SLR-UB-30

Seat No.	

Set P

M.Sc. (Semester - I) (CBCS) Examination Mar/Apr-2018
Applied Geology
MINERALOGY & OPTICS

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Answers any five questions.
2) All questions carry equal marks.
3) Question 1 is compulsory.
4) Answer any two essay questions from Q.2, 3 & 4.
5) Answer any two short notes questions from Q.5, 6 & 7.
6) Draw neat and labeled diagrams wherever necessary.

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

1) A single isogyre forms in the biaxial interference figure, it indicates _____ figure.
   a) Optical normal b) Optic axis
   c) Acute bisectrix d) Obtuse bisectrix

2) Ruby and Sapphire are son variety of _____.
   a) Corundum b) Beryl
   c) Garnet d) Topaz

3) The source rock for diamonds is _____.
   a) Peridotite b) Kimberlite
   c) Granite d) Rhyolite

4) Which of the following is polymorphy of Calcite?
   a) Siderite b) Aragonite
   c) Diopside d) None

5) An acute angle made by optical plane with x-crystal graphic plane is called as _____.
   a) Optically positive b) Optically negative
   c) Optically neutral d) None

6) Find the odd man out _____.
   a) Diopside b) Enstatite
   c) Tremolite d) Hypersthenes

7) Heulandite belongs to _____ group of minerals.
   a) Mica b) Zeolite
   c) Clay d) Pyroxene

8) The high temperature monoclinic alkali felspar is _____.
   a) Orthodox b) Sanidine
   c) Microcline d) Albite

9) Find the odd man out:-
   a) Sodalite b) Leucite
   c) Nosean d) Nepheline

10) Which of the following is a trioctahedral lithium mica?
   a) Lepidolite b) Muscovite
   c) Paragonite d) Biolite

11) _____ Twins have twin axis normal to a crystal face and this face is parallel to compositional plane.
   a) Parallel Twin
   b) Complex Twin
   c) Normal Twin
   d) None

12) Which of the following is basic negative mineral?
   a) Kyanite
   b) Tremolite
   c) Sillimanite
   d) Both a & b

13) Which one of these is also known as glimmer plate?
   a) Quartz plate
   b) Mica plate
   c) Gypsum plate
   d) Calcite plate

14) Which of the following is used to ascertain perfect extinction position?
   a) Mica plate
   b) Gypsum plate
   c) Quartz wedge
   d) None

Q.2 Describe uniaxial and biaxial ellipsoid with corresponding interference figures. **14**

Q.3 Describe crystal structure, chemistry, paragenesis of Actinolite –Tremolite - Minerals. **14**

Q.4 Describe crystal structure, chemistry, paragenesis of feldspathoids. **14**

Q.5 **Write note on:-** **14**
a) Clinopyroxene and orthopyroxene
b) 2V angle and optic sign

Q.6 **Explain in short:-** **14**
a) Polymorphs of alumino silicates
b) Sign of elongation

Q.7 **Write note on:-** **14**
a) Silicate structure
b) Clay mineral chemistry & structure

SLR-UB-31

Seat No.		Set	P

M.Sc. (Semester - I) (CBCS) Examination Mar/Apr-2018
Applied Geology
GEOCHEMISTRY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Answers any five questions.
2) All questions carry equal marks.
3) Question 1 is compulsory.
4) Answer any two essay questions from Q.2, 3 & 4.
5) Answer any two short notes questions from Q.5, 6 & 7.
6) Draw neat and labeled diagrams wherever necessary.

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

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

2) The diffused layer within the stratosphere that plays a vital part in absorbing ultraviolet radiation is
   a) Tropopause
   b) Ozonosphere
   c) Ionosphere
   d) None

3) The evolution of the atmosphere is on the aspect
   a) Primeval atmosphere
   b) Additional during geological time
   c) Losses during geological time
   d) All the above

4) Which of the thermonuclear process reaction is responsible for the evolution of elements A= 28 to A=57 at the Fe peak?
   a) Hydrogen burning
   b) Helium burning
   c) Silicon burning
   d) None

5) Clarke and Washington (1924) estimated the _____.
   a) Dispersed elements in the earth's crust
   b) Average percentage of an element in the earth's crust
   c) Distribution of a particular element between two phases
   d) Bulk composition of earth

6) Who has introduced the term siderophile, chalcophile, lithophile and atmophile
   a) Goldschmidt (1923)
   b) Clarke (1924)
   c) Ringwood (1975)
   d) Cameron (1937)

7) The geochemical character of an element is largely governed by the
   a) Number of proton in the nucleus
   b) Number of neutrons in the nucleus
   c) Electronic configuration of its atoms
   d) All the above

8) The average chemical composition based on 5159 superior analysis is for
   a) Granite
   b) Sandstone
   c) Gneisses
   d) None

9) Distribution of elements in the earth is controlled by
   a) Atomic weight
   b) Electronic configuration
   c) r/z index
   d) All of the above

10) Which of the radiogenic element has half life of 5730 years?
   a) ^{235}U
   b) ^{234}U
   c) ^{14}C
   d) ^{16}O

11) Different elements with the same neutron number but with different values of atomic weight and protons are known as :
   a) Isotopes
   b) Isobars
   c) Isotones
   d) Isotherm

12) The composition of upper mantle is
   a) Granitic composition
   b) Basic composition
   c) Ultrabasic composition
   d) Felsic composition

13) The upper crust of the earth consists mainly of:
   a) Standstone
   b) Shales
   c) Limestones
   d) Igneous and metamorphic rocks

14) Chlorinity is determine by precipitation of halides with
   a) HCl
   b) HClO4
   c) AgNO3
   d) NaOH

Q.2 Describe the physico-chemical factors involved in formation of soil. Add note on soil profile. **14**

Q.3 What is radioactivity? Explain in brief different radioactive techniques. **14**

Q.4 Discuss the composition of atmosphere and add a note on gain and loses during evolution of atmosphere. **14**

Q.5 **Write short notes on the following:-** **14**
a) Cosmic abundance of elements
b) Average composition of igneous rocks

Q.6 **Write in brief on the following:-** **14**
a) Eh-pH Diagram
b) Chalcophile

Q.7 **Explain in short the following:-** **14**
a) Zonal structure of Earth
b) Geochemical cycle

SLR-UB-32

Seat No.	

Set P

M.Sc. (Semester - I) (CBCS) Examination Mar/Apr-2018
Applied Geology
SEDIMENTOLOGY AND PALAEONTOLOGY

Time: 2½ Marks Max. Marks: 70

Instructions: 1) Answers any five questions.
2) All questions carry equal marks.
3) Question 1 is compulsory.
4) Answer any two essay questions from Q.2, 3 & 4.
5) Answer any two short notes questions from Q.5, 6 & 7.
6) Draw neat and labeled diagrams wherever necessary.

