

B.Sc. DEGREE EXAMINATION, APRIL 2011

Sixth Semester

Geology

GENERAL GEOLOGY

(Non-CBCS—2004 onwards)

Time : 3 Hours

Maximum : 100 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

Define the following :—

1. Dust Cloud hypothesis.
2. Convection Currents.
3. Dormant Volcanoes.
4. Mercalli's Intensity Scale.
5. Divergent Plate boundaries.

6. Radioactivity.
7. Volcanoes.
8. Seismogram.
9. Isostacy.
10. Volcanic Cones.

Part B

(5 × 7 = 35)

Answer all questions.

11. (a) Explain about classification of Relief Orders.

(Or)

- (b) Explain about Ocean Basins.

12. (a) Discuss the Drift theory of Wegner and Taylor.

(Or)

(b) Draw a neat sketch and explain the Seismograph.

13. (a) Describe techniques used for generating artificial soundwaves on the Earth Surface in Seismic methods.

(Or)

(b) Explain about the mechanism for Plate motion.

14. (a) Explain about the classification of Mountains.

(Or)

(b) Discuss about the Lithospheric plates.

15. (a) Explain about Sea floor spreading.

(Or)

(b) Discuss the concepts of Radioactive decay and generation of Daughter Elements.

Part C

(3 × 15 = 45)

Answer **all** questions.

16. (a) Explain about Continents and Ocean basins.

(Or)

(b) Discuss the principles and concepts of Resistivity Surveying.

17. (a) Explain about Plate tectonics.

(Or)

(b) Explain about the different theories of Isostasy.

18. (a) Brief about the types of eruption and products of Volcanoes.

(Or)

(b) Discuss in detail the different courses of Earthquakes.

B.Sc. DEGREE EXAMINATION, APRIL 2011

Second Semester

Geology

**PALAEONTOLOGY AND GENERAL
STRATIGRAPHY**

(Non-CBCS—2004 onwards)

Time : 3 Hours

Maximum : 100 Marks

Section A (10 × 2 = 20)

Answer **all** the questions.

1. What do you understand by 'Petrification'?
2. What is an Index fossil? Give an example.
3. Mention the Geological age for Zaphrentis and Stigmatopygus.
4. Explain 'theca' and 'epitheca'.

5. Give the Geological age for *Exogyra* and *Rhynchonella*.
6. What are 'Pallial line' and 'Pallial sinus' ?
7. Mention the Geological age for *Calymene* and *Tetragraptus*.
8. Give the Geological age for *Glossopteris* and *Ptilophyllum*.
9. Mention any two principles of Stratigraphy.
10. Explain the term 'Homotaxis'.

Section B

(5 × 7 = 35)

Answer **all** the questions.

11. (a) Briefly explain the various methods of preservation of fossils.

(Or)

(b) Give the stratigraphic importance of the following:

(i) Foraminifera.

(ii) Sponges.

12. (a) Give a brief account of the classification of Phylum Echinodermata.

(Or)

(b) With neat sketches, describe briefly the following fossils :

(i) Lithostrotion.

(ii) Pentremites.

13. (a) List out the distinguishing characters between Pelecypoda and Brachiopoda.

(Or)

(b) With neat sketches, describe the following fossils :

(i) Pecten.

(ii) Ceratites.

14. (a) Describe briefly about the classification of Trilobites.

(Or)

(b) With neat sketches, describe the various forms and arrangement of rhabdosome and theca in Graptolites.

15. (a) What is 'Correlation' ? Mention the different methods of Correlation.

(Or)

(b) Give a brief account on the laws of stratigraphy.

Section C

(3 × 15 = 45)

Answer **all** questions.

16. (a) Give an elaborate account of the different uses of Fossils.

(Or)

- (b) Draw a neat diagram of a Corallite showing the outer and inner views. Label the different parts.

17. (a) Draw a neat diagram of a Gasteropod Shell showing the morphological features. Add a note on the various forms of Gasteropod shells.

(Or)

- (b) With neat sketches, describe the following fossils:
- (i) Tetragraptus.
 - (ii) Paradoxides.
 - (iii) Productus.

