RANI BIRLA GIRLS' COLLEGE

38, SHAKESPARE SARNI

KOLKATA-700017

Criterion: 1

Index Number: 1.1

SUBTITLE: LESSON PLAN

DEPARTMENT: GEOGRAPHY (CBCS SYSTEM)

YEAR: 2018-19

2019-20

2020-21

2021-22

2022-23

Lesson Plan for CBCS Syllabus

Subject: Geography

Session: 2018-19

SEMESTER	UNIT	CLASSES AVAILABLE (APPROX)	TOPIC	NAME OF THE TEACHER	NO. OF LECTURES	REMEDIAL/TUTORIAL	REMARKS
I Honours	**CC-1 THEORY**	**7**	1. Earth's tectonic and structural evolution concerning geological time scale 2. Earth's interior with special reference to seismology	DK	**6**	01 Remedial class	Class test in 3rd week of September
		10	**3.** Isostasy: Models of Airy, Pratt, and their applicability	SD	**7**	02 Remedial class	Class test in 2nd week of September
		10	4. Plate Tectonics as a unified theory of global tectonics: Processes and landforms at plate margins and hotspots 5. Folds and Faults—origin and types.	SB	**7**	02 Remedial class	
		4	6. Degradational processes: Weathering, mass wasting, and resultant landforms	KB	**3**	02 Remedial class	
		6	7.Processes of entrainment,	KPL	**5**		

			transportation, and deposition by different geomorphic agents. Role of humans in landform development [4]			02 Remedial class	
		5	8. Development of river network and landforms on uniclinal and folded structures. Surface expression of faults [7]	AD	**7**	02 Remedial class	
		4	9. Development of river network and landforms on granites, basalts and limestones [4]	DK	**4**		
		4	10. Coastal processes and landforms [4]	SD	**4**		Class test in 2nd week of September
		4	11. Glacial and glacio-fluvial processes and landforms [4]	KB	**4**		
		8	12. Aeolian and fluvial-aeolian processes and landforms [4]	KPL	**4**		
		8	13. Role of time in geomorphology: Schumm and Lichty's model. Models on landscape evolution: Views of Davis, Penck, King, and Hack. Significance of systems approach [8]	AD	**8**		
	CC-1 PRACTICAL	**20**	1. Measurement of dip and strike using clinometer [6] 2. Megascopic identification of (a) mineral	SB	**18**		

		15	samples: Bauxite, calcite, chalcopyrite, feldspar, galena, gypsum, hematite, magnetite, mica, quartz, talc, tourmaline; and (b) rock samples: Granite, basalt, dolerite, laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite, marble [14] 3. Extraction and interpretation of geomorphic information from Survey of India 1:50k topographical maps of plateau region: Construction of relief profiles (superimposed, projected, and composite).		**13**		Class test in 2nd week of September
		15 **10**	3. Delineation of drainage basins. Construction of relative relief map, slope map (Wentworth's method), drainage density map, stream ordering (Strahler), and bifurcation ratio on a drainage basin (c. 5' x 5') [35] 4. Construction of hypsometric curve and derivation of hypsometric	KPL	**13** **10**		

			integer of a drainage basin (c. 5’ x 5’) from Survey of India 1:50k topographical maps of plateau region Strahler), and bifurcation ratio on a drainage basin (c. 5’ x 5’)				
	CC-2 THEORY	**4**	1. Maps: Components and classification [4]	DK	**3**	01 Remedial class	
		8	2. Concept and application of scales: Plain, comparative, diagonal, and Vernier [8]	KB	**8**	01 Remedial class	
		6	3. Coordinate systems: Polar and rectangular [6]	AD	**6**	01 Remedial class	
		2	4. Concept of generating globe [2]	SB	**2**	01 Remedial class	
		5	5. Grids: Angular and linear systems of measurement [5]	AD	**5**		
		5	6. Bearing: Magnetic and true, whole-circle and reduced [5]	SD	**5**		
		4	7. Concept of geoid and spheroid with special reference to Everest and WGS-84 [4]	SD	**4**		
		8	8. Map projections: Classification, properties and uses [8]	SB	**8**		

		2	9. Concept and significance of UTM projection [2]	DK	**2**	01 Remedial class	
		10	10. Representation of data using dots, spheres and divided proportional circles [5] 11. Representation of data using isopleth, choropleth, and chorochromatic maps [5]	KB	**8**	01 Remedial class	
		5	12. Survey of India topographical maps: Reference scheme of old series	KPL	**4**	01 Remedial class	
		6	12. Survey of India topographical maps: Reference scheme of open series. Information on the margin of maps [6]	SD	**5**	01 Remedial class	
	CC-2 PRACTICAL	**16**	1. Graphical construction of scales: Plain, comparative, diagonal and Vernier [16]	KB	**15**		
		20	2. Construction of projections: Polar Zenithal Stereographic, Simple Conic with one standard parallel, Bonne's, Cylindrical Equal Area, and Mercator's [20]	SB	**20**	02 Remedial class	
		12	3. Thematic maps: Proportional squares, pie	KB	**12**		

