R7654	Sub. Code
	464101

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

First Semester

Applied Geology

PHYSICAL GEOLOGY AND GEOMORPHOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **ALL** questions.

All questions carry equal marks

1. Siderophiles are found in

   (a) crust (b) mantle

   (c) asthenosphere (d) core

2. The word not related to canyon is

   (a) pipe (b) tunnel

   (c) gorge (d) tube

3. Mount St. Helens is an example of _____ type of eruption.

   (a) Icelandic (b) Hawaiian

   (c) Plenean (d) Plinian

4. The longest submarine canyon is

(a) Bering (b) Mariana trench

(c) Hudson (d) Grand

5. C. Dutton is related with

(a) stars (b) Isostasy

(c) tectonics (d) asteroids

6. Sea level has risen between _____ in the past 100 years.

(a) 1 to 2 cms. (b) 5 to 10 cms.

(c) 15 to 20 cms. (d) 20 to 25 cms.

7. Paleochannel is a feature of a

(a) migratory river (b) youthful river

(c) old river (d) none of the above option

8. Sediments and minerals are mostly found in

(a) continental slope (b) continental shelf

(c) deep sea (d) beach

9. The solid rock materials ejected by an volcano is

(a) tephra (b) pyroclasts

(c) tuff (d) ash

10. One of the options is not related with Peninsular India table land formation.

(a) Metamorphic (b) Igneous

(c) Sedimentary (d) Crystalline

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Draw a neat labeled sketch representing the interior of the Earch.

Or

(b) Explain the theories on the evolution of arc.

12. (a) Define isostasy? Explain the hypothesis of Pratt.

Or

(b) Differentiate orogeny and epiorogeny.

13. (a) Write a short on denudational geomorphology.

Or

(b) Explain about the management of geological hazards.

14. (a) Describe the depositional landforms formed by a river at the mature stage.

Or

(b) What are the problems encountered in a submerging coast.

15. (a) Write a short note on the origin of volcanoes.

Or

(b) Discuss briefly the geomorphology of India.

Part C

$(5 \times 8 = 40)$

Answer any **five** questions.

16. Write an essay on plate boundaries and the countries encircling the plate edges.

17. Explain in detail about the mid-oceanic ridges of the Pacific Ocean.

18. Enumerate an essay on the effects of sea-level changes.

19. Write an account on the types of mountains with examples.

20. Describe the process of weathering and explain its types.

21. How are coastline classified? Explain with suitable examples.

22. Explain the processes and landforms formed in arid regions.

23. Discuss ground water as an agent in the formation of various landforms.

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R7655	Sub. Code 464102

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

First Semester

Applied Geology

ADVANCED CRYSTALLOGRAPHY AND MINERALOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.
Each question carries equal marks.

1. Peacock ore is a popular name of

   (a) Chalcopyrite (b) Stibnite
   (c) Bornite (d) Gypsite

2. Celestite consists of

   (a) Sulphide of strontium
   (b) Sulphate of strontium
   (c) Sulphide barium
   (d) Sulphate barium

3. An example of fertilizer mineral is

   (a) Malachite
   (b) Molybdenite
   (c) Magnesite
   (d) Apatite

4. Amazon stone is a variety of Feldspar known as

(a) Labradorite (b) Bytownite

(c) Andesine (d) Microcline

5. Phriogopite is also referred as

(a) White mica (b) Black mica

(c) Lithium mica (d) Magnesium mica

6. Minerals belonging to orthorhombic system shows.

(a) Parallel Extinction

(b) Oblique Extinction

(c) Symmetrical Extinction

(d) Wavy Extinction

7. Which mineral cannot exhibit interference colour and birefringence?

(a) Isotropic Mineral (b) Anisotropic Mineral

(c) Metallic Mineral (d) Non-metallic Mineral

8. Plagioclase feldspar series crystallize in

(a) Monoclinic System

(b) Triclinic System

(c) Orthorhombic System

(d) Hexagonal System

9. In orthorhombic crystal, the 'a' axis is known as

(a) Macro Axis (b) Brachy Axis

(c) Clino Axis (d) Ortho Axis

10. Pinacoid or Dome faces occurring in crystals belong to the

(a) Monoclinic System

(b) Cubic System

(c) Tetragonal System

(d) hexagonal System

Part B $(5 \times 5 = 25)$

Answer **all** the questions, choosing either (a) or (b).
Each question carries equal marks.
Each answer should be in about 250 Words.