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

1) Which of the following genera has taxodont dentition?
   a) Gryphaea b) Ostrea
   c) Pecten d) Arca

2) Very fine grained matrix of carbonate rock is termed as _____.
   a) Micrite b) Sparry calcite
   c) Microsparite d) Glass

3) _____ indicate the high energy conditions in the environment of deposition.
   a) Conglomerate b) Sandstone
   c) Shale d) Mudstone

4) The poor sorting of a sediment is generally the result of _____.
   a) Rapid deposition and more reworking
   b) Rapid deposition and little reworking
   c) Little deposition and little reworking
   d) Slow deposition and more reworking

5) Coprolites area _____.
   a) Fossil foot impressions
   b) Body cavities of certain reptiles
   c) Fossil fecal pellets of ancient animal
   d) Pseudofossils

6) The geological age of the Ceratite is _____.
   a) Carboniferous b) Triassic
   c) Cretaceous d) Pleistocene

7) Glacial deposits are
   a) Homogenous and well sorted b) Heterogeneous and unsorted
   c) Homogenous and unsorted d) Heterogeneous and well sorted

8) Trilobites are found in _____.
   a) Precambrian rocks b) Palaeozoic rocks
   c) Mesozoic rocks d) Cenozoic rocks

9) The cranial capacity of Modern Man is
   a) 400 cubic cm b) 800 cubic cm
   c) 1000 cubic cm d) 1500 cubic cm

10) As compared with sandstones, shales have
   a) Higher porosity and permeability
   b) lower porosity and permeability
   c) Higher porosity and lower permeability
   d) Lower porosity and Higher permeability

11) A coarse grained biogenic limestone is termed as
   a) Biomicrite
   b) Biosparite
   c) Oomicrite
   d) Oosparite

12) Gangamopteris is similar to Glossopteris but the difference is
   a) Gangamopteris is without any midrib
   b) Gangamopteris is having midrib
   c) Gangamopteris is leaf genera
   d) None of these

13) Stromatolites are
   a) Fungi
   b) Green bacteria
   c) Blue green algae
   d) Blue green ostracods

14) Paradoxides is an index fossil of
   a) Cambrian
   b) Ordovician
   c) Silurian
   d) Devonian

Q.2 What is a sedimentary environment? Describe in detail deltaic sedimentary environment. **14**

Q.3 Define fossil? What are different types of fossils and their significance? **14**

Q.4 Describe in detail the classification of sedimentary rocks. **14**

Q.5 **Explain the following:-** **14**
a) Cuddapah sedimentary basin and its tectonic setting
b) Gondwana flora

Q.6 **Write short note on:-** **14**
a) Aeolian sedimentary environment
b) Evolution of Man

Q.7 **Discuss in brief :-** **14**
a) Reynold no. and Froude no. and their applications.
b) Morphology of Trilobite

SLR-UB-33

Seat No.	

Set P

M.Sc. (Semester - I) (CBCS) Examination Mar/Apr-2018
Applied Geology
ECONOMIC GEOLOGY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Answers any five questions.
2) All questions carry equal marks.
3) Question 1 is compulsory.
4) Answer any two questions from Q.2, 3 & 4.
5) Answer any two questions from Q.5, 6 & 7.
6) Draw neat and labeled diagrams wherever necessary.

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

1) Primary ore of zinc is _____.
   a) Chalcopyrite b) Hematite
   c) Galena d) Sphalerite

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

3) Hutti is famous for _____ mine.
   a) Gold b) Copper
   c) Zinc d) Iron

4) Supergene Sulphide enrichment zone is found _____.
   a) above water table b) below water table
   c) hear ground surface d) in oxidizing zone

5) Ladder vein structure commonly is shown by _____ deposits.
   a) Sedimentary b) Cavity filled
   c) Evaporates d) Magmatic segregation

6) Diamond in kimberlite are good example of _____ deposits
   a) Disseminated b) Segregated
   c) Injected d) Pegmatitic

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

8) Banded manganese ores are generally _____.
   a) Epigenetic b) Syngenetic
   c) Both a & b d) None

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

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

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

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

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

14) Magnetite and Hematites are on ore of _____.
   a) Cu b) Fe
   c) Mn d) Pb

Q.2 Explain in detail Residual & Mechanical concentration. **14**

Q.3 Explain Wall rock alteration and discuss its types **14**

Q.4 Write a full note on supergene sulphide Enrichment? **14**

Q.5 **Write note on:-** **14**
a) Early magmatic deposits
b) National mineral policy

Q.6 **Write in short:-** **14**
a) Paragenesis and zoning of ore
b) Hydrothermal deposits

Q.7 **Explain in short:-** **14**
a) Khetri copper deposits
b) Ore textures

SLR-UB-35

Seat No.		Set	P

M.Sc. (Semester - II) (CBCS) Examination Mar/Apr-2018
Applied Geology
IGNEOUS AND METAMORPHIC PETROLOGY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Answers any five questions.
2) All questions carry equal marks.
3) Question 1 is compulsory.
4) Answer any two questions from Q.2, 3 & 4.
5) Answer any two questions from Q.5, 6 & 7.
6) Draw neat and labeled diagrams wherever necessary.

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

1) Find the odd one:-
   a) Eclogite b) Amphibolites
   c) Pyroxenite d) Charnockite

2) The term window to mantle is applied to an altered porphyritic mica peridotite containing olivine and phlogopite and containing diamonds is commonly known as _____.
   a) Carbonatite b) Eclogite
   c) Kimberlite d) Granulite

3) The Charnockite found in Eastern ghat are characteristic rocks of _____.
   a) Hornblend granulite b) Hornfels
   c) Pyroxene granulite d) None

4) IUGS has recommended a classification scheme called Total Alkaline Silica (TAS) for
   a) Volcanic rocks b) Plutonic rocks
   c) Hypabyssal rocks d) Mafic rocks

5) The S-type granites can be distinguish from I - type granite as S-type granite is
   a) Per-aluminous b) Syn-aluminous
   c) Meta-aluminous d) None

6) Identify the mineral characteristically appearing in a silica deficient metamorphic calcareous sediments.
   a) Corundum b) Forsterite
   c) Diopside d) Cordierite

7) Harzburgite is _____ type of igneous rock.
   a) Volcanic rock b) Ultramafic rocks
   c) Ultrapotassic rock d) Lamprophyre

8) Which of the following is not monomineralic rock?
   a) Dunite b) Pyroxenite
   c) Anorthosite d) Syenite

9) The migmatite are formed by following mechanism
   a) Granitization
   b) Anatexis
   c) Metamorphic differentiation
   d) All of the above

10) The repetition of metamorphic event is called as _____.
   a) Metasomatism
   b) Polymetamorphism
   c) Regional metamorphism
   d) None

11) In the Deccan Volcanic province, Zeolites and secondary minerals are typically hosted by
   a) Aa type lava
   b) Pahoehoe lava
   c) Block lava
   d) None

12) Match the type of metamorphism with the geotectonic environment.

