

3B3N25102

(Pages : 2)

Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Third Semester M.Sc Integrated Geology Degree Examination, November 2025

BPH3C03 – Mechanics, Relativity, Waves & Oscillations

(2022 Admission onwards)

Time: 2 hours

Max. Marks : 60

*The symbols used in this question paper have their usual meanings***Section A – Short Answer type.****Answer all questions in two or three sentences,
each correct answer carries a maximum of 2 marks)**

1. What are non-inertial frames of references .
2. Show that a frame of reference having a uniform rectilinear motion relative to an inertial frame is also inertial
3. What are fictitious forces? Is the Centrifugal force fictitious one?
4. State and prove Work-Energy theorem.
5. Explain the principle of the rocket.
6. State and explain the law of conservation of linear momentum.
7. How did the Michelson – Morley experiment invalidate the concept of ether?
8. How does mass vary with velocity?
9. Explain Length contraction in relativity.
10. Explain the concept of De Broglie waves and their significance in understanding the wave-particle duality.
11. What are anharmonic oscillations
12. Explain uncertainty principle

(Ceiling – 20)

Section B – Paragraph / Problem type.
(Answer all questions in a paragraph of about half a page to one page,
each correct answer carries a maximum of 5 marks)

13. Derive the Galilean transformation equation and explain its invariance
14. A rod has length 1 m in its rest frame. It is moving with a velocity of $0.4c$ relative to the earth. Find its length when viewed in a frame (a) moving with the rod and (b) situated on the earth.
15. Prove that for a harmonic oscillator average potential energy and average kinetic energy are equal.
16. A particle of mass 10 g is at rest in an inertial frame. Consider a frame rotating at an angular speed of 10 radians per second in which the body is at a distance of 5 cm from the axis of rotation. Find the Coriolis and centrifugal forces on the body in the rotating frame.
17. An eigen function of the operator d^2/dx^2 is $\Psi = e^{2x}$. Find the corresponding eigen value.
18. Deduce the expression for relativistic energy.
19. A plane wave of frequency 256 Hz and amplitude 0.001 mm is produced in air. Calculate the energy density and energy current, given the velocity of sound in air = 332 m/s and density of air = 1.29 kg/m^3 .

(Ceiling – 30)

SECTION C – Essay type
(Essays - Answer in about two pages, any one question. Answer carries 10 marks)

20. State the postulates of special theory of relativity and hence derive the Lorentz transformation equations.
21. Derive an expression for energy density of a Plane Progressive wave.

(1 × 10 = 10 marks)

1M5N25103

(Pages : 2)

Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
Fifth Semester Integrated Geology Degree Examination, November 2025

GL05IB05 - Igneous Petrology

(2022 Admission onwards)

Time: 2 hours

Max. Marks : 60

(Draw neat sketches, wherever necessary)

PART A

Answer all questions

Each question carries 2 Marks

Ceiling 20 Marks

1. What are discordant and concordant igneous forms?
2. Define batholiths
3. Differentiate vesicular and amygdaloidal structures
4. What is columnar joints
5. Explain devitrification
6. What is the significance of inequigranular texture?
7. Define normative minerals
8. Describe magmatic assimilation
9. Define Eutectic crystallization
10. Describe the mineralogy of Granite
11. Explain silica saturated igneous rocks
12. Describe agglomerate and lapilli

PART B

Answer all questions

Each question carries 5 Marks

Ceiling 30 Marks

13. Explain intrusive igneous forms
14. Discuss the different structures of igneous rocks
15. Describe the different inequigranular textures
16. Explain the Tyrrells tabular classification
17. Discuss the reaction principle and Bowen's reaction series
18. Explain Albite- Anorthite solid solution series
19. Describe the petrological characters of granite and granodiorite

PART C

Answer any one question
Each questions carries 10 Marks

20. Discuss the various textures of igneous rocks and its significance
21. Explain the Diopside- Anorthite eutectic crystallization and its petrological significance

1 × 10 = 10 Marks

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester Integrated Geology Degree Examination, November 2025

GL05IB06 - Metamorphic Petrology

(2022 Admission onwards)

Time: 2 hours

Max. Marks : 60

(Draw neat sketches, wherever necessary)

PART – AAnswer *all* questions.Each question carries *Two* mark.**Ceiling - 20 Marks**

1. What is contact metamorphism? Give one example.
2. What is lithostatic pressure?
3. Define Augen texture.
4. Define paired metamorphic belts.
5. What are Migmatites?
6. What is metamorphic differentiation?
7. Differentiate between dynamic and thermal metamorphism?
8. What is medium P–T Barrovian metamorphism?
9. State two limits of metamorphism.
10. What is fault breccia?
11. Define schistosity.
12. What are isograds, and how are they used in metamorphic studies?