		12	diagrams with proportional circles, dots, and spheres [12] 4. Thematic maps: Choropleth, isopleth, and chorochromatic maps [12]				
I GENERAL I	**GE-1 THEORY**	**3**	1. Earth's interior with special reference to seismology [3]	DK	**3**		
		7	2. Plate Tectonics as a unified theory of global tectonics. Formation of major relief features of the ocean floor and continents according to Plate Tectonics [7]	SB	**5**		
		6	3. Folds and faults: Classification and surface expressions [6]	SD	**5**		
		4	4. Degradational processes: Weathering, mass wasting, and resultant landforms [4]	AD	**3**		
		12	5. Principal geomorphic agents. Classification and evolution of coastal, aeolian, and glacial landforms [12]	SD	**10**		
		7	6. Basic models of slope evolution: Decline, replacement, and retreat. Systems approach and its	DK	**6**		

			significance in geomorphology.				
		9	7. Global hydrological cycle: Its physical and biological role [2] 8. Runoff: Controlling factors. Concept of ecological flow [3] 9. Drainage basin as a hydrological unit. Principles of watershed management [3]	KPL	**9**		
		15	10. Physical and chemical properties of ocean water. Distribution and determinants of temperature and salinity [4] 11. Ocean circulation, wave, and tide [7] 12. Marine resources: Classification and sustainable utilisation [3]	AD	**13**		
	GE-1 PRACTICAL	**20**	1. Megascopic identification of mineral samples: Bauxite, calcite, chalcopyrite, feldspar, galena, hematite, mica, quartz, talc, tourmaline [8] 2. Megascopic identification of rock samples: Granite, basalt, laterite, limestone, shale, sandstone, conglomerate,	SB	**20**	02 Remedial class	

			slate, phyllite, schist, gneiss, quartzite [12]				
		20	3. Extraction of physiographic information from Survey of India 1:50k topographical maps of plateau region: Construction and interpretation of relief profiles (superimposed, projected, and composite), Construction and interpretation of relative relief map (c. 5'×5') [20]	KB	**20**	02 Remedial class	
		20	4. Extraction of drainage information from Survey of India topographical maps of plateau region: Extraction and interpretation of channel features and drainage patterns, Construction of channel profiles [20]	KPL	**20**	02 Remedial class	
II HONOURS	**(CC-3) THEORY**	**4**	1. Nature, scope and recent trends. Elements of human geography [4]	DK	**2**		
		16	2. Approaches to Human Geography: Resource, locational, landscape, environment	SD	**15**		

			3. Concept and classification of race. Ethnicity 4. Space, society, and cultural regions (language and religion)				
		6	5. Evolution of human societies: Hunting and food gathering, pastoral nomadism, subsistence farming, and industrial society [6]	SB	**5**		
		4	6. Human adaptation to environment: Case studies of Eskimo, Masai and Maori [4]	KPL	**3**		
		5	7. Population growth and distribution, composition; demographic transition [5]	KB	**4**		
		5 **5** **5** **5**	8. Population–resource regions (Ackerman) [5] 9. Development–environment conflict [5] 10. Types and patterns of rural settlements [5] 11. Rural house types in India [5]	DK GB GB	**2** **2** **2** **2**		
		5	12. Morphology and hierarchy of urban settlements [5]	GB	**3**		
	CC-3	**12**	1. Spatial variation in continent- or country-level	SB	**10**		

	PRACTICAL		religious composition by divided proportional circles [12]				
		15	2. Measuring arithmetic growth rate of population comparing two decadal datasets [15]	KB	**10**		
		20	3. Types of age-sex pyramids (progressive, regressive, intermediate, and stationary): Graphical representation and analysis [20]	SB	**15**		
		13	4. Nearest neighbour analysis from Survey of India 1:50k topographical maps of plain region (c. 5' x 5') [13]	KPL	**10**		
	(CC-4) THEORY	**4**	1. Concepts of rounding, scientific notation. Logarithm and anti-logarithm. Natural and log scales [4]	SD	**4**		
		2	2. Concept of diagrammatic representation of data [2]	GB	**1**		
		10	3. Preparation and interpretation of geological maps [5] 4. Preparation and interpretation of weather maps [5]	KB	**6**		

		5	5. Preparation and interpretation land use land cover maps [5]	GB	**3**		
		10	6. Preparation and interpretation of socio-economic maps [5] 7. Principal national agencies producing thematic maps in India: NATMO, GSI, NBSSLUP, NHO, and NRSC / Bhuvan [5]	DK	**6**		
		12	8. Basic concepts of surveying and survey equipment: Prismatic compass [5] 9. Basic concepts of surveying and survey equipment: Dumpy level [7]	KPL	**10**		
		7	10. Basic concepts of surveying and survey equipment: Theodolite [7]	SB	**6**		
		5	11. Basic concepts of surveying and survey equipment: Abney level [5]	SB	**4**		
		5	12. Basic concepts of surveying and survey equipment: Laser distance measurer [5]	GB	**4**		
	CC-4 PRACTICAL	**22**	1. Traverse survey using prismatic compass [10]	KPL	**18**		

			2. Profile survey using dumpy Level [12]				
		18	3. Height determination of base accessible and inaccessible (same vertical plane method) objects by theodolite [18]	SB	**15**		
		20	4. Interpretation of geological maps with uniclinal structure, folds, unconformity, and intrusions [20]	KB	**18**		
II GENERAL	**GE-2 THEORY**	**5**	1. Insolation and Heat Budget. Horizontal and vertical distribution of atmospheric temperature and pressure [5]	DK	**3**		
		20	2. Overview of planetary wind systems. Indian Monsoons: Mechanisms and controls [6] 3. Atmospheric disturbances: Tropical and temperate cyclones. Thunderstorms [7] 4. Overview of global climatic change: Greenhouse effect. Ozone depletion [5] 5. Scheme of world climatic classification by Köppen [2]	SD	**18**		
		4	6. Factors of soil formation [4]	KPL	**3**		