1. Regional metamorphism	a. Fault zones
2. Burial metamorphism	b. Continental shelves
3. Contact metamorphism	c. Orogenic belts
4. Cataclastic metamorphism	d. Intrusion aureoles

   a) 1-b, 2-c, 3-a, 4-d
   b) 1-c, 2-b, 3-d, 4-a
   c) 1-c, 2-a, 3-d, 4-b
   d) 1-b, 2-d, 3-c, 4-a

13) The rock that is essentially consists of quartz tourmaline is _____.
   a) Pegmatite
   b) Schorl
   c) Graisen
   d) Hornfels

14) Under what type of crystallization do you expect univariant condition?
   a) Solid solution
   b) Eutectic
   c) Peritectic
   d) None

Q.2 What is regional metamorphism? Add note on the metamorphic products of pelitic and siliceous protolithic rocks. **14**

Q.3 Describe type of magmatism and metamorphism related to convergent plate boundaries. **14**

Q.4 Discuss the behavior of crystallization of orthoclase-albite system at various P_{H2O} and add a note on perthite texture. **14**

Q.5 **Write note on:-** **14**
a) IUGS classification of plutonic rocks
b) Kimberlites

Q.6 **Write briefly on the following:-** **14**
a) Retrograde metamorphism
b) Deccan basalts

Q.7 **Enumerate in short** **14**
a) Index minerals
b) Lamprophyre

SLR-UB-36

Seat No.		Set	P

M.Sc. (Semester - II) (CBCS) Examination Mar/Apr-2018
Applied Geology
INDIAN STRATIGRAPHY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Answers any five questions.
2) All questions carry equal marks.
3) Question 1 is compulsory.
4) Answer any two questions from Q.2, 3 & 4.
5) Answer any two questions from Q.5, 6 & 7.

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

1) Lignite deposit of Neyveli belongs to
   a) Cuddalore Sandstone b) Chali series
   c) Warkali beds d) None of the above

2) Albaka Formation of Godavari basin is equivalent to which of the following formation
   a) Mudhol b) Lokapur
   c) Bagalkot d) Sonrai

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

4) The age of the singhbhum granite is around _____
   a) 3200 m.y. b) 3000 m.y.
   c) 2700 m.y. d) 2950 m.y

5) The shiala formation in Kumaun-Garhwal area has yielded rich assemblages of _____ fossils.
   a) Devonian b) Jurassic
   c) Ordovician d) Triassic

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

7) In Kutch of Gujarat, Mesozoic rocks ranging in age from _____ to _____.
   a) Lower cretaceous to Lower Jurassic
   b) Lower Jurassic to Middle Jurassic
   c) Upper Jurassic to Middle Triassic
   d) Lower Triassic to Upper Triassic

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) The Cenozoic era is also called as _____.
   a) Age of reptiles
   b) Age of fishes
   c) Age of ammonides
   d) Age of Mammals

11) Cumbum Formation of Cuddapah Supergroup belongs to _____.
   a) Kurnool group
   b) Nallamalai Group
   c) Papaghni group
   d) Cheyyair Group

12) What is the correct sequence in ascending order _____.
   a) Semri, Kaimur, Rewah, Bhander
   b) Kaimur, Rewah, Semri, Bhander
   c) Semri, Bhander, Kaimur, Rewah
   d) Bhander, Semri, Kaimur, Rewah

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

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

Q.2 Discuss in detail 'Greenstone belt of South India'. **14**

Q.3 Write a detail note on Origin of Himalaya. **14**

Q.4 Discuss in detail Structure, Stratigraphy & Tectonic evolution of Cuddapah Basin **14**

Q.5 **Write note on:-** **14**
a) Siwalik Group
b) Chattisgarh Basin

Q.6 **Discuss in short of the following:-** **14**
a) Jurassic of Kutch
b) Deccan Trap

Q.7 **Discuss in brief:-** **14**
a) K-T boundary
b) Bhima-Kaladgi basin

SLR-UB-37

Seat No.	

Set P

M.Sc. (Semester - II) (CBCS) Examination Mar/Apr-2018
Applied Geology
HYDROGEOLOGY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Answers any five questions.
2) All questions carry equal marks.
3) Question 1 is compulsory.
4) Answer any two questions from Q.2, 3 & 4
5) Answer any two questions from Q.5, 6 & 7
6) Draw neat and labeled diagrams wherever necessary.

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

1) Suspended water occurs in the zone of aeration is _____ water.
   a) Connate b) Meteoric
   c) Vadose d) Juvenile

2) Meteoritic waters are typically _____ water.
   a) Bicarbonate b) Biphosphate
   c) Saline d) Chlorite

3) Water in the intermediate zone when it is not moving, is called _____ water
   a) Hygroscopic b) Capillary
   c) Gravitational d) Pellicular

4) Organic matter load in water is determined by _____ value.
   a) BOD b) COD
   c) pH d) Colour

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

6) The unit of Transmitivity is _____.
   a) Darcy b) m^2
   c) meter /day d) micrometer

7) Groundwater field above an impervious stratum and not connected with main water table is _____ water.
   a) Connate b) Perched
   c) Leaky aquifer d) Juvenile

8) The upper limit of zone of saturation is bounded by water table, then water is known as _____ water.
   a) Confined b) Unconfined
   c) Gravitational d) None of these

9) The concentration of chemical constituents in Piper Trillinear diagram is expressed in _____.
   a) % ppm b) % e.p.m.
   c) Equivalent weights d) mg / litre

10) Specific discharge is synonymous to _____.
   a) Hydraulic conductivity b) Permeability
   c) Darcy velocity d) Storability

11) Estimation of aquifer parameter in Leaky aquifer is done by ____ method.
   a) Theiss b) Walton
   c) Jacob d) Boulton

12) The chief source of potassium in groundwater is _____.
   a) Alkali feldspars b) Plant debris
   c) Mica flakes d) Halites

13) The specific retention is least in case of _____.
   a) Clay & mud b) Coarse gravels
   c) Coarse d) Sand only

14) The distance away from the well up to a point at which the lowering of the water table (as an effect of pumping) of minimum is known as _____.
   a) Cone of depression b) Radius of influence
   c) Cone of exhaustion d) Both a & b

Q.2 Describe various types of aquifers and add a note on significance of method for determination of groundwater age. **14**

Q.3 Give brief account of various Groundwater Provinces of India. **14**

Q.4 Discuss in detail assessment of groundwater quality. **14**

Q.5 **Write note on:-** **14**
a) Porosity & permeability
b) Hydrographs

Q.6 **Explain in short :-** **14**
a) Electrical Resistivity Method
b) Hydrological cycle

Q.7 **Write note on :-** **14**
a) Groundwater legislation
b) Pump Test

SLR-UB-39

Seat No.		Set	P

M.Sc. (Semester - III) (New) (CBCS) Examination Mar/Apr-2018
Applied Geology
MINERAL EXPLORATION

Time: 2½ Hours Max. Marks: 70

Instructions: 1) All questions carry equal marks.
2) Question 1 is compulsory.
3) Answer any two essay questions from Q.2, 3 & 4.
4) Answer any two short notes questions from Q.5, 6 & 7.
5) Draw neat and labeled diagrams wherever necessary.

