite
   b) Chalcopyrite
   c) Chalcocite
   d) Covellite

12) The Mn ore deposit of MP and Maharashtra are confined to the _____.
   a) Chorbaoli formation
   b) lohangi formation
   c) Mansar formation
   d) Buchum formation

13) Agnigundala ore deposit located in _____.
   a) Andhra Pradesh
   b) Orissa
   c) Kerala
   d) Punjab

14) Wolframite is an ore of _____.
   a) Iron
   b) Tungsten
   c) Tin
   d) Copper

Q.2 Write a full note on fluid Inclusion. **14**

Q.3 What is wall rock alteration? Discuss various types of alterations.

Q.4 Write geology stratigraphy and depositional environment of Agnigundala mineralized belt. **14**

Q.5 **Write short note on the following:** **14**
a) Late magmatic deposits
b) Replacement deposits

Q.6 **Write in short:-** **14**
a) Mineralization associated with divergent and convergent plate boundaries.
b) Ore Paragenesis and Zoning

Q.7 **Explain in short:-** **14**
a) Ore bearing fluid.
b) Mechanical concentration.

SLR-MB-38

Seat No.		Set	P

M.Sc. (Semester - II) (New) (CBCS) Examination Oct/Nov-2017
Applied Geology
IGNEOUS AND METAMORPHIC PETROLOGY

Day & Date: Friday, 17-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

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. 2, 3, & 4 and any two questions from Q. 5, 6 & 7.
5) Draw neat and labeled diagrams whenever necessary

Q.1 Tick mark the correct answers:- 14

1) Identify the mismatch pair
   a) Stilpnomelane –greenschist b) Glaucophane – blueschist
   c) Omphacite – amphibolites d) Laumontite - Zeolite

2) The distinctive rock assemblage containing ultramafic, gabbroic and layered basaltic rocks often capped by layer of deep sea sediments are termed as _____.
   a) Calc-alkaline b) Ophiolites
   c) Hornfels d) Granulite

3) A line joining the points where rocks have the same grade of metamorphism is _____.
   a) Isogyre b) Isopleth
   c) Isobar d) Isograde

4) The areas where single-phase assemblages exist by changing both variables independently are called _____.
   a) Univariant b) Divariant
   c) Invariant d) None

5) The line of constant composition and variables temperature is an _____.
   a) Isopleths b) Tie line
   c) Solidus d) None

6) Which of the following match correctly:
   a) Contact metamorphism – Low chemically active fluid
   b) Cataclastic metamorphism –Low pressure
   c) Regional metamorphism – mountain building process
   d) Metasomatism –Low temperature

7) The regular intergrowth subtriangular quartz located with large alkali feldspar grains is _____.
   a) Myrmekite b) Alpite
   c) Graphic d) None of the above

8) The onset of epidote amphibolite facies is marked by the first appearance of Fe rich _____in place of Fe rcih chlorite.
   a) Clinopyroxene b) Fe-rich Orthophyroxene
   c) Almandine d) None

9) The Norm or CIPW classification is essentially a _____ classification.
   a) Mineralogical b) Chemical
   c) Genetic d) Textural

10) Which of the following are concordant intrusive igneous plutons found in folded terrains?
   a) Laccoliths b) Lopoliths
   c) Phacoliths d) Bysmalith

11) Identify the granulite rock from the following _____.
   a) Granite a) Charnockite
   b) Greenstone c) None

12) Which of the following is the plutonic equivalent of the Dacite?
   a) Granite b) Gabbro
   c) Granodiorite d) Dolerite

13) Plutonic igneous rocks always have:
   a) Olivine, calcium feldspar, pyroxene
   b) Amphibole, sodium feldspar, biotite
   c) Quartz , muscovite, potassium feldspar
   d) Phaneritic texture

14) In which tectonic setting calc-alkaline magma is generated
   a) Oceanic ridge b) Subduction zone
   c) Hot sports d) Continental rift

Q.2 Describe the magnetism associated with plate tectonics. **14**

Q.3 Explain the evolution of magma with various processes of magnetic differentiation and assimilation. **14**

Q.4 Discuss in brief the graphical representation of ACF and AKF diagrams. **14**

Q.5 **Bring out the salient aspect of the following:** **14**
a) Barrowian zone of progressive metamorphism
b) Forsterite silica system.