		16	7. Soil profile development under different climatic conditions: Laterite, Podsol, and Chernozem [6] 8. Physical and chemical properties of soils: Texture, structure, pH, salinity, and NPK status [6] 9. USDA classification of soils. Soil erosion and its management [4]	AD	**14**		
		6	10. Ecosystem and Biomes. Distribution and characteristics of tropical rainforest; Savannah, and hot desert biomes [6]	KPL	**5**		
		9	11. Plant types, occurrence and ecological adaptations: Halophytes, xerophytes, hydrophytes, and mesophytes [5] 12. Biodiversity: Types, threats and management with special reference to India [4]	DK	**7**		
		20	1. Interpretation of daily weather map of India (any one): Pre-Monsoon or Monsoon or Post-Monsoon [20]	SD	**18**		
		20	2. Construction and interpretation of hythergraph, climograph	KB	**18**		

			(G. Taylor) and wind rose (seasonal) [20]				
		10	3. Determination of soil type by ternary diagram textural plotting [10]	DK	**8**		
		10	4. Preparation of peoples' biodiversity register [10]	SD	**8**		

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Subject: Geography

Session: 2019-20

SEMESTER	UNIT	CLASSES AVAILABLE (APPROX)	TOPIC	NAME OF THE TEACHER	NO. OF LECTURES	REMEDIAL/TUTORIAL	REMARKS
I Honours	**CC-1 THEORY**	**7**	**1. Earth's tectonic and structural evolution concerning geological time scale** **2. Earth's interior with special reference to seismology**	DK SB & DK	**6**	01 Remedial class	Class test in 3rd week of September
		10	**3.** Isostasy: Models of Airy, Pratt, and their applicability	SD & SB	**7**	02 Remedial class	Class test in 2nd week of September
		10	4. Plate Tectonics as a unified theory of global tectonics: Processes and landforms at plate margins and hotspots [10]		**7**	02 Remedial class	
		4	5. Folds and Faults—origin and types. [4]	KB	**3**	02 Remedial class	

			6. Degradational processes: Weathering, mass wasting, and resultant landforms [5]	KPL			
		6	7. Processes of entrainment, transportation, and deposition by different geomorphic agents. Role of humans in landform development [4]	**GB**	**5**	02 Remedial class	Class test in 2nd week of September
		5	8. Development of river network and landforms on uniclinal and folded structures. Surface expression of faults [7]	**DK**	**7**	02 Remedial class	
		4	9. Development of river network and landforms on granites, basalts and limestones [4]	**SD**	**4**		
		4	10. Coastal processes and landforms [4]	**KB**	**4**		
		4	11. Glacial and glacio-fluvial processes and landforms [4]	**KPL**	**4**		
		8	12. Aeolian and fluvial-aeolian processes and landforms [4]	**GB**	**4**		
		8	13. Role of time in geomorphology: Schumm and Lichty's model. Models on landscape evolution: Views of Davis, Penck, King, and Hack. Significance of systems approach [8]	AD	**8**		
	CC-1 PRACTICAL	**20**	1. Measurement of dip and strike using clinometer [6]	SB	**18**		

		15	2. Megascopic identification of (a) mineral samples: Bauxite, calcite, chalcopyrite, feldspar, galena, gypsum, hematite, magnetite, mica, quartz, talc, tourmaline; and (b) rock samples: Granite, basalt, dolerite, laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite, marble [14]		**13**		Class test in 2nd week of September
		15 **10**	3. Extraction and interpretation of geomorphic information from Survey of India 1:50k topographical maps of plateau region: Construction of relief profiles (superimposed, projected, and composite). 4. Delineation of drainage basins. Construction of relative relief map, slope map (Wentworth's method), drainage density map, stream ordering (Strahler), and bifurcation ratio on a drainage basin (c. 5' x 5') [35]	KPL	**13** **10**		

	CC-2 THEORY	**4**	1. Maps: Components and classification [4]	DK	**3**	01 Remedial class	
		8	2. Concept and application of scales: Plain, comparative, diagonal, and Vernier [8]	KB	**8**	01 Remedial class	
		6	3. Coordinate systems: Polar and rectangular [6]	**GB**	**6**	01 Remedial class	
		2	4. Concept of generating globe [2]	SB	**2**	01 Remedial class	
		5	5. Grids: Angular and linear systems of measurement [5]	**GB**	**5**		
		5	6. Bearing: Magnetic and true, whole-circle and reduced [5]	SD	**5**		
		4	7. Concept of geoid and spheroid with special reference to Everest and WGS-84 [4]	**GB**	**4**		
		8	8. Map projections: Classification, properties and uses [8]	SB	**8**		
		2	9. Concept and significance of UTM projection [2]	**GB**	**2**	01 Remedial class	
		5	10. Representation of data using dots, spheres and divided proportional circles [5] 11. Representation of data using isopleth, choropleth, and chorochromatic maps [5]	KB	**8**	01 Remedial class	
		5	12. Survey of India topographical maps: Reference scheme of old series	KPL & GB	**4**	01 Remedial class	