PART – BAnswer *all* questions.Each question carries *Five* marks.**Ceiling - 30 Marks**

13. Briefly explain the variables controlling metamorphism.
14. Describe the importance of chemographic diagrams (ACF & AKF).
15. Explain the concept of metamorphic grade and isograds.
16. Describe blueschist facies with mineral assemblages.
17. Briefly describe the origin of marble and its mineralogy.
18. Describe regional metamorphism of basic igneous rocks.
19. Explain the geological significance of metamorphic structures.

PART – C

Answer any *one* question.

Each question carries *Ten* marks.

20. Describe in detail the various textures of metamorphic rocks, explaining their formation, characteristics, and geological significance.
21. Discuss the different types of metamorphism, explaining their characteristics and providing examples.

(1 x 10 = 10 Marks)

1M5N25105

(Pages : 2)

Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester Integrated Geology Degree Examination, November 2025

GL05IB07 - Sedimentary Petrology

(2022 Admission onwards)

Time: 2 hours

Max. Marks : 60

(Draw neat sketches, wherever necessary)

PART – A**Answer *all* questions.****Each question carries *Two* mark.****Ceiling - 20 Marks**

1. What is physical weathering?
2. Define paleosols.
3. Explain sedimentary flux.
4. Define grain size scale.
5. Define compaction.
6. What is cementation in sedimentary rocks?
7. Give examples of siliciclastic rocks.
8. What is dolomitisation?
9. Differentiate between laminar and turbulent flow.
10. Define load casts.
11. What is meant by environmental connotation of sediments?
12. Differentiate between primary and secondary sedimentary structures.

PART – B**Answer *all* questions.****Each question carries *Five* marks.****Ceiling - 30 Marks**

13. Explain the classification of sandstones.
14. Discuss paleocurrent analysis and its applications.
15. Describe the process of physical and chemical weathering.
16. Briefly explain the mineralogy, chemical composition and classification of shale.

17. Describe mudrocks and their depositional environments.
18. Discuss the composition and classification of limestone.
19. Define diagenesis and describe its different stages.

PART – C

**Answer any *one* question.
Each question carries *Ten* marks.**

20. Describe the types, formation, and geological significance of sedimentary structures.
21. Describe the Udden–Wentworth grain size scale and its application in sediment classification.

(1 x 10 = 10 Marks)

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester Integrated Geology Degree Examination, November 2025

GL05IB08 - Structural Geology and Geotectonics

(2022 Admission onwards)

Time: 2 hours

Max. Marks : 60

*(Draw neat sketches, wherever necessary)***PART A****Answer all questions****Each question carries 2 Marks**

1. Define normal stress and shear stress
2. Explain strain ellipsoid
3. Distinguish between elastic and plastic deformation
4. What is a fold and describe terminologies associated with fold
5. Define anticlinal and synclinal fold
6. Describe angular unconformity
7. Distinguish between parallel and en-echelon fault
8. Define hade and heave of fault
9. What is meant by brittle ductile deformation
10. Define concept of plate tectonics
11. Describe hotspot and mantle plumes
12. Distinguish between foliation and lineation

Ceiling 20 Marks**PART B****Answer all questions****Each question carries 5 Marks**

13. Describe stress-strain ellipsoid
14. Describe terminologies associated with folds
15. Discuss types of Unconformities
16. Explain causes and mechanism of faulting
17. Discuss geometric classification of joints
18. Explain different types of plate boundaries
19. Discuss Continental drift and Seafloor spreading

PART C

Answer any one question
Each questions carries 10 Marks

20. Discuss in detail classification of folds and terminologies associated with fold
21. Explain the concept of plate tectonics and features associated with different plate margins.