Q.6 **Write short notes on the following:** **14**
a) S-type and I-type granites
b) Contact metamorphism

Q.7 **Write short notes on following:** **14**
a) Zeolite facies
b) Carbonatite

SLR-MB-39

Seat No.		Set	P

M.Sc. (Semester - II) (New) (CBCS) Examination Oct/Nov-2017
Applied Geology
INDIAN STRATIGRAPHY

Day & Date: Monday, 20-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

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. 2, 3, & 4 and any two questions from Q. 5, 6 & 7.

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

1) Ajabgarh series' belong to :
   a) Bundelkhan gneiss b) Delhi system
   c) Aravali system d) None of these

2) Saucer series is equivalent to _____.
   a) Peninsular gneiss b) Upper Dharwar
   c) Middle Dharwar d) Lower Dharwar

3) The largest unit in the chronostratigraphic unit is _____.
   a) Era b) Epoch
   c) Series d) System

4) Cu-Pb-Zn deposits of Agnigundala mineralized belt of Andhra Pradesh belong to _____.
   a) Papaghni group b) Cheyyair group
   c) Nallamalai group d) Kurnool group

5) The "Agglomeratic slate series" is overlain and often intermixed with a thick succession of andesitic and basaltic traps known as _____.
   a) Panjal Volcanics b) Deccan Trap
   c) PGC d) None of above

6) Dinosaurs existed during
   a) Paleozoic era b) Mesozoic era
   c) Tertiary era d) All the above are correct

7) The Tillites and striated pavements during lowest Permian indicate _____ action.
   a) Wind b) River
   c) Glacial d) All the above

8) During Mesozoic era among the invertebrates _____ dominates the sea.
   a) Ammonoids b) Cephalopods
   c) Nautilus d) Octopus

9) The Shiwalik Hills have been made out of the debris coming from the?
   a) Sutlej valley b) Ganga valley
   c) Satpura d) Himalaya

10) Kimberlite in Vindyan basin is in _____.
   a) Chelina b) Panna
   c) Wajrakarur d) All the above

11) Which of the longest and oldest era in the history of earth
   a) Paleozoic b) Mesozoic
   c) Cenozoic d) Precambrian

12) 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

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

14) In the Spiti-Kinnaur sub-basin of Himalaya, the Lipak formation is conformably overlain by athick succession of shales and quartzites that has been named as _____.
   a) Muth quartizite b) Po formation
   c) Fenestella shales d) All the above

Q.2 Discuss in detail structured, Stratigraphy & Tectonic evolution of Cuddapah Basin. **14**

Q.3 Write down classification, stratigraphy and environment of deposition of Sausar & Sakoli group of rocks. **14**

Q.4 Discuss in detail on Cretaceous of Tiruchirapalli. **14**

Q.5 **Write short notes on:** **14**
a) Rise of Himalaya
b) Iron ore series

Q.6 **Discuss in brief of the following:** **14**
a) PGC
b) Siwalik group

Q.7 **Write in brief :-** **14**
a) K-T boundary problem
b) Palaeozoic of Spiti

SLR-MB-40

Seat No.		Set	P

M.Sc. (Semester - II) (New) (CBCS) Examination Oct/Nov-2017
Applied Geology
HYDROGEOLOGY

Day & Date: Wednesday, 22-11-2017 Max. Marks: 70
Time: 10.30 AM to 01.00 PM

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. 2, 3, & 4 and any two questions from Q. 5, 6 & 7.
5) Draw neat and labeled diagrams whenever necessary

Q.1 Fill in the blanks with correct choice:- 14

1) Water which has recently been involved in atmospheric circulation is known as _____.
   a) Connate Water b) Meteoric water
   c) Juvenile water d) Both a & b