Q.1 Mark the correct objective:- **14**

1) Find the odd one out:-
   a) Free air correction b) Bouguer correction
   c) Topographic correction d) Diurnal correction

2) The daily of cycle of magnetic change of the earth field is termed as _____.
   a) Bouguer changes b) Secular change
   c) Diurnal change d) None

3) The productive plutons for diamond deposit are _____.
   a) Granite b) Kimberlite
   c) Greenstone d) None

4) The map showing changes of magnetic intensity per annum is termed as
   a) Isoporic map b) Geodic map
   c) Isomagnetics map d) None

5) The chemical action between minerals and solution with which they are in contact is made use in
   a) Seismo-chemical survey b) Self-potential method
   c) Magneto telluric method d) Radioactive method

6) The galmi flora are geobotanical indicators for
   a) Radioactive methods b) Gallium deposit
   c) Sulphide deposits d) None

7) The rock which develops during the contact metamorphism
   a) Buchite b) Skarn rock
   c) Kimberlite d) Charnockite

8) Which of the following methods are used for identification of carnotite
   a) Radioactive b) Seismic
   c) Magnetic d) All the above

9) It is better to identify a mineral by using its
   a) colour b) density
   c) streak d) shade

10) Seismic reflection method identifies the structures localizing
   a) Gold b) Porphyry copper
   c) Hydrocarbons d) None

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

12) Litho-geochemical survey are carried out to identify the
   a) Primary dispersion
   b) Secondary dispersion
   c) Wall rock alteration
   d) None of the above

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) The rays that are measure by a standard radioactive prospecting instrument the Geiger counter detects
   a) α - rays & β-rays
   b) β-rays & Gamma rays
   c) Gamma rays & α-rays
   d) None

Q.2 Discuss the gravity method for mineral exploration and their different method of correction with label diagrams? **14**

Q.3 Principles of subsurface geophysical method of well logging and their different types? **14**

Q.4 Describe in detail geobotanical survey and their merits and demerits? **14**

Q.5 **Discuss the following question in short:-** **14**
a) Principle and concept of radiometric prospecting.
b) Resistivity method for structural and lithological interpretation.

Q.6 **Write short notes on:-** **14**
a) Geochemical dispersion
b) Methods and type of sampling

Q.7 **Write short notes on:-** **14**
a) Explain the method of exploration of hydrocarbon.
b) Geochemical and geophysical anomalies

SLR-UB-40

Seat No.		Set	P

M.Sc. (Semester - III) (New) (CBCS) Examination Mar/Apr-2018
Applied Geology
GEOTECTONIC AND PHYSICAL OCEANOGRAPHY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Answers not more than five questions.
2) Question 1 is compulsory.
3) Answer any two essay questions from Q.2, 3 & 4
4) Answer any two short notes questions from Q.5, 6 & 7
5) Draw neat and labeled diagrams wherever necessary.

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

1) 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

2) Lesser Himalayan domain in Himalaya is separated from great Himalaya by
   a) Main central thrust b) Main Boundary Thrust
   c) Himalayan frontal fault d) Indus Suture zone

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

4) The primary process by which nutrients in deep sea return to the surface water is
   a) Heating of surface water b) Downwelling
   c) Upwelling d) Surface of deep dwelling organism

5) What are ophiolite suites?
   a) Fragments of ocean lithosphere emplaced on a continent
   b) Groups of sea floor magnetic anomalies
   c) Wedge shaped packages of sediment that form at passive margins
   d) Micro continents that have provided a long distance

6) When the estuary in essentially tideless and the floor of the estuary slopes down towards the sea.
   a) Partially mixed estuary b) Salt wedge estuary
   c) Stratified estuary d) None of the above

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

8) 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) Carioles effect d) None

9) Out of all tectonic regions of the globe, the maximum heat flow is found in the
   a) Subduction zone
   b) Mid oceanic ridge
   c) Flank province
   d) Island arc

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) Crustal blocks that occur within organic belts whose rocks and structures contrast sharply with adjacent provinces are called _____.
   a) Ophiolites
   b) Sutures
   c) Microplates
   d) Island arc

12) The theory of sea floor spreading is formulated by _____.
   a) Heiss & Dietz
   b) Taylor
   c) Wegner
   d) All of the above

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

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

Q.2 Explain in brief the magnetism, seismicity and volcanism at the divergent plate boundary. **14**

Q.3 Discuss the types of oceanic sediments? Describe the deposition and distribution of oceanic sediments. **14**

Q.4 What is ophiolite? Explain in detail the structure petrology and source of formation of oceanic crust. **14**

Q.5 **Write short notes on:-** **14**
a) Passive Oceanic Margin
b) Types of Estaury

Q.6 **Discuss the following:-** **14**
a) Causes of sea level changes
b) Origin of Himalayas

Q.7 **Explain in brief:-** **14**
a) Continental drift
b) Topographic features of continental margin

SLR-UB-41

Seat No.		Set	P

M.Sc. (Semester - III) (New) (CBCS) Examination Mar/Apr-2018
Applied Geology
ENGINEERING GEOLOGY AND MINING GEOLOGY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Answers any five questions.
2) All questions carry equal marks.
3) Question 1 is compulsory.
4) Answer any two essay questions from Q.2, 3 & 4.
5) Answer any two short notes questions from Q.5, 6 & 7.
6) Draw neat and labeled diagrams wherever necessary.

Q.1 Mark the correct objective:- 14

1) The stress is express as: (P=Load & A= Area)
   a) P/A b) A/P
   c) P.A d) A/P x 100

2) The young modulus of a material is equal to
   a) Stress/Strain within the elastic limit
   b) Stress/Strain within the yield point
   c) Strain/Stress the elastic limit
   d) None of these

3) Most weather resisting rock is
   a) Limestone b) Marble
   c) Quartzite d) Slate

4) A dam in which entire force acting on it are directly transmitted to the foundation rock is known as :
   a) Gravity dam b) Arch dam
   c) Buttress dam d) Earthen dam

5) The major resisting force in a gravity dam is:
   a) Wave pressure b) Water pressure
   c) Uplift pressure d) Self weight

6) 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

7) Landslide is the :
   a) Downward movement of slope material
   b) Outward movement of slope material
   c) Downward and outward movement of slope material
   d) Downward and inward movement of slope material

8) The width of the ore body which can be economically mined is:
   a) Stopping width b) Assay width
   c) Actual width d) Grady width

9) Grab sampling consists in:
   a) Picking pieces of ore at one place only
   b) Picking pieces of ore at random to make up a sample
   c) Picking pieces of coal only
   d) Picking pieces of ore in a grid fashion

10) The lines joining points or equal vertical thickness in bed known as
   a) Isopaches
   b) Isothicks
   c) Contours
   d) Isochores

11) Polygonal method of reserve estimation is used when :
   a) Drill holes are equally spaced
   b) Drill holes occur in rectangular grid
   c) Drill holes are irregularly spaced
   d) Drill holes are considered to form

12) Drift in mining terminology means:
   a) The same as tunnel
   b) The same as adit
   c) A horizontal tunnel parallel to the strike of the load
   d) Opening from the shaft, passing through the country rock and reach to the ore body

13) Cut off grade is:
   a) The grade of ore ultimately fed to the beneficiation plant
   b) The grade of ore below which mining which uneconomical
   c) The grade of ore through the ore body
   d) Always the same as average grade

14) Lines joining the point of equal elevation are known as:
   a) Contours
   b) Isochones
   c) Isopeths
   d) Stratum contours

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

Q.3 Write a detail description on opencast mining methods for metallic, non metallic and placer deposits? **14**

Q.4 How drilling is carried out in field and explain different types of drilling methods **14**

Q.5 **Discuss the following question in short:-** **14**
a) Geological criteria for site selection of dam and reservoir.
b) Ocean bottom mining methods.