11. (a) Explain schoenflies notation and Hermann Mauguin symbols.

Or

(b) Give an account on the Equation of normal Zone symbols.

12. (a) Describe Bragg's law and Powder method.

Or

(b) Explain the different types of twinning with a note on laws of twinning.

13. (a) Explain the Quartz wedge, Mica Plate and Gypsum plate.

Or

(b) Distinguish between Birefringence and Extinction. Add a note on the determination of extinction angle.

14. (a) Explain the physical properties, optical characters, and paragenesis of Garnet group of minerals.

Or

(b) Describe the physical properties, optical characters, and chemical properties of Epidote group of minerals.

15. (a) Describe the physical and optical properties of Mica group of minerals.

Or

(b) Distinguish physical, structural and optical properties of different Pyroxene minerals.

Part C $(5 \times 8 = 40)$

Answer any **five** questions in about 500 words each.
Each question carries equal marks.

16. Describe and distinguish between spherical, stereographic and gnomonic projections.

17. Give a detailed account on the electron microscopy and its mineralogical applications.

18. Explain the determination of optic sign of Uniaxial and Biaxial minerals.

19. Describe the physical and optical properties of Amphibole group of minerals.

20. Describe the physical properties. optical characters and paragenesis of Olivine group of minerals.

21. Give an account on the physical properties, optical characters, chemical composition of Non-Silicate group of minerals.

22. Explain the physical properties, optical characters, chemical composition and modes of occurrence of Feldspars.

23. Write notes on the physical properties, optical characters and modes of occurrence of Quartz group of minerals and Zeolites.

R7656	Sub. Code
	464103

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

First Semester

Applied Geology

STRATIGRAPHY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

Each question carries equal marks.

1. The upper stage of Papaghni Group consisting of fine glassy limestone with bands of Chert and Chalcedony is

   (a) Gulcheru (b) Cumbum

   (c) Vempalle (d) Pulivendla

2. Lameta beds occurring below the traps in Rajamundry area are called

   (a) Inter-trappean Beds

   (b) Intra-trappean Beds

   (c) Infra-trappean

   (d) None of the above

3. The Tummalapalli uranium mineralization in Cuddapah basin is occurred in

   (a) Sandstones (b) Dolostones

   (c) Shales (d) Quartzites

4. In India, the Triassic systems of rocks are found as

(a) Marine facies

(b) Marine geosynclinal facies

(c) Marine transgressive facies

(d) Fluvio - Lacustrine facies

5. The main boundary fault separates

(a) Upper Vindhyans and Aravallis

(b) Siwaliks and Aravallis

(c) Siwaliks and Tertiaries

(d) Siwaliks and the Bundelkhand massifs

6. The Intertrappean beds are of

(a) Volcanic origin

(b) Marine origin

(c) Fluvio - Lacustrine origin

(d) Continental origin

7. The type succession of Muth Quartzite is in

(a) Kashmir (b) Spiti

(c) Salt Range (d) Kinnaur

8. The Precambrian rocks of India can be best correlated on the basis of their

(a) Lithostratigraphy

(b) Mineral deposits

(c) Isotopic ages

(d) Palaeogeographical studies

9. The principle of superposition in stratigraphy denotes

(a) Space significance

(b) Time significance

(c) Lateral significance

(d) Regional significance

10. The oldest sediments are found in

(a) Sargur schists (b) Kolar schists

(c) Dharwar schists (d) Older metamorphic group

Part B $(5 \times 5 = 25)$

Answer **all** the questions, choosing either (a) or (b).
Each question carries equal marks.
Each answer should be in about 250 words.