2) Impermeable formation which neither contain nor transmit water is known as _____.
   a) Aquitard b) Aquifer
   c) Aquifuge d) Aquiclude

3) _____ the sedimentary deposits often form perched aquifer.
   a) Lime stones b) Sand and gravels
   c) Clay d) Clay and sand

4) Imaginary surface which coincide with the hydrostatic pressure level of the water in the aquifer is _____ surface.
   a) Water table b) Phereatic surface
   c) Free surface d) Piezometric

5) Transmissibility co-efficient (T) = _____
   a) co-efficient of permeability * storage co-efficient
   b) saturated thickness of aquifier
   c) co-efficient of permeability * saturated thickness of aquifier
   d) specific yield + specific retention

6) When a sedimentary formation is under compaction, the porosity _____ with depth.
   a) Increases b) Decreases
   c) Remains constant d) No relation

7) Water in the zone of aeration is called _____ water.
   a) Pellicular b) Vadose
   c) Suspended d) Both a & b

8) Storage co-efficient in the case of unconfined aquifer correspond to its _____.
   a) Specific yield b) Specific retention
   c) Permeability d) Porosity

9) For drinking water, the upper limit of fluoride content is _____ ppm.
   a) 0.1 b) 0.005
   c) 0.05 d) 1.5

10) How many groundwater provinces are found in India?
   a) 7 b) 18
   c) 6 d) None of these

11) The most suitable method for groundwater prospecting is _____.
   a) Electrical b) Seismic reflection
   c) Seismic refraction d) Aerial photo

12) Equivalent parts per million is equal to _____.
   a) ppm*100 b) ppm/100
   c) ppm*equivalent weight d) ppm/ equivalent weight

13) Steady state flow of incompressible fluids is governed by _____ equation.
   a) Darcy's b) Continuity
   c) Laplace d) Bernoulli's

14) Hydraulic conductivity can be determined by _____.
   a) Tracer test b) Auger hole test
   c) Permeameter d) All of these

Q.2 State and explain the Darcy's law and its limitations. **14**

Q.3 Define Artificial Recharge and discuss various method of Artificial Recharge. **14**

Q.4 Discuss the sea water intrusion in coastal aquifers. Give Ghyben-Herzberg equation. **14**

Q.5 **Write short answer on :** **14**
a) Type of aquifer
b) Specific yield and specific retention

Q.6 **Explain in short:-** **14**
a) Surface investigation techniques for groundwater exploration
b) Hydrological cycle

Q.7 **Write note on :-** **14**
a) Types of well
b) Types of openings in the rocks.

SLR-MB-46

Seat No.		Set	P

M.Sc. (Semester - III) (New) (CBCS) Examination Oct/Nov-2017
Applied Geology
MINERAL EXPLORATION

Day & Date: Thursday, 16-11-2017 Max. Marks: 70
Time: 02.30 PM to 05.00 PM

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. 2, 3, & 4 and any two questions from Q. 5, 6 & 7.
5) Draw neat and labeled diagrams whenever necessary

Q.1 Marks the correct objective:- 14

1) 'Drilling' is employed for
   i) Determining the stratigraphic or rock sequence
   ii) Locating and evaluating substance of economic value
   iii) Extraction economically valuable substances
   iv) Obtaining date for correlation
   a) i & iii are correct b) i , ii & iii are correct
   c) ii , iii and iv are correct d) all of the above are correct

2) A natural gamma ray log exhibits a "high response" from
   a) Shale b) Limestone
   c) Dolomite d) Coal

3) Detail survey of oil and gas is done by _____.
   a) Seismic reflection b) Seismic refraction
   c) Geomagnetic method d) Electromagnetic method

4) The P-wave velocities are highest in:
   a) Air b) Granite
   c) Water d) Sand

5) In the resistivity sounding method
   a) The position of electrodes is fixed while that of central point is change
   b) The position of electrode is changed with respect to a fixed central point
   c) The position of all electrode is changed simultaneously
   d) None of the above