Q.6 **Write short notes on:-** **14**
a) What is rock aggregates? Their classification and properties.
b) Mining hazards and mine diseases.

Q.7 **Write short notes on:-** **14**
a) Problem of groundwater in engineering projects.
b) Room and pillaring method.

SLR-UB-43

Seat No.		Set	P

M.Sc. (Semester - III) (Old) (CBCS) (CGPA) Examination Mar/Apr-2018
Applied Geology
MINERAL EXPLORATION

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Answers any five questions.
2) All questions carry equal marks.
3) Question 1 is compulsory.
4) Answer any two questions from Q.2, 3 & 4.
5) Answer any two questions from Q.5, 6 & 7.
6) Draw neat and labeled diagrams wherever necessary.

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

1) Molybdenum is an excellent path finder for _____.
   a) Bedded Chromite b) Porphyry Cu deposits
   c) Gold d) None

2) "Threshold" the limit of a normal background fluctuation is associated with _____.
   a) Geochemical prospecting b) Geophysical prospecting
   c) Geo botanical prospecting d) All of the above

3) For sulphide deposits, the most suitable method of prospecting is _____.
   a) Self potential method b) Gravity methods
   c) Seismic method d) Magnetic methods

4) The surface signature of supergene sulphide enrichment is _____.
   a) Lignite b) Gossan
   c) Wall rock alteration d) All of the above

5) Ground water prospecting is successfully carried out by _____.
   a) Geophysical survey b) Hydro geological surveys
   c) Geo botanical survey d) All the above

6) Geiger counter is an instrument used in radioactive mineral prospecting which detects _____.
   a) Alpha particles b) Beta particles
   c) Gamma particles d) Infrared rays

7) Hydro carbon bearing structures can be identified by _____ geophysical survey.
   a) Electrical b) Seismic
   c) Magnetic d) Gravity

8) When you notice "As" anomaly in wall rock geochemistry, it is a pathfinder for _____ deposits.
   a) Porphyry copper b) Uranium
   c) Vein type Au ore d) All of the above

9) The Indian Gold deposits exhibit _____ control.
   a) Litho logical b) Stratigraphic
   c) Structural d) All of the above

10) The most successful geo botanical indicator for copper is _____.
   a) Becium homblei
   b) Astragalus
   c) Rubiaceae
   d) None of the above

11) Interpretation of Electrical Resistivity data in Schlumberger configuration is carried out by _____.
   a) Apparent resistivity plotting
   b) Curve matching
   c) Potential difference
   d) None of the above

12) If the subsurface formations are composed of three layers with resistivities P_1 P_2 P_3 and thickness h_1, h_2 and infinity is exhibited by H type curve & the relationship is as _____.
   a) $P_1 > P_2 < P_3$
   b) $P_1 > P_2 > P_3$
   c) $P_1 < P_2 < P_3$
   d) $P_1 < P_2 > P_3$

13) Radioactive method is useful in the identification of _____.
   a) Sulphides
   b) Carnotite
   c) Corundum
   d) Graphite

14) Khondalite occurring in the eastern ghats are associated with _____.
   a) Gold
   b) Diamonds
   c) Zinc
   d) Graphite

Q.2 What are magnetic elements, state the correction required for the magnetic surveys. **14**

Q.3 Write in detail on various geochemical surveys. Add a note on their merits and demerits. **14**

Q.4 Write various geological criteria of prospecting ore deposits with suitable Indian examples. **14**

Q.5 **Write short notes on the following.** **14**
a) Mineral deposits associated with pegmatites.
b) Association of elements and pathfinders.

Q.6 **Discuss briefly on the following.** **14**
a) Seismic reflection method.
b) Electrode configuration of resistivity survey.

Q.7 **Describe the following.** **14**
a) Sampling methods.
b) Bio geochemical survey.

SLR-UB-44

Seat No.		Set	P

M.Sc. (Semester - III) (Old) (CBCS) (CGPA) Examination Mar/Apr-2018
Applied Geology
GEOTECTONICS AND PHYSICAL OCEANOGRAPHY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Answers any five questions.
2) All questions carry equal marks.
3) Question 1 is compulsory.
4) Answer any two essay questions from Q.2, 3 & 4.
5) Answer any two short notes questions from Q.5, 6 & 7.
6) Draw neat and labeled diagrams wherever necessary.

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

1) Which of the following are not associated with convergent plate margins?
   a) Deep focus earthquakes b) Island arc
   c) Deep sea trench d) Rift valley

2) The super continent Pangaea is fragmented at the age of _____.
   a) Proterozoic b) Mesozoic
   c) Paleozoic d) Cenozoic

3) The Gondwanaland and Laurasia were separated by large body of water between Africa and Eurasia called as _____.
   a) Tethys sea b) Atlantic ocean
   c) Pacific ocean d) Indian ocean

4) What are ophiolite suites?
   a) Fragments of oceanic lithosphere emplaced on a continent
   b) Groups of seafloor magnetic anomalies
   c) Wedge- shaped packages of sediments that form at passive margins
   d) Micro-continents that have traveled a long distance

5) When the estuary is essentially tideless and the floor of the estuary slope down towards the sea.
   a) Stratified estuary b) Partially mixed estuary
   c) Salt wedge estuary d) None

6) Coastal upwelling results in _____.
   a) Warm water surfacing b) Nutrient rich water surfacing
   c) Mixing of salt and fresh water d) Lowering of high tides

7) The margin associated with island arc, marginal seas and inter arc basins are _____.
   a) Active b) Passive
   c) Transform d) All of the above

8) Out of all tectonic regions of the globe, the maximum heat flow is found at _____.
   a) Subduction zone b) Mid oceanic ridge
   c) Island arc d) All the above

9) D-layer is identified at boundary of
   a) Upper mantle – lower crust b) Transition zone
   c) Lower mantle – core d) Upper crust – lower crust

10) Long, straight features parallel to the shore and separated from the main coasts by lagoons and bays.
   a) Beaches
   b) Barriers
   c) Estuaries
   d) None of the above

11) In which tectonic setting calc – alkaline magma is generated
   a) Oceanic rift
   b) Subduction zone
   c) Continental rift
   d) Intraplate

12) The east coast of North America represents a _____.
   a) Convergent boundary
   b) Divergent boundary
   c) Transform boundary
   d) None of the above

13) Compressive stresses, granitic magmas and intermediate depth earthquakes are associated with _____.
   a) Subduction zones
   b) Continent – continent convergence
   c) Spreading centers
   d) Transform boundaries

14) Sedimentary rocks laid down in a slowly subsiding basin along a receding continental margin are called _____.
   a) Continental shelf deposits
   b) Ophiolite suites
   c) Mélange deposits
   d) None of the above

Q.2 Explain in detail the tectonic evolution of Himalaya with drifting of Indian sub continent. **14**

Q.3 Describe in brief the oceanic sediments and its types. **14**

Q.4 What is Estuaries? Explain in detail classification of estuaries with suitable examples. **14**

Q.5 **Write short note on the following.** **14**
a) Coastal pollution
b) Morphology of ocean floor

Q.6 **Discuss in brief on the following.** **14**
a) Basic concept of plate tectonic.
b) Divergence and Convergence of ocean currents

Q.7 **Describe the following.** **14**
a) Hydro thermal vents and its significance.
b) Factors controlling deposition of oceanic sediments.