18. (a) Give a brief outline on the classification of plant kingdom and describe the following plant fossils :

(i) Sigillaria.

(ii) Glossopteris.

(Or)

(b) Give an elaborate account on the stratigraphic classification of Geological records.

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B.Sc. DEGREE EXAMINATION, APRIL 2011

Third Semester

Geology

MINERALOGY

(Non-CBCS—2004 onwards)

Time : 3 Hours

Maximum : 100 Marks

Section A

(10 × 2 = 20)

Answer **all** questions.

1. List any four uses of quartz minerals.
2. What are Cryptocrystalline Minerals ? Give example.
3. Define Double refraction.
4. Give the uses of Gypsum plate.
5. Define Optic axis.

6. With suitable example, define isotropism.
7. What are percussion figure ?
8. Write the physical properties of Wollastonite.
9. Draw and explain the single chain silicate structure.
10. Mention the optical characters of Calcite.

Section B

(5 × 7 = 35)

Answer **all** questions.

11. (a) Explain Polymorphism in minerals with examples.

(Or)

- (b) Describe Isomorphism with suitable examples.

12. (a) Outline the construction and uses of Nicol prism.

(Or)

(b) State and explain Brewster's Law.

13. (a) Briefly explain :

(i) Pleochroism.

(ii) Twinkling.

(Or)

(b) Enlist the optical characters of Uniaxial minerals.

14. (a) Bring out the mineralogy of Feldspathoids.

(Or)

(b) Give a short account of characters of Plagioclase feldspars.

15. (a) Distinguish between Pyroxene and Amphiboles.

(Or)

(b) Write the Physical properties of :

(i) Kyanite.

(ii) Epidote.

(iii) Dolomite.

Section C

(3 × 15 = 45)

Answer **all** questions.

16. (a) Enumerate the physical properties of minerals by giving suitable examples.

(Or)

(b) Explain the construction and uses of quartz wedge. Add a note on the method of determination of order of interference colour using quartz wedge.

17. (a) Write an essay on minerals of silica group.

(Or)

(b) Elaborate on the mineralogy of Garnet group.

18. (a) What is extinction ? How is it measured in minerals ? Explain the relationship between extinction and crystal systems.

(Or)

(b) Distinguish between the following :

(i) Optical characters of Hypersthene and Eiotite.

(ii) Physical properties of Orthoclase and Olivine.

(iii) Physical and optical properties of Hornblende and Beryl.

B.Sc. DEGREE EXAMINATION, APRIL 2011**Fourth Semester****Geology****INDIAN STRATIGRAPHY**

(Non-CBCS—2004 onwards)

Time : 3 Hours

Maximum : 100 Marks

Section A

(10 × 2 = 20)

Answer **all** questions.

Each answer should be in a word **or** sentence.

1. Define Stratigraphy.
2. Mention few rock types of Archaean Age.
3. Write a note on Po series.
4. Write about some of the Devonian Fossils.
5. Define Neobolus beds.

6. List out the lower division of lower siwaliks.
7. Mention any three plant fossils.
8. Whether Gondwanas are fossiliferous ?
9. Define Lameta beds.
10. Briefly describe Warkala beds.

Section B

(5 × 7 = 35)

Answer all questions.

Each answer should be in about 250 words.

11. (a) Discuss the classification of Dharwar System.

(Or)

- (b) Explain the Physiography of the Peninsular and Extra peninsular India.

12. (a) Give a note on Cambrian of Salt range.

(Or)

(b) Write an account on the Delhi system.

13. (a) Write a note on the two fold division of Gondwanas.

(Or)

(b) Describe about cretaceous of Thiruchirapalli.

14. (a) Explain the Triassic system of Spiti.

(Or)

(b) Describe the stages the Himalayan orogeny.

15. (a) Explain in detail about the Cuddalore sandstone and its distribution.

(Or)

- (b) Describe about the depositional environment and formal assemblage of Siwaliks

Section C (3 × 15 = 45)

Answer **all** questions.

Each answer should be in about 1000 words.

16. (a) Compare and contrast about the drainage system of India.

(Or)

- (b) Explain the classification and economic importance of Caddapah system.