6) Electrical profiling method is used to locate _____.
   a) Horizontal discontinuities
   b) Vertical discontinuities
   c) Both Horizontal & Vertical discontinuities
   d) None of the above

7) Ionic potential is _____.
   a) Charge on the ions b) Charge multiply by radius
   c) Charge divided by radius d) Radius divided by charge

8) The structure of Bombay high is _____.
   a) Double plunging anticline b) Double plunging syncline
   c) Non-plunging anticline d) Non-plunging syncline

9) It is better to identify a mineral by using its _____.
   a) Colour
   b) Density
   c) Streak
   d) Shade

10) 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

11) The conductivity or rock formations can be measured by means of
   a) Electric logging
   b) Induction logging
   c) Sonic logging
   d) Radiation logging

12) To determine hardness of a mineral, scientist use
   a) Perl's scale
   b) Richter scale
   c) Mohs hardness scale
   d) Andy's proficient hardness testing scale

13) A mineral that is composed of only one element is known as a
   a) Single mineral
   b) Single element
   c) Native mineral
   d) Native element

14) Most important characteristics of a gemstone is its
   a) Appearance
   b) Streak
   c) Shape
   d) Colour

Q.2 Explain the principles of exploration, methods and stages with suitable diagram? **14**

Q.3 Discuss the types of borehole methods, core logging and different methods of sampling use in mineral exploration? **14**

Q.4 What are the different geochemical surveys used in mineral prospecting? **14**

Q.5 **Discuss the following question in short:-** **14**
a) Explain seismic geophysical method and their application?
b) What is well logging and write their types?

Q.6 **Write short notes on:** **14**
a) Background, threshold and cut off value.
b) How stratigraphic correlation helps in ore prospecting?

Q.7 **Write short notes on:** **14**
a) Radioactive prospecting, principles and concept.
b) Biologeochemical and geobotanical survey.

SLR-MB-47

Seat No.		Set	P

M.Sc. (Semester - III) (New) (CBCS) Examination Oct/Nov-2017
Applied Geology
GEOTECTONIC AND PHYSICAL OECEANOGRAPHY

Day & Date: Saturday, 18-11-2017 Max. Marks: 70
Time: 02.30 PM to 05.00 PM

Instructions: 1) Answer not more than five questions.
2) Question No. 1 is compulsory.
3) Answer any two questions from Q. 2, 3, & 4 and any two questions from Q. 5, 6 & 7.
4) Draw neat and labeled diagrams whenever necessary

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

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

2) At divergent boundaries, partial melting of the upper mantle at relatively shallow depth produce _____.
   a) Alkali basalts b) Tholeiitic basalts
   c) Calc alkaline magmatism d) Andesitic magmatism

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

4) Strips of similar palaeomagnetic properties are parallel to and on either sides of _____.
   a) Continental margins b) Deep oceanic trenches
   c) Mid oceanic ridges d) Convergent plate boundaries

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

6) _____ are highly variable, shallow marine environment separated from the open sea by Barrier Island composed largely of well sorted sand.
   a) Lagoons b) Barriers
   c) Estuaries d) None of these

7) 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

8) At the convergent plate boundary the most common geologic features formed on the continental lithosphere are
   a) Island arc b) Pull apart basin
   c) Volcanic arc d) Rift valleys

9) Which of the following increase with distance from a mid-ocean ridge?
   a) The age of Oceanic lithosphere
   b) The depth of the seafloor
   c) The thickness of the lithosphere
   d) All of the above

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

11) Hot sports are a result of _____.
   a) Upward diverging mantle convention
   b) Movements in the Earth's core
   c) Decending convection currents
   d) Isostatic adjustment

12) Palaeomagnetic studies on ocean floor have supported the concept of _____.
   a) Isostasy
   b) Continental drift
   c) Convection currents
   d) Paired metamorphic belts

13) The coastal parts of the water bodies of oceans which are structurally part of the mainland of the continents are called _____.
   a) Continental shelf
   b) Continental rise
   c) Abyssal plain
   d) All of the above

14) India, Madagascar, South Africa and Australia were on continental block before :
   a) 10 m.y.
   b) 30 m.y.
   c) 50 m.y.
   d) 70 m.y.