SLR-UB-45

Seat No.	

Set P

M.Sc. (Semester - III) (Old) (CBCS) (CGPA) Examination Mar/Apr-2018
Applied Geology
ENGINEERING GEOLOGY & MINING GEOLOGY

Time: 2½ Hours Max. Marks: 70

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 blank with appropriate word:- 14

1) In folded rocks the tunnel may be excavated along or across the trend of _____.
   a) Fold axis b) Strike line
   c) Faucet line d) Along dip direction

2) In arch dam the thrust of water in the reservoir is transmitted.
   a) To walls of river valley on either side
   b) At the centre of dam
   c) At the base of dam
   d) Below the reservoir rocks

3) Both ‘p’ and ‘s’ waves are called as _____.
   a) Surface waves b) Shear waves
   c) Body waves d) Long waves

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

5) Comminution is the process of _____.
   a) Size reduction
   b) Concentration of valuables
   c) Liberation of valuable minerals from the gangue
   d) Sorting of the particles

6) Which of the following is the most feebly magnetic among the following?
   a) Quartz b) Rutile
   c) Magnesite d) Galena

7) A buttress dam is generally more economic if _____.
   a) River valley is broad
   b) Abutments are strong and valley is narrow
   c) Abutments are elayey
   d) Dam is to be constructed on lime stone foundation.

8) Screens are generally classified as _____.
   a) Fixed and moving b) Under and lower
   c) Left and right d) Front and back

9) The country rock occurring above the vein of ore body is known as _____.
   a) Hanging wall b) Stope
   c) Raise d) Winze

10) Sandur of Bellary district in Karnataka is known for _____ deposits.
   a) Iron one b) Gold
   c) Bauxite d) Barytes

11) The feasibility report of a mine is based on _____.
   a) Measured reserves b) Indicated reserves
   c) Inferred reserves d) None of the above

12) Which of the following are more suitable for underground mining of ore bodies situated at greater depths?
   a) Horizontal shapes b) Inclined shapes
   c) Vertical shapes d) None of the above

13) If in the mines, tunnels are made downward to connect upper level to lower one is known as _____.
   a) Cross cut b) Conduit
   c) Winze d) Subway tunnel

14) Impact of the explosive in sand is _____.
   a) High b) Medium
   c) Low d) All the above

Q.2 Explain geological investigation for civil engineering. **14**

Q.3 Discuss causes and mitigation of Earthquakes. **14**

Q.4 Discuss Geotechnical study of Koyana dam. **14**

Q.5 **Write short notes on:** **14**
a) Alluvial mining
b) Rock aggregate and their classification

Q.6 **Discuss in brief of the following:** **14**
a) Underground mining operations
b) Mine hazards and diseases

Q.7 **Write in brief :-** **14**
a) Silting of reservoirs
b) Diamond drilling

SLR-UB-47

Seat No.		Set	P

M.Sc. (Semester - IV) (New) (CBCS) Examination Mar/Apr-2018
Applied Geology
ENVIRONMENTAL GEOLOGY AND DISASTER MANAGEMENT

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Answers any five questions.
2) All questions carry equal marks.
3) Question 1 is compulsory.
4) Answer any two questions from Q.2, 3 & 4.
5) Answer any two questions from Q.5, 6 & 7.
6) Draw neat and labeled diagrams wherever necessary.

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

1) Slope failures are commonly classified as falls, flows and slides depending on _____.
   a) Nature of surfacial material b) Slope angle
   c) Water content d) All the above

2) Which volcano is likely to pose the greatest hazard during an eruption ____.
   a) Shield b) Cinder cone
   c) Stratovolcano d) Dormant volcano

3) Chemical released by chlorofluorocarbons that causes depletion of ozone layer in atmosphere is _____.
   a) Nitrogen b) Chlorine
   c) Sulphuric acid d) Sodium chloride

4) The tsunamis are caused by _____.
   a) Vertical displacement of ocean floor during an earthquake
   b) High tides in the oceans
   c) Both a and b
   d) None of the above

5) Which of the following pairs of air pollutant causes acid rain?
   a) Sulphur dioxide – carbon dioxide
   b) Oxides of nitrogen – carbon monoxide
   c) Sulphur dioxide – oxides of nitrogen
   d) Ammonia – chlorine

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

7) The solid waste form hospital is classified as _____.
   a) Hazardous b) Non hazardous
   c) Compostable d) Combustible

8) The process of using earthworms for the conversion of biodegradable waste into compost is known as _____.
   a) Composting b) Vermicomposting
   c) Worm fertilizer d) Bio-fertilizer

9) What are the materials that do not decay and remain in the environment called?
   a) Biodegradable wastes
   b) Garbage
   c) Non-biodegradable wastes
   d) Solid wastes

10) _____ is one of the most violent storms on earth.
   a) Hurricanes
   b) Hail
   c) Tornado
   d) Fairman

11) The major cause for land degradation in our country is _____
   a) Soil erosion
   b) Water-logging
   c) Pollution of soil
   d) None of the above

12) Which one of the following pollution has acquired regional and global dimensions?
   a) Water pollution
   b) Air pollution
   c) Land pollution
   d) None of the above

13) Find the odd man out _____.
   a) Wild fire
   b) Tornado
   c) Avalanche
   d) Oil spill

14) Natural disaster depends on _____
   a) Topographical
   b) Metrological
   c) Environment
   d) All of the above

Q.2 Explain the various factors for formation of soil. Add note on causes of soil pollution. **14**

Q.3 Discuss various types, sources and causes of water pollutants and controlling measures. **14**

Q.4 Describe in detail the causes and effects of Earthquake. Add a note on case history of Killari earthquake. **14**

Q.5 **Write short notes on:-** **14**
a) Cyclone in Chennai
b) Different types of waste

Q.6 **Describe the following:-** **14**
a) Classification of Natural hazards
b) Global warming

Q.7 **Explain in brief:-** **14**
a) Landslide in Maharashtra
b) Solid waste disposal

SLR-UB-48

Seat No.		Set	P

M.Sc. (Semester - IV) (New) (CBCS) Examination Mar/Apr-2018
Applied Geology
REMOTING SENSING AND GIS

Time: 2½ Hours Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) All questions carry equal marks.