1 × 10 = 10 Marks

1M5N25107

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Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fifth Semester Integrated Geology Degree Examination, November 2025

(Open Course)

GL05ID01 - Geoscience and Environment

(2022 Admission onwards)

Time: 2 hours

Max. Marks : 60

(Draw neat sketches, wherever necessary)

Part- A**Answer all questions****Each questions carries two mark****Ceiling – 20 Marks**

1. Differentiate between physical and historical geology
2. Explain infiltration
3. Exogenic process
4. Frost wedging
5. What is a debris flow?
6. Stratovolcanoes
7. Epicentre
8. Differentiate between climate and weather
9. Mention any two human-made causes of climate change.
10. What are greenhouse gases
11. Recycling
12. Name major sources of air pollution

Part- B**Answer all questions****Each questions carries five mark****Ceiling – 30 Marks**

13. Discuss various stages of hydrological cycle
14. Explain the process of biological weathering with examples
15. Classify landslides based on movement type.
16. List and describe the major products of volcanic eruptions.
17. How can we reduce the emission of greenhouse gases
18. What is smog and discuss its impact.
19. Differentiate between biodegradable and non-biodegradable waste

Part- C
Answer any one questions
Each questions carries 10 mark

20. Write an essay on global warming and discuss major causes of global warming
21. Explain the role of running water as an exogenous agent

2 x 10 = 20 Marks

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Seventh Semester Integrated Geology Degree Examination, November 2025

GL07IB12 - Advanced Crystallography and Mineralogy

(2022 Admission onwards)

Time: 2 ½ hours

Max. Marks : 80

(Draw neat sketches wherever necessary)

PART-A

Answer any **10** questions
Each question carries **two** marks

1. Isotropic minerals
2. Types of extinction
3. Pleochroic haloes
4. Crystal lattice
5. Optic axial angle
6. Sign of elongation
7. Scanning and transmission electron microscopy
8. Biaxial indicatrix
9. Bragg's equation
10. Space group
11. Rock forming minerals
12. Mineral composition of the crust

(10x2= 20 marks)

PART-B

Answer any **five** questions
Each question carries **eight** marks

13. What is ICPMS?
14. Repetition theory
15. Interference figure
16. Metamictization
17. Stereographic projection
18. Napier's rule
19. Paragenesis of silicates

(5x8= 40 marks)

PART-C

Answer any two questions

Each question carries ten marks

20. Write an essay about the derivation of 32 crystal classes using Schoen Flies notation
21. Discuss about the structure, chemistry and pressure-temperature stabilities of carbonate minerals and discuss its paragenetic processes
22. Write an essay about the mineral transformation processes in the mantle with depth variations
23. Describe the determination of optic sign of uniaxial and biaxial minerals with neat sketches

(2x10= 20 marks)

1M7N25109

(Pages : 2)

Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Seventh Semester Integrated Geology Degree Examination, November 2025

GL07IB13 - Advanced Geomorphology

(2022 Admission onwards)

Time: 2 ½ hours

Max. Marks : 80

*(Draw neat sketches, wherever necessary)***PART - A****Answer any *Ten* questions.****Each question carries *Two* marks.**

1. What is isostasy? Give an example.
2. How does human activity alter geomorphic processes?
3. Define tectonic geomorphology.
4. What is fault-scale deformation?
5. Explain lithospheric flexure in brief.
6. What are hillslopes and how are they classified?
7. Define mass movement with an example.
8. What is overland flow and how does it modify slopes?
9. Give applications of geomorphology in civil engineering.
10. Define soil profile.
11. Name two important rivers of Kerala and their geomorphic significance.
12. Define environmental geomorphology.

10 × 2 = 20 Marks**PART - B****Answer any *Five* questions.****Each question carries *Eight* marks.**

13. Explain the concept of isostasy and its significance in geomorphology.
14. Discuss the processes of crustal thickening and mantle response in active tectonic zones.
15. Describe paleo-seismology and the geomorphic indicators of ancient earthquakes.
16. Explain the application of geomorphology in hydrogeological studies.
17. Describe the formation and classification of soils of Kerala.
18. Explain the elementary concepts and application of environmental geomorphology.
19. Discuss the relief features and geomorphic divisions of Kerala.

5 × 8 = 40 Marks

PART - C
Answer any *Two* questions.
Each question carries *Ten* marks.