Q.2 Describe the brief account on origin of Himalaya. **14**

Q.3 Explain the geological features related to convergent plate boundaries. **14**

Q.4 Explain in detail the surface and deep circulation pattern of oceanic water **14**

Q.5 **Write short answer on the following:** **14**
a) Drifting of Indian sub continent
b) Oceanic sediments

Q.6 **Discuss briefly the following:** **14**
a) Volcanism related to plate tectonic
b) Ophiolites

Q.7 **Explain the following :** **14**
a) Types of oceanic margins
b) Hydrothermal vents and its significance

SLR-MB-48

Seat No.	

Set P

M.Sc. (Semester - III) (New) (CBCS) Examination Oct/Nov-2017
Applied Geology
ENGINERRING GEOLOGY AND MINING GEOLOGY

Day & Date: Tuesday, 21-11-2017 Max. Marks: 70
Time: 02.30 PM to 05.00 PM

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. 2, 3, & 4 and any two questions from Q. 5, 6 & 7.
5) Draw neat and labeled diagrams whenever necessary

Q.1 MARK THE CORRECT OBJECTIVE. **14**

1) The Maximum shear strain occurs on:
   a) 90° With principal planes
   b) 45° With principal planes
   c) Principal planes
   d) Independent of the principal planes

2) Tensile stress is:
   a) Stress caused by varying load
   b) Stress due to any force
   c) Stress due to change in length under a load
   d) Stress measured by the ratio of the increase or decrease in length of the unloaded piece under Tensile force

3) Rocks indicates their deformation under loads is related with
   a) Modulus of elasticity b) Hook's law
   c) Young's modulus d) All the above

4) Match the following columns:

I	II
1) Bhakra dam	(i) Earthen dam
2) Indukki dam	(ii) Concrete gravity dam
3) Beas dam	(iii) Masonry dam
4) Krishna raja Sagar dam	(iv) Concrete ach dam

   a) 1-i, 2-ii, 3-iii, 4-iv. b) 1-ii, 2-iv, 3-i, 4-iii
   c) 1-iv, 2-iii, 3-ii, 4-i d) 1-ii, 2-iv, 3-iii, 4-i.

5) Which situation, for construction of a tunnel is safer?
   a) Tunnel along the axis of an anticline
   b) Tunnel across the axis of an anticline
   c) Tunnel along the axis of a syncline
   d) Tunnel across the axis of an syncline

6) In hard firm rocks the suitable roof of a tunnel is :
   a) Inclined roof b) Arched roof
   c) Flute roof d) Concave roof

7) Which structure in built along the length of streams to contain floods:
   a) Levees b) Spurs
   c) Guide banks d) Both spurs and guide banks

8) A fast moving mix of water, soil and rocks would be
   a) Slump
   b) Creep
   c) Landslide
   d) Mudflow

9) Which type of mass movement moves the slowest?
   a) Mudflow
   b) Creep
   c) Slump
   d) Rock fall

10) What is deforestation?
   a) The removal of trees
   b) The planning of trees
   c) The type of mass movement caused by trees
   d) When forests are covered in mud

11) What cause all mass movement
   a) Rain
   b) Snow
   c) Gravity
   d) Deforestation

12) Mark the correct statement:
   a) Internal causes of slope failure are occurred due to decrease in shearing resistant in the slope material brought about by excess pore water pressure water, softening etc.
   b) The short term instability is due to non-availability of sufficient time for the dissipation of pore water pressure.
   c) The long term condition is one in which the pore water pressure gradually adjusts itself in the long run.
   d) All the above are correct.