	CC-2 PRACTICAL	**16**	1. Graphical construction of scales: Plain, comparative, diagonal and Vernier [16]	KB	**15**		
		20	2. Construction of projections: Polar Zenithal Stereographic, Simple Conic with one standard parallel, Bonne's, Cylindrical Equal Area, and Mercator's [20]	SB	**20**	02 Remedial class	
		24	3. Thematic maps: Proportional squares, pie diagrams with proportional circles, dots, and spheres [12] 4. Thematic maps: Choropleth, isopleth, and chorochromatic maps [12]	KB	**12**		
I GENERAL	**GE-1 THEORY**	**3**	1. Earth's interior with special reference to seismology [3]	DK	**3**		
		7	2. Plate Tectonics as a unified theory of global tectonics. Formation of major relief features of the ocean floor and continents according to Plate Tectonics [7]	SB	**5**		
		6	3. Folds and faults: Classification and surface expressions [6]	SD	**5**		
		4	4. Degradational processes: Weathering, mass wasting, and resultant landforms [4]	AD	**3**		
		12	5. Principal geomorphic agents. Classification and evolution of fluvial	SD	**10**		

			5. Principal geomorphic agents. Classification and evolution of coastal, aeolian, and glacial landforms [12]				
		7	6. Basic models of slope evolution: Decline, replacement, and retreat. Systems approach and its significance in geomorphology [6].	DK	**6**		
		9	7. Global hydrological cycle: Its physical and biological role [2] 8. Runoff: Controlling factors. Concept of ecological flow [3] 9. Drainage basin as a hydrological unit. Principles of watershed management [3]	KPL	**9**		
		15	10. Physical and chemical properties of ocean water. Distribution and determinants of temperature and salinity [4] 11. Ocean circulation, wave, and tide [7] 12. Marine resources: Classification and sustainable utilisation [3]	AD	**13**		
	GE-1 PRACTICAL	**20**	1. Megascopic identification of mineral samples: Bauxite, calcite, chalcopyrite, feldspar, galena, hematite, mica, quartz, talc, tourmaline [8] 2. Megascopic identification of rock samples: Granite, basalt,	SB	**20**	02 Remedial class	

			laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite [12]				
		20	3. Extraction of physiographic information from Survey of India 1:50k topographical maps of plateau region: Construction and interpretation of relief profiles (superimposed, projected, and composite), Construction and interpretation of relative relief map (c. 5'×5') [20]	KB	**20**	02 Remedial class	
		20	4. Extraction of drainage information from Survey of India topographical maps of plateau region: Extraction and interpretation of channel features and drainage patterns, Construction of channel profiles [20]	KPL	**20**	02 Remedial class	
III HONOURS	**CC-5 THEORY**	**20** **4**	1. Nature, composition and layering of the atmosphere [4] 2. Insolation: Controlling factors. Heat budget of the atmosphere [6] 3. Temperature: horizontal and vertical distribution. Inversion of temperature: types, causes and consequences [6] 4. Overview of climate change: Greenhouse effect. Formation,	KB	**18**		

			depletion, and significance of the ozone layer [4]				
		20	5. Condensation: Process and forms. Mechanism of precipitation: Bergeron-Findeisen theory, collision and coalescence. Forms of precipitation [6] 6. Air mass: Typology, origin, characteristics and modification [4] 7. Fronts: Warm and cold, frontogenesis, and frontolysis [5] 8. Weather: Stability and instability, barotropic and baroclinic conditions [5]	GB	**18**		
		20	9. Circulation in the atmosphere: Planetary winds, jet streams, index cycle [5] 10. Atmospheric disturbances: Tropical and mid-latitude cyclones, thunderstorms [5] 11. Monsoon circulation and mechanism with reference to India [5] 12. Climatic classification after Thornthwaite (1955) and Oliver [5]	SD	**18**		
	CC-5 Practical	**60**	1. Measurement of weather elements using analogue instruments: Mean daily	KB	**38**		

			temperature, air pressure, relative humidity, and rainfall [15] 2. Interpretation of a daily weather map of India (any two): Pre-Monsoon, Monsoon, and Post-Monsoon [20] 3. Construction and interpretation of hythergraph and climograph (G. Taylor) [15] 4. Construction and interpretation of wind rose [10]				
	CC-6 THEORY	**15**	1. Systems approach in hydrology. Global hydrological cycle: Its physical and biological role [5] 2. Run off: controlling factors. Infiltration and evapotranspiration. Run off cycle [5] 3. Drainage basin as a hydrological unit. Principles of water harvesting and watershed management [5]	KPL	**12**		
		5	4. Groundwater: Occurrence and storage. Factors controlling recharge, discharge and movement [5]	DK	**3**		
		14	5. Major relief features of the ocean floor: Characteristics and origin according to plate tectonics [6] 6. Physical and chemical properties of ocean water [4] 7. Water mass, T–S	AD	**12**		

			diagram [4] 8. Air-Sea interactions, ocean circulation, wave and tide [8]				
		18	9. Ocean temperature and salinity: Distribution and determinants [4] 10. Coral reefs: Formation, classification and threats [5] 11. Marine resources: Classification and sustainable utilisation [4] 12. Sea level change: Types and causes [5]	DK	**15**		
	CC-6 PRACTICAL	**60**	1. Construction and interpretation of rating curves [10] 2. Construction and interpretation of hydrographs and unit hydrographs [15] 3. Construction and interpretation of monthly rainfall dispersion diagram (Quartile method), Climatic water budget, and Ergograph [25] 4. Construction of Theissen polygon from precipitation data [10]	KPL	**40**		
	CC-7 THEORY & PRACTICAL	**120**	1. Importance and significance of statistics in Geography [4] 2. Discrete and continuous data, population and samples, scales of measurement (nominal, ordinal, interval and ratio) [5] 3. Sources of geographical data for statistical analysis [4] 4.	SB	**75**		