11. (a) Give an account on the Principles of Stratigraphy.

Or

(b) Describe the nomenclature and modern stratigraphic codes.

12. (a) Enumerate the stratigraphy and economic importance of Cuddapah super group of rocks.

Or

(b) Describe the stratigraphy and distribution of Gondwana super group of rocks.

13. (a) Describe the geological succession of Triassic rocks of Spiti.

Or

(b) Give an account on the Deccan traps. Discuss their age.

14. (a) Discuss the Himalayan orogeny.

Or

(b) Explain the glacial and interglacial events observed during Pleistocene period.

15. (a) Enumerate the basin architecture and its role in the establishment of different sequences in Sequence Stratigraphy.

Or

(b) Explain in detail about the methods of studies of sequence stratigraphy.

Part C $(5 \times 8 = 40)$

Answer any **five** questions in about 500 words each.
Each question carries equal marks..

16. Describe Litho, Bio and Chronostratigraphic units with examples. Add a note on the imperfections in the geological records.

17. Describe the stratigraphic succession and economic importance of Vindhyan super group of rocks.

18. Explain in detail the lithology, fossil content and economic importance of Jurassic rocks of Kutch.

19. Write an essay on the stratigraphy and mammalian fossil content of Siwalik group of rocks of India.

20. Describe the stratigraphy and economic importance of Dharwar super group of rocks.

21. What are the principles of Sequence Stratigraphy? Describe the applications of sequence stratigraphy in oil exploration.

22. Explain in detail about the stratigraphy of Kaladgi, Bhima and Badami group of rocks.

23. Give a detailed account on the Tertiary rocks of India with their mineral content.

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R7657	Sub. Code
	464104

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

First Semester

Applied Geology

PALAEONTOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

Choose the correct answer

1. The _____ was an era dominated by the dinosaurs

   (a) Precambrian (b) Paleozoic

   (c) Mesozoic (d) Cenozoic

2. _____ is the transformation of a species into new one with the passage of time due to accumulation of variations.

   (a) Gradual (b) Phyletic

   (c) Allopatric (d) Speciation

3. During which geologic period did Archaeopteryx live?

   (a) Cretaceous (b) Jurassic

   (c) Permian (d) Tertiary

4. Human beings evolved during which geologic era?

   (a) Cenozoic (b) Mesozoic

   (c) Paleozoic (d) Precambrian

5. Which form of the graptolites is well known during upper Cambrian age?

(a) Tetragraptus (b) Clonograptus

(c) Bryograptus (d) All the above

6. The word organic evolution is made up of two words 'organic' which means _____ and 'evolution' which means _____

(a) Burning, time

(b) Involving, backward

(c) Unnatural, modify

(d) Living organisms, unfold

7. Thread like prolongations of Graptolites are called

(a) Sicula (b) Stipe

(c) Virgula (d) Polypary

8. The most primitive suture line in the Trilobites is described as

(a) Hypoparian (b) Opisthoparian

(c) Proparian (d) Gonatoparian

9. Well preserved entire organism, unaltered and altered hard parts and naturally formed moulds and casts are classed as _____

(a) Living fossil (b) Body fossil

(c) Chemical fossil (d) Trace fossil

10. The study of the plant life of the geological past is

(a) Psilopsida (b) Palaeobotany

(c) Megafossil (d) Thallophyta

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Write notes on the evolution of Graptolite.

Or

(b) What is meant by organic evolution? Discuss.

12. (a) Give a brief account on Archaeopteryx.

Or

(b) Write notes on vertebrates - its classification.

13. (a) Write notes on the morphological characteristic of Foraminifera.

Or

(b) Write notes on bathymetric distribution of Microfossils.