13) To methods used in mining are
   a) Surface mining and underground mining
   b) Surface mining and open cast mining
   c) Underground mining and underwater mining
   d) Surface mining and sub-surface mining

14) Landslide occurs because of :
   a) Exhaustion of shear strength
   b) Low moisture content in the material
   c) High compressive strength of material
   d) None of these

Q.2 Describe the engineering property of the rock and derive modulus of elasticity and modulus of deformation? **14**

Q.3 Explain land slide and causes of hill slope instability with suitable diagram? **14**

Q.4 Explain in detail problems of underground in engineering project. **14**

Q.5 **Discuss the following in short:-** **14**
a) Types of engineering structure involved in watershed management.
b) Explain different drilling methods

Q.6 **Write short notes on:** **14**
a) Geological criteria for site selection of dam and reservoir.
b) Ocean bottom mining methods.

Q.7 **Write short notes on:** **14**
a) Seismic zones of India
b) Mining hazards and mine diseases.

SLR-MB-58

Seat No.		Set	P

M.Sc. (Semester - IV) (New) (CBCS) Examination Oct/Nov-2017
Applied Geology
ENVIRONMENTAL GEOLOGY & DISASTER MANAGEMENT

Day & Date: Friday, 17-11-2017 Max. Marks: 70
Time: 02.30 PM to 05.00 PM

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. 2, 3, & 4 and two questions from Q. 5, 6 & 7.
5) Draw neat and labeled diagrams whenever necessary

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

1) Which are geological conditions that underlie unstable slopes?
   a) Geological strata dip in the same direction as the slope
   b) Weak and strong horizontal interlayered strata crop out on a slope
   c) Deeply weathered rocks in regions of high rainfall
   d) All of the above

2) Global warming focuses on a decrease in which of the following gases in the atmosphere?
   a) Ozone b) Sulphur dioxide
   c) Carbon dioxide d) Nitrous oxide

3) The mixtures of water and rock fragments flowing down the slopes of a volcano along river valleys are called _____.
   a) Lahar b) Tephra
   c) Lava flow d) None

4) The name for eruptions with the greatest explosivity index is _____.
   a) Hawaiian b) Plinian
   c) Calderian d) Vesuvain

5) Which of the following is secondary pollution of air?
   a) Sulphur dioxide b) Ammonia
   c) Peroxyacetyl nitrate d) Methane

6) Genesis of soil is governed by
   a) Organic activity b) Climatic conditions
   c) Topography d) All of the above

7) Air pollution with HCl, SO4, NOx and CO etc. results to
   a) Acid rain b) Lighting
   c) Cloud burst d) None

8) Which of the following is biodegradable waste?
   a) Plastics b) Polythene
   c) Glass d) None of these

9) Excess consumption of fluorine causes
   a) Necrosis b) Cardiac attack
   c) Fluorosis d) None

10) What takes ages to develop but only one generation of human beings to destroy?
   a) Groundwater
   b) Minerals
   c) Top soil
   d) None

11) The extent to which a community, structure, service or geographic area is likely to be damaged or disrupted by the impact of particular hazard.
   e) Hazard
   f) Vulnerability
   g) Risk
   h) None

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

13) Cyclones are _____ pressure areas from centre of which pressure increase outwards.
   a) Low
   b) High
   c) Constant
   d) Variable

14) Find the odd man out:
   a) Subsidence
   b) Mass wasting
   c) Sink holes
   d) Liquefaction

Q.2 Discuss in detail various aspects of atmosphere. Add a note on global warming. **14**

Q.3 Explain the landslide and its classification with its preparedness and mitigation of disaster. **14**

Q.4 What is disaster? Explain various types of natural and manmade disaster with Indian examples. **14**

Q.5 **Write short answer on the following :** **14**
a) Source and classification of waste products
b) Volcanic hazard

Q.6 **Discuss in brief the following:-** **14**
a) Koyna earthquake
b) Soil profile

Q.7 **Describe the following:** **14**
a) Application of Remote sensing in disaster management.
b) Point and non-point source of water pollution.

SLR-MB-59

Seat No.		Set	P

M.Sc. (Semester - IV) (New) (CBCS) Examination Oct/Nov-2017
Applied Geology
REMOTE SENSING AND GIS

Day & Date: Monday, 20-11-2017 Max. Marks: 70
Time: 02.30 PM to 05.00 PM

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. 2, 3, & 4 and any two questions from Q. 5, 6 & 7.