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

1) FCC stands for _____.
   a) Falles Colour Composite b) False Colour Composite
   c) Few Colour Complex d) All of above

2) _____ in form vector data Generate.
   a) Point b) Line
   c) Polygon d) All of above

3) Which of the following satellite series concerned India?
   a) Land sat b) Spot
   c) IRS d) JRS

4) G.P.S. provides data of _____.
   a) Latitude b) Longitude
   c) Height d) All of the above

5) Remote sensing system which use the naturally available energy are called as _____.
   a) Passive sensor b) Active sensors
   c) Both a & b d) None of the above

6) Ratio between map distance and ground distance _____.
   a) Map scale b) Projection
   c) Resample d) Datum

7) 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

8) DIP is known as _____.
   a) Digital Image Process b) Dot Image Process
   c) Digital Image Product d) All of the above

9) Altitude of geostationary satellite is _____.
   a) 20000 Km b) 36000 Km
   c) 900 Km d) 700 Km

10) _____ wavelength can penetrate clouds.
   a) Optical b) Thermal
   c) Microwave d) All the above

11) _____ is the world's first commercial high resolution imaging satellite.
   a) EO-1 b) IKONOS
   c) Orb View-2 d) Quick bird

12) _____ is a computer system for capturing, storing, analyzing, manipulating and display spatial and spatial data.
   a) Remote sensing b) GPS
   c) GIS d) Both a and b

13) The distance between two successive crest or trough is called _____.
   a) Amplitude b) Frequency
   c) Wave number d) Wavelength

14) Non selective scattering all wavelengths are scattered equally then cloud appears _____.
   a) White b) Black
   c) Red d) Blue

Q.2 Explain fundamental principle of remote sensing and describe types of remote sensing. **14**

Q.3 Write history of remote sensing and components of GIS. Add a note on its advantages. **14**

Q.4 Explain the importance of GIS in Geo-science. **14**

Q.5 **Write notes on:** **14**
a) Scattering
b) Energy interaction with atmosphere

Q.6 **Explain in short :-** **14**
a) Hardware and software for GIS.
b) GPS.

Q.7 **Write note on the following :-** **14**
a) DEM
b) Across track scanning

SLR-UB-49

Seat No.		Set	P

M.Sc. (Semester - IV) (New) (CBCS) Examination Mar/Apr-2018
Applied Geology
FUEL GEOLOGY

Time: 2½ Hours Max. Marks: 70

Instructions: 1) All questions carry equal marks.
2) Question 1 is compulsory.
3) Answer any two essay questions from Q. 2, 3 & 4.
4) Answer any two short notes questions from Q. 5, 6 & 7.
5) Draw neat and labeled diagrams wherever necessary.

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

1) Which one of the following parent-daughter systems has the longest half life?
   a) $^{147}Sm \rightarrow {}^{143}Nd$ b) $^{87}Rb \rightarrow {}^{87}Sr$
   c) $^{40}K \rightarrow {}^{40}Ar$ d) $^{187}Os \rightarrow {}^{187}Re$

2) The age range of reservoir rock in Cambay oil field is _____
   a) 34 – 15 million years b) 65 – 56 million years
   c) 56 – 34 million years d) 100 – 65 million years

3) During which stage of coalification is most of the methane gas generated?
   a) Lignite b) Peat
   c) Bituminous d) Anthracite

4) Which of the following is a non-renewable energy resource?
   a) Solar b) Methane
   c) Hydroelectric d) Coal

5) A coal deposit that is not economical to mine today would be considered part of our _____.
   a) coal reserves b) coal resources
   c) coal reservoirs d) none of these

6) Energy resources derived from natural organic materials are called _____.
   a) geothermal energy sources b) fossil fuels
   c) biomass d) all of these

7) In an oil trap formed by an anticline, _____ accumulates on top, _____ in the middle, and _____ at the bottom.
   a) natural gas…. oil….. groundwater
   b) ground water…. oil ….. natural gas
   c) oil…. groundwater ….. natural gas
   d) oil... natural gas ….. ground water

8) Which of the following will not make a fossil?
   a) decomposed organic material b) animal footprints
   c) plant impressions (casts) d) loose animal bones

9) Uranium -238 decays to which of the following daughter isotopes?
   a) rubidium – 87 b) lead – 206
   c) uranium – 235 d) nitrogen – 14

10) In India, bituminous coal occurs at
   a) Panandhro
   b) Palana
   c) Neyveli
   d) Jharia

11) The Digboi oil field is associated with the Tippam sandstone, which area of
   a) Eocene age
   b) Miocene age
   c) Oligocene age
   d) Pliocene age

12) Kamthi sub-basin is mainly confined to the
   a) Raniganj formation
   b) Barakar formation
   c) Talehir formation
   d) Barren measure

13) Coal seam are often found to be associated with
   a) Fire Clay
   b) China Clay
   c) Pottery Clay
   d) Bentonites

14) Coking coal in India is found in
   a) Neyvelli, Tamil Nadu
   b) Jharia, Jharkhand
   c) Palana, Rajasthan
   d) Garampani, Meghalya

Q.2 Discuss in detail conventional and non-conventional energy resources? **14**

Q.3 Explain the genesis of hydrocarbon and write down the composition of petroleum and natural gas? **14**

Q.4 Write note on origin of coal and explain its rank? **14**

Q.5 **Discuss the following question in short:** **14**
a) Explain radioactive survey method?
b) Distribution and stratigraphy of Tertiary coal in India?

Q.6 **Write a short notes on:** **14**
a) Nuclear fusion
b) Ocean thermal energy

Q.7 **Write a short notes on:** **14**
a) Nuclear waste and its management
b) Classification of coal deposits

SLR-UB-52

Seat No.		Set	P

M.Sc. (Semester - IV) (Old) (CBCS) Examination Mar/Apr-2018
Applied Geology
ENVIRONMENTAL GEOLOGY AND DISASTER MANAGEMENT

Time: 2½ Hours Max. Marks: 70

Instructions: 1) Answers any five questions.
2) All questions carry equal marks.
3) Question 1 is compulsory.
4) Answer any two questions from Q.2, 3 & 4.
5) Answer any two questions from Q.5, 6 & 7.
6) Draw neat and labeled diagrams wherever necessary.