			Collection of data and preparation of statistical tables [5] 5. Sampling: Need, types, significance, and methods of random sampling [4] 6. Theoretical distribution: Frequency, cumulative frequency, normal, and probability [6] 7. Central tendency: Mean, median, mode, and partition values [6] 8. Measures of dispersion range, mean deviation, standard deviation, and coefficient of variation [6] 9. Association and correlation: Product moment correlation and rank correlation, [5] 10. Regression: Linear and non-linear [5] 11. Time series analysis: Moving average [5] 12. Hypothesis testing: Chi-square test and T-test [5]				
	SEC THEORY	**7**	1. Components of a coastal zone. Coastal morphodynamic variables and their role in evolution of coastal forms [7]	SD	**6**		
		23	2. Environmental impacts and management of mining, oil exploration, salt manufacturing, land reclamation and tourism [8] 3. Coastal hazards and their	KPL	**20**		

			management using structural and non-structural measures: Erosion, flood, sand encroachment, dune degeneration, estuarine sedimentation and pollution [8] 4. Principles of Coastal Zone Management. Exclusive Economic Zone and Coastal Regulation Zones with reference to India. [7]				
		8	3. Coastal hazards and their management using structural and non-structural measures: Erosion, flood, sand encroachment, dune degeneration, estuarine sedimentation and pollution [8]	SB	**6**		
		7	4. Principles of Coastal Zone Management. Exclusive Economic Zone and Coastal Regulation Zones with reference to India. [7]	KB	**6**		
III GENERAL	**GE-3 THEORY**	**5**	1. Sectors of the economy: Primary, Secondary, Tertiary and Quaternary. Factors affecting location of economic activities [5]	GB	**4**		
		15	2. Location of economic activities: Theories of von Thünen, Lösch, and Weber [5] 3. Location of industries with	DK	**13**		

			special reference to India: Cotton, Iron and Steel [5] 4. Globalisation and integration of world economies [5]				
		21	5. Human Society: Structure, functions, social systems. Population and migration: overview, causes and effects [5] 6. Types and characteristics of social organisations: Primitive, hunting–gathering, agrarian, industrial [5] 7. Race, Language and Religion: Origin, characteristics and spatial variations [6] 8. Social Issues: Diversity, conflict and transformation [5]	AD	**18**		
		20	1. Carl Sauer: cultural landscape and its elements [6] 2. Rural and urban settlements: Differentiation in cultural landscapes [5] 3. Cultural regions and cultural realms [5] 4. Diffusion of culture and innovations [4]	SD	**18**		
	GE-3 PRACTICAL	**35**	1. State-wise variation in occupational structure by proportional divided circles [15] 2. Time series analysis of industrial production using any two manufactured goods from India [20]	SB	**30**		

		15	3. Measuring arithmetic growth rate of population comparing two datasets [15]	KB	**14**		
		10	4. Nearest neighbour analysis: Rural example from Survey of India 1:50k topographical maps [10]	KPL	**7**		
IV HONOURS	**CC-8 THEORY**	**20**	1. Meaning and approaches to economic geography [4] 2. Concepts in economic geography: Goods and services, production, exchange, and consumption [6] 3. Concept of economic man. Theories of choices [6] 4. Economic distance and transport costs [4]	SD	**18**		
		4	5. Concept and classification of economic activities [4]	DK	**3**		
		6	6. Factors affecting location of economic activity with special reference to agriculture (von Thünen), and industry (Weber) [6]	AD	**6**		
		6	7. Primary activities: Agriculture, forestry, fishing, and mining [6]	KB	**4**		
		6	8. Secondary activities: Classification of manufacturing, concept of manufacturing regions, special	AD	**4**		

			economic zones and technology parks [6]				
		14	9. Tertiary activities: Transport, trade and services [6] 10. Transnational sea-routes, railways and highways with reference to India [4] 11. International trade and economic blocs [4]	SD	**12**		
		4	12. WTO and BRICS: Evolution, structure and functions [4]	DK	**3**		
	CC-8 PRACTICAL	**10**	1. Choropleth mapping of state-wise variation in GDP [10]	AD	**8**		
		15	2. State-wise variation in occupational structure by proportional divided circles [15]	SD	**10**		
		35	3. Time series analysis of industrial production (India and West Bengal) [20] 4. Transport network analysis by detour index and shortest path analysis [15]	DK	**20**		
	CC-9 THEORY	**4**	1. Regions: Concept, types, and delineation [4]	KB	**3**		
		16	2. Regional Planning: Types, principles, objectives, tools and techniques [6] 3. Regional planning and multi-level planning in India [6]	DK	**14**		

			4. Concept of metropolitan area and urban agglomeration [4]				
		16	5. Concept of growth and development, growth versus development [6] 6. Indicators of development: Economic, demographic, and environmental [6] 7. Human development: Concept and measurement [4]	AD	**14**		
		4	8. Theories and models for regional development: Cumulative causation (Myrdal) [4]	KPL	**4**		
		6	9. Models and theories in regional development: Stages of development (Rostow), growth pole model (Perroux) [6]	KB	**5**		
		14	10. Underdevelopment: Concept and causes [4] 11. Regional development in India: Disparity and diversity [5] 12. Need and measures for balanced development in India [5]	SD	**13**		
	CC-9 PRACTICAL	**60**	1. Delineation of formal regions by weighted index method [15]	KPL	**40**		