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

1) The rotation of the earth causes _____ distortion of the satellite image.
   a) Atmospheric b) Geometric
   c) Radiometric d) None

2) The colour with the highest wavelength in the visible spectrum is _____.
   a) Red b) Blue
   c) Violet d) yellow

3) The attribute of shape, size and texture of the terrain feature is given by __.
   a) Spatial variation b) Spectral variation
   c) Temporal variation d) All of these

4) The Indian organization that deals with space technology and its applications is _____.
   a) IMD b) ISRO
   c) ONGC d) IIG

5) Remote sensing techniques use the _____ types of waves.
   a) Electrical waves b) Soundwaves
   c) EM waves d) Wind waves

6) Living plants appear in _____ colour on FCC infrared images
   a) Black b) Blue
   c) Red d) White

7) The vector data model consists of _____.
   a) Pixels b) grid cells
   c) points, lines and polygons d) Tessalations

8) _____ uses sound waves to detect objects.
   a) Microwave b) Radar
   c) Infrared d) Sonar

9) single band image is obtained from
   a) LISS-III b) PAN
   c) WiFS d) All of the above

10) The component of GIS that governs the input, storage and output is ____.
   a) Application b) Data
   c) Hardware d) Software

11) Geo-referencing is _____.
   a) Designating data with location coordinates
   b) Conversion of data from different classes
   c) Projecting data
   d) Collating data

12) The type of remote sending data for detecting depleting forest cover is
   a) Radar b) Sonar
   c) Microwave d) Colour infrared

13) A scanner produces _____ data type.
   a) Raster b) Vector
   c) Polygon d) Point

14) A digitizer produces _____ data type.
   a) Vector b) Raster
   c) None d) Both

Q.2 Describe the components of GIS. **14**

Q.3 Describe the types of aerial photographs. **14**

Q.4 Discuss the geographical coordinate system and the types of projection and parameters used. **14**

Q.5 **Write notes on :** **14**
a) Spatial Data
b) Attribute data

Q.6 **Write notes on :** **14**
a) Hardware and software requirements of GIS
b) Accuracy and database features of GIS

Q.7 **Write notes from the remote sensing view point:** **14**
a) Drainage pattern
b) Landforms

SLR-MB-60

Seat No.		Set	P

M.Sc. (Semester - IV) (New) (CBCS) Examination Oct/Nov-2017
Applied Geology
CLIMATOLOGY AND PLANETARY GEOLOGY

Day & Date: Wednesday, 22-11-2017 Max. Marks: 70
Time: 02.30 PM to 05.00 PM

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. 2, 3, & 4 and any two questions from Q. 5, 6 & 7.
5) Draw neat and labeled diagrams whenever necessary

Q.1 Fill in the blanks with appropriate choice:- 14

1) The lowest pressure is developed between :
   a) 2-4 PM b) 1-2 PM
   c) 3-5 PM d) None of these

2) Horse latitude extends between _____.
   a) 25^0-30^0 b) 30^0-35^0
   c) 35^0-40^0 d) None of these

3) _____ propounded the Polar front theory.
   a) V. Bjerknes and J.Bjerknes b) Fitzroy
   c) Shaw and Lampfert d) None of these

4) _____ is the lowest most layer of the atmosphere.
   a) Inosphere b) Troposphere
   c) Stratosphere d) None of these

5) Roaring forties flow between _____.
   a) 40^0-50^0 N b) 40^0-50^0 S
   c) 50^0-60^0 N d) 50^0-60^0 S

6) The dry adiabatic lapse rate is _____.
   a) 6.4^0 C b) 8.4^0 C
   c) 10^0 C d) 2^0 C

7) Willy Willy blows in _____.
   a) Japan b) Australia
   c) USA d) China

8) The Olympus Mons situated on planet
   a) Mercury b) Venus
   c) Earth d) None of these

9) The Great Dark Spot is on _____.
   a) Jupiter b) Uranus
   c) Neptune d) None of these

10) The Apollodorus situated on _____.
   a) Venus
   b) Mercury
   c) Mars
   d) None of these