Q.1 Choose the correct answer:- 14

1) Slope failures are commonly classified as falls, flows and slides depending on _____.
   a) Nature of surfacial material b) Slope angle
   c) Water content d) All the above

2) Which volcano is likely to pose the greatest hazard during an eruption ____.
   a) Shield b) Cinder cone
   c) Stratovolcano d) Dormant volcano

3) Chemical released by chlorofluorocarbons that causes depletion of ozone layer in atmosphere is _____.
   a) Nitrogen b) Chlorine
   c) Sulphuric acid d) Sodium chloride

4) The tsunamis are caused by _____.
   a) Vertical displacement of ocean floor during an earthquake
   b) High tides in the oceans
   c) Both a and b
   d) None of the above

5) Which of the following pairs of air pollutant causes acid rain?
   a) Sulphur dioxide – carbon dioxide
   b) Oxides of nitrogen – carbon monoxide
   c) Sulphur dioxide – oxides of nitrogen
   d) Ammonia – chlorine

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

7) The solid waste form hospital is classified as _____.
   a) Hazardous b) Non hazardous
   c) Compostable d) Combustible

8) The process of using earthworms for the conversion of biodegradable waste into compost is known as _____.
   a) Composting b) Vermicomposting
   c) Worm fertilizer d) Bio-fertilizer

9) What are the materials that do not decay and remain in the environment called?
   a) Biodegradable wastes
   b) Garbage
   c) Non-biodegradable wastes
   d) Solid wastes

10) _____ is one of the most violent storms on earth.
   a) Hurricanes
   b) Hail
   c) Tornado
   d) Fairman

11) The major cause for land degradation in our country is _____
   a) Soil erosion
   b) Water-logging
   c) Pollution of soil
   d) None of the above

12) Which one of the following pollution has acquired regional and global dimensions?
   a) Water pollution
   b) Air pollution
   c) Land pollution
   d) None of the above

13) Find the odd man out _____.
   a) Wild fire
   b) Tornado
   c) Avalanche
   d) Oil spill

14) Natural disaster depends on _____
   a) Topographical
   b) Metrological
   c) Environment
   d) All of the above

Q.2 Explain the various factors for formation of soil. Add note on causes of soil pollution. **14**

Q.3 Discuss various types, sources and causes of water pollutants and controlling measures. **14**

Q.4 Describe in detail the causes and effects of Earthquake. Add a note on case history of Killari earthquake. **14**

Q.5 **Write short notes on:-** **14**
a) Cyclone in Chennai
b) Different types of waste

Q.6 **Describe the following:-** **14**
a) Classification of Natural hazards
b) Global warming

Q.7 **Explain in brief:-** **14**
a) Landslide in Maharashtra
b) Solid waste disposal

SLR-UB-53

Seat No.		Set	P

M.Sc. (Semester - IV) (Old) (CBCS) Examination Mar/Apr-2018
Applied Geology
REMOTING SENSING AND GIS

Time: 2½ Hours Max. Marks: 70

Instructions: 1) All questions are compulsory.
2) All questions carry equal marks.

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

1) FCC stands for _____.
   a) Falles Colour Composite b) False Colour Composite
   c) Few Colour Complex d) All of above

2) _____ in form vector data Generate.
   a) Point b) Line
   c) Polygon d) All of above

3) Which of the following satellite series concerned India?
   a) Land sat b) Spot
   c) IRS d) JRS

4) G.P.S. provides data of _____.
   a) Latitude b) Longitude
   c) Height d) All of the above

5) Remote sensing system which use the naturally available energy are called as _____.
   a) Passive sensor b) Active sensors
   c) Both a & b d) None of the above

6) Ratio between map distance and ground distance _____.
   a) Map scale b) Projection
   c) Resample d) Datum

7) 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

8) DIP is known as _____.
   a) Digital Image Process b) Dot Image Process
   c) Digital Image Product d) All of the above

9) Altitude of geostationary satellite is _____.
   a) 20000 Km b) 36000 Km
   c) 900 Km d) 700 Km

10) _____ wavelength can penetrate clouds.
   a) Optical b) Thermal
   c) Microwave d) All the above

11) _____ is the world's first commercial high resolution imaging satellite.
   a) EO-1 b) IKONOS
   c) Orb View-2 d) Quick bird

12) _____ is a computer system for capturing, storing, analyzing, manipulating and display spatial and spatial data.
   a) Remote sensing b) GPS
   c) GIS d) Both a and b

13) The distance between two successive crest or trough is called _____.
   a) Amplitude b) Frequency
   c) Wave number d) Wavelength

14) Non selective scattering all wavelengths are scattered equally then cloud appears _____.
   a) White b) Black
   c) Red d) Blue

Q.2 Explain fundamental principle of remote sensing and describe types of remote sensing. **14**

Q.3 Write history of remote sensing and components of GIS. Add a note on its advantages. **14**

Q.4 Explain the importance of GIS in Geo-science. **14**

Q.5 **Write notes on:** **14**
a) Scattering
b) Energy interaction with atmosphere

Q.6 **Explain in short :-** **14**
a) Hardware and software for GIS.
b) GPS.

Q.7 **Write note on the following :-** **14**
a) DEM
b) Across track scanning

SLR-UB-54

Seat No.		Set	P

M.Sc. (Semester - IV) (Old) (CBCS) Examination Mar/Apr-2018
Applied Geology
CLIMATOLOGY AND PLANETARY GEOLOGY

Time: 2 ½ Hours Max. Marks: 70

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

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

1) The average height of the troposphere over the poles is around _____.
   a) 6 km b) 16 km
   c) 14 km d) 8 km

2) _____ % of argon is present in the atmosphere.
   a) 1 b) 1.5
   c) 0.93 d) 0.30

3) _____ is the lower most layer of the structure of atmosphere.
   a) Stratosphere b) Troposphere
   c) Mesosphere d) None of these

4) The zone of _____ winds are known as Hadley cells.
   a) Westerly b) Easterly
   c) Trade d) None of these

5) The dry adiabatic lapse rate is _____.
   a) 6.4℃ b) 8.4℃
   c) 10℃ d) 2℃

6) The type of rainfall common at equatorial region is _____.
   a) Convectional b) Orographic
   c) Cyclonic d) Relief

7) Temperature and Precipitation were the basic feature of climate classification given by _____.
   a) Koppen b) Trewartha
   c) Thornthwaite d) None of the above

8) The Tatiana is natural satellite of _____.
   a) Neptune b) Uranus
   c) Jupiter d) None of these

9) The space probe New Horizons launched to study
   a) IO b) Pluto
   c) Neptune d) None of these

10) The Hesperian period is of planet
   a) Jupiter
   b) Venus
   c) Mercury
   d) None of these

11) The only one Asteroid which is normally visible to naked eye
   a) 2 Pallas
   b) 4 Vesta
   c) 3 Juno
   d) None of these

12) The Ishtar Terra situated on planet.
   a) Mars
   b) Venus
   c) Jupiter
   d) None of the above

13) The shooting star is
   a) Meteorite
   b) Meteor shower
   c) Meteoroid
   d) None of these

14) Find odd one
   a) Draconids
   b) Lyrids
   c) Orcus
   d) Orionids

Q.2 Explain in brief Solar radiation and distribution of temperature. **14**

Q.3 Explain in brief present and future planetary exploration mission. **14**

Q.4 Describe the ring system of planet Saturn. **14**

Q.5 **Write short notes on the following :** **14**
a) Heat Budget
b) Meteorites

Q.6 **Write in brief :-** **14**
a) Fronts- Characteristics and types
b) Comets

Q.7 **Explain in short:** **14**
a) Hydrological cycle
b) IO, Phobos and Deimos