17. (a) Describe the distribution and economic importance of Aravelli system.

(Or)

- (b) Explain the stratigraphy and classification of Jurassic rocks of Kashmir.

18. (a) Discuss the Age of Deccan traps.

(Or)

- (b) Explain about the Oligocene and Miocene rocks of Assam.

B.Sc. DEGREE EXAMINATION, APRIL 2011**Fifth Semester****Geology****IGNEOUS PETROLOGY**

(Non-CBCS—2004 onwards)

Time : 3 Hours

Maximum : 100 Marks

Section A

(10 × 2 = 20)

Answer **all** questions.

1. What are the forms of igneous rocks.
2. Write about Lopeliths.
3. Explain Porphyritic texture.
4. What is Pillow structure ?
5. Differentiate between Felsic and Mafic minerals.

6. Define "Norm".
7. What is understood by Lamprophyres ?
8. Petrographic characters of Peridotites.
9. Write about Mixed Crystals.
10. Explain reaction pair.

Section B

(5 × 7 = 35)

Answer all questions.

11. (a) Mention the various discordant bodies of Igneous rocks.

(Or)

- (b) How will you differentiate Phacoliths and Laccolith with diagram ?

12. (a) Write note on Poikilitic texture with diagram.

(Or)

(b) Discuss in brief about the Intergranular texture.

13. (a) Briefly explain Megascopic classification of Igneous rocks.

(Or)

(b) Explain the basis of classification of Igneous rocks.

14. (a) Describe the Petrographic characters of Diorite.

(Or)

(b) Describe the Petrographic characters of Norite.

15. (a) Write short note on Petrographic provinces.

(Or)

(b) Explain the term incongruent melting.

Section C (3 × 15 = 45)

Answer **all** questions.

16. (a) Describe briefly the following :

(i) Batholiths.

(ii) Rift and Graben.

(iii) Miscellaneous structures.

(Or)

(b) Describe Petrographic characters of important volcanic Igneous rocks.

17. (a) Describe the various kinds of structures of Igneous rocks.

(Or)

(b) Explain and outline the tabular classification of Igneous rocks.

18. (a) Describe in detail the Bowen reaction principle.

(Or)

(b) Describe the process of crystallisation in Diopside-Forsterite - Silica, Incongruent System.

B.Sc. DEGREE EXAMINATION, APRIL 2011

Fifth Semester

Geology

**SEDIMENTARY AND METAMORPHIC
PETROLOGY**

(Non-CBCS—2004 onwards)

Time : 3 Hours

Maximum : 100 Marks

Section A (10 × 2 = 20)

Answer **all** the questions.

1. What do you mean by 'Diagenesis'?
2. Explain the terms 'Clastic' and 'Non-Clastic' rocks.
3. What is 'Terrarossa'?
4. What do you mean by 'Arenaceous rocks'? Give two examples.

5. What are concretions ?
6. Give two examples of siliceous deposits of chemical origin.
7. Define 'Metamorphism'.
8. Explain 'Granoblastic' texture. Give one example.
9. What do you mean by 'Contact metamorphism' ?
10. By which type of metamorphism 'Snowball Garnets' are formed ?

Section B

(5 × 7 = 35)

Answer **all** the questions.

Each answer should be in about 250 words.

11. (a) Briefly explain how sedimentary rocks are classified.

(Or)

(b) Briefly explain the characteristic features of Sedimentary deposits.

12. (a) Explain briefly how Laterites are formed.

(Or)

(b) Give the characteristic features of Shales.

13. (a) Give a brief outline on 'Flint' and 'Chert'.

(Or)

(b) Describe briefly any two calcareous deposits of organic origin.

14. (a) Explain the terms 'Facies', 'Grades' and 'Zones' in metamorphism.

(Or)

(b) Give a brief account on 'Anatexis' and 'Palingenesis'.

15. (a) Explain briefly on 'Metasomatism' and 'Metasomatic processes'.

(Or)

(b) Describe briefly the formation of slates and hornfels.

Section C

(3 × 15 = 45)

Answer **all** the questions.

Each answer should be in about 1000 words.

16. (a) Give a broad outline on the various Sedimentary processes.