11) The 1 Ceres is
   a) C Type Asteroid
   b) D Type Asteroid
   c) G Type Asteroid
   d) S Type Asteroid

12) The Paterae is on
   a) IO
   b) Phobos
   c) Deimos
   d) None of these

13) Find odd one
   a) Mars
   b) Jupiter
   c) Neptune
   d) Pluto

14) The Dysnomia is moon of
   a) Ceres
   b) Haumea
   c) Pluto
   d) None of these

Q.2 Explain in brief nature and scope of modern Climatology **14**

Q.3 Describe Koppen's classification in climate. **14**

Q.4 Explain in brief Terrestrial planets. **14**

Q.5 **Write notes on:-** **14**
a) Wind distribution
b) Planet Neptune

Q.6 **Describe in brief:** **14**
a) Types of Precipitation
b) Magnetism of planets.

Q.7 **Explain in short:** **14**
a) Composition of atmosphere
b) Jovian planets.

SLR-MB-61

Seat No.		Set	P

M.Sc. (Semester - IV) (New) (CBCS) Examination Oct/Nov-2017
Applied Geology
RESEARCH METHODOLOGY

Day & Date: Friday, 24-11-2017 Max. Marks: 70
Time: 02.30 PM to 05.00 PM

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. 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 answer: **14**

1) Information and communication technology includes
   a) E-mail b) Internet
   c) Educational visit d) All of the above

2) Ex-post facto research means _____.
   a) The research is carried out after the incident.
   b) The research is carried out prior to the incident
   c) The research is carried out along with the happening of an incident.
   d) The research is carried out keeping in mind the possibility of an incident.

3) The proportions of related items are best shown by a _____.
   a) Line graph b) Pie chart
   c) Dot plot d) Histogram

4) Scopus provide search interfaces by _____.
   a) Article title b) Abstract
   c) Author name d) All of the above

5) Identify the matching pairs.
   a) AVI-statistical information
   b) JPEG-Photo/Picture
   c) XLS – PowerPoint presentation
   d) DOC-Excel sheet

6) Research is _____.
   a) Searching again and again
   b) Finding solution to any problem
   c) Working in a scientific way to search for truth of any problem
   d) None

7) Identify the correct pair from the following.
   a) TB-Memory storage unit
   b) Playstore – Operating system
   c) Pixel – colour enhancing facility
   d) USB – antivirus

8) The quality of research journal is indicated by its _____.
   a) H – index b) g-index
   c) i/o score d) impact factor

9) Which of the following software is used for processing photos or pictures?
   a) Photocrop
   b) Photoshop
   c) Visucrop
   d) Picture perfect

10) Which of the following is the first step in starting the research process?
   a) Formulating the research problem
   b) Preparation the research design
   c) Literature survey
   d) Developing the hypothesis

11) Action research means _____.
   a) A longitudinal research
   b) Applied research
   c) A research initiated to solve an immediate problem
   d) A research with socio economic objective

12) Internet explorer is a type of _____.
   a) Operating system
   b) Compiler
   c) Browser
   d) IP address

13) Arrange sequentially research involves these steps:
   1) Stating research objectives and hypothesis
   2) Identification of research problem
   3) Methodology
   4) Collecting and analysis of data
   5) Statement of results and discussion

   a) 1→2→3→4→5
   b) 4→1→3→2→5
   c) 2→1→3→4→5
   d) 2→1→5→3→4

14) Which of the following operating system is used on mobile phones?
   a) Windows vista
   b) Android
   c) Windows XP
   d) All of the above

Q.2 State the type of data and various methods of data collection. **14**

Q.3 Briefly describe the different steps involved in a research process. **14**

Q.4 Write in detail the fundamentals of computers. Explain input and output devices. **14**

Q.5 **Write short note on the following :** **14**
a) Criteria of good research
b) Search engine

Q.6 **Describe the following:** **14**
a) Scopus
b) Application of computer in research.

Q.7 **Explain in brief:-** **14**
a) H-index
b) Report writing