			2. Delineation of functional regions by breaking point analysis [15] 3. Measurement of inequality by location quotient [15] 4. Measuring regional disparity by Sopher index [15]				
	CC-10 THEORY	**15**	1. Factors of soil formation [3] 2. Definition and significance of soil properties: Texture, structure, and moisture [5] 3. Definition and significance of soil properties: pH, organic matter, and NPK [5]	KB	**10**		
		5	4. Soil profile. Origin and profile characteristics of lateritic, podsol and chernozem soils [6]	DK	**3**		
		4	5. Soil erosion and degradation: Factors, processes and management measures. Humans as active agents of soil transformation.	SD	**2**		
		6	6. Principles of soil classification: Genetic and USDA. Concept of land capability and its classification [6]	KB	**5**		
		5	7. Concepts of the biosphere, ecosystem, biome, ecotone, community and ecology [5]	SD	**2**		
		5	8. Concepts of trophic structure, food chain and food	DK	**2**		

			web. Energy flow in ecosystems [5]				
		20	9. Classification of world biomes (Whittaker). Geographical extent and characteristics of tropical rain forest, savanna, hot desert, taiga and coral reef biomes [8] 10. Bio-geochemical cycles with special reference to carbon dioxide and nitrogen [4] 11. Deforestation: Causes, consequences and management [4] 12. Biodiversity: Definition, types, threats and conservation measures [4]	KPL	**18**		
	CC-10 PRACTICAL	**60**	1. Determination of soil reaction (pH) and salinity using field kit [15] 2. Determination of soil type by ternary diagram textural plotting [15] 3. Plant species diversity determination by matrix method [10] 4. Time series analysis of biogeography data [20]	KB (TOPIC 1 will be shared with **AD** in off-line mode) (TOPIC 3 will be shared with **SD** in off-line mode)	**45**		
	SEC THEORY	**5**	1. Rural Development: Concept, basic elements, measures of level of rural development [5]	AD	**4**		

		10	2. Paradigms of rural development: Gandhian approach to rural development Lewis model of economic development, 'big push' theory of development, Myrdal's model of 'spread and backwash effects'.	KPL	**8**		
		10	3. Area based approach to rural development: Drought prone area programmes, PMGSY, SJSY, MNREGA, Jan Dhan Yojana [10]	DK	**8**		
		5	4. Rural Governance: Panchayati Raj System and rural development policies and Programmes in India [5]	KB	**4**		
IV GENERAL	**GE-4 THEORY**	**14**	1. Maps: Classification and types. Scales: Types, significance, and applications [3] 2. Coordinate systems: Polar and rectangular. Bearing: Magnetic and true, whole-circle and reduced [3] 3. Map projections: Classification, properties and uses. Concept and significance of UTM projection [8]	AD	**12**		
		17	4. Survey of India topographical maps: Reference scheme of old and	SD	**15**		

			open series. Information on the margin of maps [4] 5. Representation of data by dots and proportional circles [4] 6. Representation of data by isopleth and choropleth [4] 7. Principal national agencies producing thematic maps in India: GSI, NATMO, NBSSLUP, NHO, and NRSC. Acquaintance with Bhuvan platform [5]				
		21	8. Basics of Remote Sensing: Types of satellites, sensors, bands, and resolutions with special reference to the ISRO missions [10] 9. Principles of preparing standard FCCs and classified raster images [5] 10. Principles of Geographical Information System: Concepts of vector types, attribute tables, buffers, and overlay analysis [6]	DK	**18**		
		12	11. Basic concepts of surveying and survey equipment: Prismatic compass [6] 12. Basic concepts of surveying and survey equipment: Dumpy level [6]	DK	**10**		

	GE-4 PRACTICAL	**10**	1. Graphical construction of scales: Plain and comparative [10]	KB	**8**		
		20	2. Construction of projections: Simple Conic with one standard parallel, Cylindrical Equal Area,, and Polar Zenithal Stereographic [20]	AD	**18**		
		20	3. Construction of thematic maps: Proportional squares, proportional circles, choropleths, and isopleths [20]	DK AND SD	**15**		
		10	4. Preparation of annotated thematic overlays from satellite standard FCCs of 1:50k	KPL	**8**		
II HONOURS	**CC-3 THEORY**	**4**	1. Nature, scope and recent trends. Elements of human geography [4]	DK	**2**		
		16	2. Approaches to Human Geography: Resource, locational, landscape, environment [6] 3. Concept and classification of race. Ethnicity [5] 4. Space, society, and cultural regions (language and religion) [5]	SD	**15**		
		6	5. Evolution of human societies: Hunting and food gathering, pastoral nomadism,	AD	**5**		

			subsistence farming, and industrial society [6]				
		4	6. Human adaptation to environment: Case studies of Eskimo, Masai and Maori [4]	KPL	**3**		
		5	7. Population growth and distribution, composition; demographic transition [5]	KB	**4**		
		5 **5** **5** **5**	8. Population–resource regions (Ackerman) [5] 9. Development–environment conflict [5] 10. Types and patterns of rural settlements [5] 11. Rural house types in India [5]	DK	**2** **2** **2** **2**		
		5	12. Morphology and hierarchy of urban settlements [5]	AD	**3**		
	CC-3 PRACTICAL	**12**	1. Spatial variation in continent- or country-level religious composition by divided proportional circles [12]	AD	**10**		
		15	2. Measuring arithmetic growth rate of population comparing two decadal datasets [15]	KB	**10**		
		20	3. Types of age-sex pyramids (progressive, regressive, intermediate, and stationary): Graphical representation and analysis [20]	DK	**15**		