20. Discuss the theory of uniformitarianism and explain how the various factors control geomorphic features.
21. Discuss the relationship between hillslope forms, lithology, and structural weaknesses in rocks, highlighting environmental controls and mass movement processes.
22. Describe the geological significance, classification, and mode of formation of wetlands in India.
23. Discuss the geomorphic evolution of extra-peninsular and peninsular region of India.

2 × 10 = 20 Marks

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Seventh Semester Integrated Geology Degree Examination, November 2025

GL07IB14 - Advanced Igneous and Metamorphic Petrology

(2022 Admission onwards)

Time: 2 ½ hours

Max. Marks : 80

*(Draw neat sketches, wherever necessary)***PART – A****Each Question carries TWO marks**

1. Grain dispersive pressure
2. Compare NORM and MODE
3. IUGS classification of gabbroic rock
4. TAS classification
5. Degree of Freedom
6. Phase Triangle
7. List the possible three phase mineral assemblages that can result from the crystallization of MgO-Al₂O₃-SiO₂ system
8. Explain metastable sillimanite?
9. Distinguish tension fractures, flattening and shearing?
10. Equilibrium and non-equilibrium reactions.
11. List the possible mineral assemblages for mafic rocks in Eclogite facies?
12. Explain Distribution constant?

PART – B**Each Question carries EIGHT marks**

13. Partial Melting
14. Zoning in Plagioclase
15. Apply Phase rule on Forsterite - Silica - Diopside Ternary system
16. Verify the statement "Additional components add a potential degree of freedom to a system" with the help of Diopside - Anorthite and Diopside -Anorthite - Forsterite systems.
17. Discuss the limits of metamorphism?
18. Explain the type of reaction for Garnet, Quartz, Anorthite and Wollastonite and plot the reaction line?
19. Categorize metamorphic facies in a paired metamorphic belt?

PART – C

Each Question carries TEN marks

20. Solid – Solid reactions, Genetic significance of textures and structures of metamorphism.
21. Write an essay on Basalt family of rocks describing its classification?
22. Write a brief essay on the Crystallization of Albite – Anorthite – Orthoclase
23. Discuss ACF, AKF and AFM diagrams
 - a) Plot Muscovite, Tremolite, Diopside and staurolite in ACF diagram
 - b) Plot Muscovite, Chlorite and Cordierite in AKF diagram
 - c) Plot Biotite in AFM diagram

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Seventh Semester Integrated Geology Degree Examination, November 2025

GL07IB15 - Advanced Stratigraphy

(2022 Admission onwards)

Time: 2 ½ hours

Max. Marks : 80

*(Draw neat sketches, wherever necessary)***PART – A****Each Question carries TWO marks**

1. Define Shaw's Graphic correlation
2. Define Transgressive Surface?
3. Maximum Flooding Surface
4. Gorur Gneiss
5. Kaladgi basin
6. Panna shale
7. Lilang system
8. Ammonites of Thrichinopoly
9. Mesozoic - Cenozoic boundary
10. Paleogene deposits of Kerala
11. Primates of Lower Siwaliks
12. Miliolite formation

PART – B**Each Question carries EIGHT marks**

13. Detail the nature of Permian-Triassic boundary and causes of mass extinction during the time.
14. Explain the lithology and structures of Cuddapah supergroup
15. Give a detailed description of Magmatic activity in Palaeozoic era
16. Describe the Permian - Triassic mass extinction
17. Give a short note on Mesozoic stratigraphy of Jammu and Kashmir
18. Elaborate the Evolution of Himalayas
19. Give an account on Age limit of Gondwana supergroup

PART – C

Each Question carries TEN marks

20. Write explanatory note K-T Boundary extinction and its causes.
21. Describe the tectonic setting of Central India Tectonic Zone in an essay
22. Describe the Lithostratigraphy of Deccan Volcanic Province
23. Write an essay on Stratigraphy and Geology of Kerala

1M9N25112

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Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Ninth Semester Integrated Geology Degree Examination, November 2025

GL09IB19 - Applied Sedimentology

(2022 Admission onwards)

Time: 2 ½ hours

Max. Marks : 80

*Draw neat sketches wherever necessary***PART – A****Answer any ten questions****Each question carries two marks**