(Or)

(b) Describe the mineral composition, texture and classification of Argillaceous rocks.

17. (a) Write an essay on the carbonate deposits of chemical origin.

(Or)

(b) Give an account of the thermal metamorphism of Limestones.

18. (a) Give an elaborate account of dynamothermal metamorphism and its resulting products.

(Or)

(b) Describe briefly the following :

(i) Rock salt.

(ii) Breccia.

(iii) Schist.

B.Sc. DEGREE EXAMINATION, APRIL 2011**Sixth Semester****Geology****ECONOMIC GEOLOGY**

(Non-CBCS—2004 onwards)

Time : 3 Hours

Maximum : 100 Marks

Section A

(10 × 2 = 20)

Answer **all** questions.

1. Define Placer deposits.
2. Define Grade.
3. Define Ore.
4. Define Gangue.
5. Give the composition of manganese.

6. Write the uses of chromium.
7. Define raw materials.
8. Write the uses of glasses.
9. What are the varieties of Coals ?
10. Write any four petroleum products.

Section B

(5 × 7 = 35)

Answer **all** questions.

11. (a) Explain the following terms with example :—
 - (a) Grade.
 - (b) Tenor.
 - (c) Protore.

(Or)

(b) Explain the process of oxidation and supergene enrichment.

12. (a) Explain the controls of ore localisation.

(Or)

(b) Explain the metallogenic epochs and provinces.

13. (a) Give an account of Beryllium and their distribution in India.

(Or)

(b) Explain the uses of Lead and Zinc.

14. (a) Give an account on paint and pigments along with the distribution of their ores in India.

(Or)

(b) Write the origin and occurrences of various gemstones of India.

15. (a) Write a short note on the Tertiary coal field in Tamil Nadu.

(Or)

(b) Explain the migration process of petroleum.

Section C (3 × 15 = 45)

Answer **all** questions.

16. (a) Explain the process involved in the formation of mineral deposit.

(Or)

(b) Explain the Bateman's classification.

17. (a) Explain the composition, mode of occurrence and distribution of Uranium and Thorium.

(Or)

- (b) Give a detail account of the origin, occurrences and distribution of refractories, Abrasives and Ceramics.

18. (a) Enumerate mineral wealth of Tamil Nadu.

(Or)

- (b) Give a detailed account on the Raniganj Coal Field.

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B.Sc. DEGREE EXAMINATION, APRIL 2011**Sixth Semester****Geology****APPLIED GEOLOGY**

(Non-CBCS—2004 onwards)

Time : 3 Hours

Maximum : 100 Marks

Section A (10 × 2 = 20)

Answer **all** questions.

1. What is a Thematic Map ?
2. What are Stereo pairs ?
3. Define Anomaly.
4. Define Sampling.
5. Define Aquitard.

6. What is Gravitational acceleration ?
7. What is a winze ?
8. Name two Strategic minerals.
9. What is an Arch Dam ?
10. What is Coastal erosion ?

Section B

(5 × 7 = 35)

Answer **all** questions.

11. (a) Describe about the various Map Scales used in remote sensing.

(Or)

- (b) Explain about various filters used in Aerial Cameras.

12. (a) Explain About the uses of lithological guides in mineral perspectives.

(Or)

(b) Explain in brief about Primary dispersion.

13. (a) Describe about the principles used for Gravity Surveying.

(Or)

(b) Describe about the Darcy law.

14. (a) Explain about :

(i) Adit.

(ii) Drive.

(Or)

- (b) Briefly explain Strategic minerals with examples.
15. (a) Describe about the geological conditions required for the construction of Tunnels.

(Or)

- (b) Describe about the role of geology in preventing coastal erosion.

Section C (3 × 15 = 45)

Answer **all** questions.

16. (a) Brief about application of Remote Sensing in the field of geology.

(Or)

- (b) Discuss the role of aerial photo Interpretation in demarcating different types of landforms.

17. (a) Explain in brief about Seismic refraction methods.

(Or)

(b) Describe the role of resistivity method for ground water exploration.

18. (a) Briefly explain about the National mineral policy.

(Or)

(b) Write an essay on types and causes of Landslides.