		13	4. Nearest neighbour analysis from Survey of India 1:50k topographical maps of plain region (c. 5’ x 5’) [13]	KPL	**10**		
	CC-4 THEORY	**4**	1. Concepts of rounding, scientific notation. Logarithm and anti-logarithm. Natural and log scales [4]	SD	**4**		
		2	2. Concept of diagrammatic representation of data [2]	AD	**1**		
		10	3. Preparation and interpretation of geological maps [5] 4. Preparation and interpretation of weather maps [5]	KB	**6**		
		5	5. Preparation and interpretation land use land cover maps [5]	SD	**3**		
		10	6. Preparation and interpretation of socio-economic maps [5] 7. Principal national agencies producing thematic maps in India: NATMO, GSI, NBSSLUP, NHO, and NRSC / Bhuvan [5]	DK	**6**		
		12	8. Basic concepts of surveying and survey equipment: Prismatic compass [5] 9. Basic concepts of surveying and survey equipment: Dumpy level [7]	KPL	**10**		

		7	10. Basic concepts of surveying and survey equipment: Theodolite [7]	AD	**6**		
		5	11. Basic concepts of surveying and survey equipment: Abney level [5]	DK	**4**		
		5	12. Basic concepts of surveying and survey equipment: Laser distance measurer [5]	SD	**4**		
	CC-4 PRACTICAL	**22**	1. Traverse survey using prismatic compass [10] 2. Profile survey using dumpy Level [12]	KPL	**18**		
		18	3. Height determination of base accessible and inaccessible (same vertical plane method) objects by theodolite [18]	AD	**15**		
		20	4. Interpretation of geological maps with uniclinal structure, folds, unconformity, and intrusions [20]	KB	**18**		
II GENERAL	**GE-2 THEORY**	**5**	1. Insolation and Heat Budget. Horizontal and vertical distribution of atmospheric temperature and pressure [5]	DK	**3**		
		20	2. Overview of planetary wind systems. Indian Monsoons: Mechanisms and controls [6] 3. Atmospheric disturbances: Tropical and temperate cyclones. Thunderstorms [7]	SD	**18**		

			4. Overview of global climatic change: Greenhouse effect. Ozone depletion [5] 5. Scheme of world climatic classification by Köppen [2]				
		4	6. Factors of soil formation [4]	KPL	**3**		
		16	7. Soil profile development under different climatic conditions: Laterite, Podsol, and Chernozem [6] 8. Physical and chemical properties of soils: Texture, structure, pH, salinity, and NPK status [6] 9. USDA classification of soils. Soil erosion and its management [4]	AD	**14**		
		6	10. Ecosystem and Biomes. Distribution and characteristics of tropical rainforest; Savannah, and hot desert biomes [6]	KPL	**5**		
		9	11. Plant types, occurrence and ecological adaptations: Halophytes, xerophytes, hydrophytes, and mesophytes [5] 12. Biodiversity: Types, threats and management with special reference to India [4]	DK	**7**		
	GE-2 PRACTICAL	**20**	1. Interpretation of daily weather map of India (any one): Pre-Monsoon or	SD	**18**		

			Monsoon or Post-Monsoon [20]				
		20	2. Construction and interpretation of hythergraph, climograph (G. Taylor) and wind rose (seasonal) [20]	KB	**18**		
		10	3. Determination of soil type by ternary diagram textural plotting [10]	DK	**8**		
		10	4. Preparation of peoples' biodiversity register [10]	SD	**8**		

Lesson Plan for CBCS Syllabus

Subject: Geography

Session: 2020-21

SEMESTER	**PAPER**	**CLASSES AVAILABLE (APPROX)**	**TOPIC**	**NAME OF THE TEACHER**	**NO. OF LECTURES**	**REMEDIAL/TUTORIAL**	**REMARKS**

I HONOURS	CC-1 THEORY	**7**	1. Earth's tectonic and structural evolution concerning geological time scale [3] 2. Earth's interior with special reference to seismology	DK	**6**		
		10	2. Isostasy: Models of Airy, Pratt, and their applicability [3]	SD	**7**		
		10	3. Plate Tectonics as a unified theory of global tectonics: Processes and landforms at plate margins and hotspots [10] 4. Folds and Faults—origin and types. [4]	SB	**7**		
		4	5. Degradational processes: Weathering, mass wasting, and resultant landforms [5]	KB	**3**		
		6	6. Processes of entrainment, transportation, and deposition by different geomorphic agents. Role of humans in landform development [4]	KPL	**5**		
		5	7. Development of river network and landforms on uniclinal and folded structures. Surface expression of faults [7]	AD	**7**		
		4	8. Development of river network and landforms on granites, basalts and limestones [4]	DK	**4**		
		4	9. Coastal processes and landforms [4]	SD	**4**		

		4	10. Glacial and glacio-fluvial processes and landforms [4]	KB	**4**		
		8	11. Aeolian and fluvio-aeolian processes and landforms [4]	KPL	**4**		
		8	12. Role of time in geomorphology: Schumm and Lichty's model. Models on landscape evolution: Views of Davis, Penck, King, and Hack. Significance of systems approach [8]	AD	**8**		
	CC-1 PRACTICAL	**20** **15**	1. Measurement of dip and strike using clinometer [6] 2. Megascopic identification of (a) mineral samples: Bauxite, calcite, chalcopyrite, feldspar, galena, gypsum, hematite, magnetite, mica, quartz, talc, tourmaline; and (b) rock samples: Granite, basalt, dolerite, laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite, marble [14] 3. Extraction and interpretation of geomorphic information from Survey of India 1:50k topographical maps of plateau region: Construction of relief profiles	SB	**18** **13**		