1. Micrite
2. Frost wedging
3. Cross bedding
4. Diagenesis
5. Udden-Wentworth scale
6. Carbonate compensation depth
7. Structural units of clay minerals
8. Secondary sedimentary structures
9. Paleocurrent
10. Flood plain deposits
11. Provenance
12. Foreland sedimentary basins

(10 × 2 = 20 Marks)**PART – B****Answer any five questions****Each question carries eight marks**

13. How do turbulent flow characteristics influence sediment transport?
14. Describe the typical vertical sequence of facies in a deltaic environment.
15. Principles and applications of sieving
16. Differentiate between bed load, suspended load, and wash load transport
17. Isostasy and its relationship with geosynclines
18. Biogenic sedimentary rocks
19. Relationship between sediment maturity and the hydraulic energy of the depositional environment.

(5 × 8 = 40 Marks)

PART – C
Answer *any two* questions
Each question carries *ten* marks

20. Describe the clastic textures of sedimentary rocks and their significance in deciphering the depositional environment.
21. Discuss the classification of clay minerals and their applications in environmental interpretations.
22. How do different tectonic settings influence the evolution and geometry of sedimentary basins?
23. Discuss the interplay of physical, chemical, and biological processes in shaping carbonate depositional environments.

(2 × 10 = 20 Marks)

1M9N25113

(Pages : 2)

Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Ninth Semester Integrated Geology Degree Examination, November 2025

GL09IB20 - Hydrogeology

(2022 Admission onwards)

Time: 2 ½ hours

Max. Marks : 80

*(Draw neat sketches, wherever necessary)***PART - A****Answer any *Ten* questions.****Each question carries *Two* marks.**

1. Distinguish between steady and unsteady groundwater flow.
2. Write a short note on groundwater occurrence in sedimentary rocks.
3. What is the Ghyben-Herzberg principle?
4. Explain groundwater contamination.
5. Write short note on natural recharge of groundwater.
6. Define TDS and its significance.
7. Describe perched water table.
8. Define critical velocity ratio.
9. Name methods of measuring precipitation.
10. Define hydrograph and its uses.
11. Briefly explain electrical resistivity method in groundwater prospecting.
12. State any two methods for determining well yield.

10 × 2 = 20 Marks**PART - B****Answer any *Five* questions.****Each question carries *Eight* marks.**

13. Define and differentiate aquifer, aquiclude, aquitard, and aquifuge with examples.
14. Explain the freshwater-saltwater interface in coastal areas with suitable diagrams.
15. Describe the causes and consequences of groundwater overexploitation.
16. Explain the basic principles and applications of aquifer system modelling.
17. Explain Bligh's Creep Theory and its application in seepage analysis.

18. Explain the principles and applications of gravity surveys in groundwater prospecting.
19. Write short note on magneto-tellurics as groundwater prospecting method.

5 × 8 = 40 Marks

PART - C

**Answer any *Two* questions.
Each question carries *Ten* marks.**

20. Explain Darcy's Law, discuss its applications and limitations.
21. Explain the causes, impacts, and preventive measures for seawater intrusion in coastal aquifers.
22. Write an essay on various methods for artificial recharge of groundwater.
23. Explain the methodology of pumping tests and interpretation of data for well yield.

2 × 10 = 20 Marks

1M9N25114

(Pages : 2)

Reg. No:.....

Name:

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Nineth Semester Integrated Geology Degree Examination, November 2025

GL09IB21 - Advanced Remote Sensing and Geographic Information System

(2022 Admission onwards)

Time: 2 ½ hours

Max. Marks : 80

(Draw neat sketches, wherever necessary)

PART – AAnswer any *ten* questions

Each question carries two marks

1. False Colour Composite (FCC)
2. Band ratio
3. Image registration
4. BRDF
5. Spectral signatures
6. Thermal Inertia
7. Scatterometers
8. RADARSAT-2
9. Topology
10. Recode and map algebra in raster data handling
11. DEM
12. Lidar point cloud data

10 x 2 = 20 Marks

PART – BAnswer any *five* questionsEach question carries **eight** marks

13. Methods of image transformation
14. Compare supervised and unsupervised image classification
15. Spectral characteristics of rocks and minerals
16. Thermal radiation principles of hyperspectral data cube
17. Principles of microwave remote sensing. Explain SAR
18. Resampling and interpolation of raster data
19. Application of GIS in hydrogeological modelling