14. (a) Write an essay on morphology characteristic of Stromatolites.

Or

(b) Give a brief introduction on morphological characteristic of Diatoms.

15. (a) Give a brief account on morphology spores and pollen.

Or

(b) Describe in detail the environmental significance of microfossils.

Part C (5 × 8 = 40)

Answer any **five** questions.
Each answer should not exceed 600 words.

16. Write an essay on the various applications of fossils.

17. Write an essay on the evolution of Ammonite and Trilobites.

18. Give a brief account on Evolution of plants through various ages.

19. Discuss the evolutionary trends of Elephas and Man.

20. Write notes on the morphology of Ostracoda — Evolution, geological history, ecology and Palaeoecolgy

21. Write an essay on morphology characteristic of Radiolaria and Conodonts.

22. Describe in details on the morphology of Bryozoa — Classification, ecology and Palaeoecology.

23. Give a brief account on geological significance of Spores and Pollen in Petroleum exploration.

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R7658	Sub. Code
	464501

M.Sc. DEGREE EXAMINATION, NOVEMBER – 2022

First Semester

Applied Geology

NATURAL HAZARDS AND MANAGEMENT

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 1 = 10)

Answer **all** questions.

1. Neotechtonics deals with the deformation of earth crust in ————

   (a) Archaeological time

   (b) Tsunami time

   (c) Geological time

   (d) None

2. Drastic flooding is caused by

   (a) Earthquake

   (b) Heavy wind

   (c) Over heat

   (d) Flat terrain

3. Geomorphometric anomalies are the indicator of

   (a) Parametric activity

   (b) Seismotectonic activity

   (c) Pseudo metric activity

   (d) None

4. Tsunami inundation is measure with ———— distance of inland movement.

(a) Parallel

(b) Angular

(c) Rotational

(d) Perpendicular

5. Cyclone rotates around a strong center of ————.

(a) Low atmospheric pressure

(b) High air pressure

(c) High wind pressure

(d) None

6. Deserts are formed by ———— process with large variations in temperature.

(a) Hydrological

(b) Meteorological

(c) Weathering

(d) Lithification

7. Bioshield in coastal area is developed with

(a) Loose soil

(b) Layered materials

(c) Vegetation

(d) Clay material

8. Beach stability concern leads to

(a) Reduce erosion

(b) Prevent damage

(c) Preserve wildlife habitat

(d) All

9. CPCB is fimctioning with the help of

(a) State government

(b) Central government

(c) Union government

(d) None

10. GIS integrates the following key components

(a) Software

(b) Hardware

(c) Both (a) and (b)

(d) None

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) What is anomalies? Explain groundwater anomalies in geophysical sectors.

Or

(b) Describe causes and factors controlling mechanism of landslide.

12. (a) What is flooding? Explain the water inundation calamity in the landforms.

Or

(b) Explain mechanism behind the formulation of tsunami.

13. (a) Describe basic components involved GIS mapping on drought.

Or

(b) What is soil erosion? Explain its consequent effects in the environment.

14. (a) What is coastal erosion? Explain various stages by geological setting.

Or

(b) How to prevent coastal erosion using bioshields.

15. (a) Explain the role of central pollution control board on seasonal airquality.

Or

(b) Whether UNDP helps to protect underprivileged sector? Explain it.

Part C $(5 \times 8 = 40)$

Answer any **five** of the following with neat diagramme

16. Essay on neo-active tectonic mapping covering coastal anomalies.

17. Sketch out various mitigation and management strategy of flooding by remote sensing.

18. Describe landslide hazard zonation mapping by slope analysis.

19. Discuss various remedial processes involved in saltwater intrusions.

20. Essay on analytical tools of GIS with various components

21. Discuss coastal protection structures and beach stability in rocky coast

22. Explain the long term work of MoEF towards sustainable development in our country.

23. Describe coastal regulation zone act and modified agendas on coastal zone management

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