5 x 8 = 40 Marks

PART – C

**Answer any *two* questions
Each question carries ten marks**

20. What is digital image processing? Explain geometric and radiometric correction of remote sensing data.
21. Describe the advantages of RADAR data. Explain the application of microwave remote sensing in geosciences.
22. Describe the applications of drainage mapping and morphometric analysis in GIS
23. Explain integration of remote sensing and GIS in urban hazards and risk management through GIS

2 x 10 = 20 Marks

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Nineth Semester Integrated Geology Degree Examination, November 2025

GL09IE02 - Quaternary geology and Palaeoclimate

(2022 Admission onwards)

Time: 2 ½ hours

Max. Marks : 80

*Draw neat sketches wherever necessary***PART - A****Answer any ten questions****Each question carries two marks**

1. Quaternary Period
2. Geomorphic response of flooding
3. Palynology
4. Optically Stimulated Luminescence dating
5. Extinction during ice ages
6. Latitude effect of climate
7. Tree rings and paleoclimate
8. Albedo
9. Orbital forcing
10. Glacial maxima
11. Law of cross-cutting relationships
12. Pleistocene

(10 × 2 = 20 Marks)

PART - B**Answer any five questions****Each question carries eight marks**

13. Applications of biostratigraphy in understanding paleoenvironments
14. Geoarchaeology and stone age settlement patterns
15. Causes of global warming
16. Neotectonics as a primary driver of natural hazards
17. Explain the quaternary stratigraphy of India.
18. Principle of radiocarbon dating
19. Milankovitch cycles.

(5 × 8 = 40 Marks)

PART – C

Answer *any two* question
Each question carries *ten* marks

- 20 Discuss the role of ocean currents in redistributing heat around the globe and their influence on regional climate patterns.
- 21 Discuss the key features, regional variations, and significance of Quaternary stratigraphy in India, with special emphasis on the interplay between climate change, tectonics, and human evolution.
- 22 Critically evaluate the various mechanisms by which sedimentary rocks acquire a Primary Natural Remanent Magnetization suitable for magnetostratigraphic dating.
- 23 Explain the timing and magnitude of glacial-interglacial cycles during the Pleistocene

(2 × 10 = 20 Marks)

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Ninth Semester Integrated Geology Degree Examination, November 2025

GL09IE03 - Marine Geology and Oceanography

(2022 Admission onwards)

Time: 2 ½ hours

Max. Marks : 80

*(Draw neat sketches, wherever necessary)***PART – A****Answer any ten questions.****Each Question carries TWO marks**

1. Significance of JOIDES resolution
2. Mention the geological factors controlling the distribution of marine minerals.
3. State the effect of pressure on seawater density.
4. Coupled Ocean atmosphere system.
5. Define oxygen minimum zone (OMZ).
6. What is an Ekman spiral?
7. Discuss the major causes of oceanic upwelling
8. Explain thermohaline circulation.
9. Geostrophic wind
10. How is La Nina different from El Nino?
11. What is a plunging breaker?
12. Mention the difference between CRZ-I and CRZ-II areas.

PART – B**Each Question carries EIGHT marks****Answer any five questions.**

13. Write an essay on continental margins?
14. Discuss latitudinal variation of salinity.
15. Illustrate the distribution of the world's major surface currents and analyze the factors governing their direction and strength. What roles do these currents play in global heat transport and weather systems?
16. Describe the changes in Walker Circulation during El Nino and La Nina events.
17. Describe southwest monsoon. Add a note on how the Bay of Bengal branch of the southwest monsoon influences rainfall distribution in India.

18. Describe the structure and characteristics of an anticyclone.
19. Explain the construction, types, and functions of seawalls.

PART – C

Answer any two questions.

Each Question carries TEN marks

20. Define eustatic changes of sea level. Discuss the major natural causes responsible for these changes.
21. Explain in detail the classification of marine sediments by origin and size with diagrams.
22. Explain the Coriolis effect and discuss its influence on the circulation of the world's oceans.
23. Define coastal geomorphology and discuss its scope in understanding coastal processes.