			(superimposed, projected, and composite).				
		15 **10**	3. Delineation of drainage basins. Construction of relative relief map, slope map (Wentworth's method), drainage density map, stream ordering (Strahler), and bifurcation ratio on a drainage basin (c. 5' x 5') [35] 4. Construction of hypsometric curve and derivation of hypsometric integer of a drainage basin (c. 5' x 5') from Survey of India 1:50k topographical maps of plateau region [5]	KPL	**13** **10**		
	CC-2 THEORY	**8**	1. Maps: Components and classification [4]	DK	**8**		
		6	2. Concept and application of scales: Plain, comparative, diagonal and Vernier [8]	KB	**6**		
		2	3. Coordinate systems: Polar and rectangular [6]	AD	**2**		
		5	4. Concept of generating globe [2]	SB	**5**		
		5	5. Grids: Angular and linear systems of measurement [5]	AD	**5**		
		4	6. Bearing: Magnetic and true, whole-circle and reduced [5]	SD	**4**		
		8	7. Concept of geoid and spheroid with special	SD	**8**		

			reference to Everest and WGS-84 [4]				
		2	8. Map projections: Classification, properties and uses [8]	SB	**2**		
		10	9. Concept and significance of UTM projection [2]	DK	**8**		
		5	10. Representation of data using dots, spheres and divided proportional circles [5] 11. Representation of data using isopleth, choropleth, and chorochromatic maps [5]	KB	**4**		
		6	12. Survey of India topographical maps: Reference scheme of old series	KPL	**15**		
		16	12. Survey of India topographical maps: Reference scheme of open series. Information on the margin of maps [6]	SD	**20**		
	CC-2 PRACTICAL	**16**	1. Graphical construction of scales: Plain, comparative, diagonal and Vernier [16]	KB	**15**		
		20	2. Construction of projections: Polar Zenithal Stereographic, Simple Conic with one standard parallel, Bonne's, Cylindrical Equal Area, and Mercator's [20]	SB	**20**	02 Remedial class	
		24	3. Thematic maps: Proportional squares, pie	KB	**12**		

			diagrams with proportional circles, dots and spheres [12] 4. Thematic maps: Choropleth, isopleth, and chorochromatic maps [12]				
I GENERAL	GE-1 THEORY	**3**	1. Earth's interior with special reference to seismology [3]	DK	**3**		
		7	2. Plate Tectonics as a unified theory of global tectonics. Formation of major relief features of the ocean floor and continents according to Plate Tectonics [7]	SB	**5**		
		6	3. Folds and faults: Classification and surface expressions [6]	SD	**5**		
		4	4. Degradational processes: Weathering, mass wasting, and resultant landforms [4]	AD	**3**		
		12	5. Principal geomorphic agents. Classification and evolution of fluvial	SD	**10**		
			5. Principal geomorphic agents. Classification and evolution of coastal, aeolian, and glacial landforms [12]				
		7	6. Basic models of slope evolution: Decline, replacement, and retreat. Systems approach and its significance in geomorphology [6].	DK	**6**		

		9	7. Global hydrological cycle: Its physical and biological role [2] 8. Run off: Controlling factors. Concept of ecological flow [3] 9. Drainage basin as a hydrological unit. Principles of watershed management [3]	KPL	**9**		
		15	10. Physical and chemical properties of ocean water. Distribution and determinants of temperature and salinity [4] 11. Ocean circulation, wave, and tide [7] 12. Marine resources: Classification and sustainable utilisation [3]	AD	**13**		
		20	1. Megascopic identification of mineral samples: Bauxite, calcite, chalcopyrite, feldspar, galena, hematite, mica, quartz, talc, tourmaline [8] 2. Megascopic identification of rock samples: Granite, basalt, laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite [12]	SB	**20**		
		20	3. Extraction of physiographic information from Survey of India 1:50k topographical maps of plateau region: Construction and interpretation of relief profiles	KB	**20**		

			(superimposed, projected and composite), Construction and interpretation of relative relief map (c. 5'×5') [20]				
		20	4. Extraction of drainage information from Survey of India topographical maps of plateau region: Extraction and interpretation of channel features and drainage patterns, Construction of channel profiles [20]	KPL	**20**		
III HONOURS	CC-5 THEORY	**20**	1. Nature, composition and layering of the atmosphere [4] 2. Insolation: Controlling factors. Heat budget of the atmosphere [6] 3. Temperature: horizontal and vertical distribution. Inversion of temperature: types, causes and consequences [6] 4. Overview of climate change: Greenhouse effect. Formation, depletion, and significance of the ozone layer [4]	KB	**18**		
		20	5. Condensation: Process and forms. Mechanism of precipitation: Bergeron-Findeisen theory, collision and coalescence. Forms of precipitation [6]	DK SD	**18**		

			6. Air mass: Typology, origin, characteristics and modification [4] 7. Fronts: Warm and cold, frontogenesis, and frontolysis [5] 8. Weather: Stability and instability, barotropic and baroclinic conditions [5] 9. Circulation in the atmosphere: Planetary winds, jet streams, index cycle [5]				
		20	10. Atmospheric disturbances: Tropical and mid-latitude cyclones, thunderstorms [5] 11. Monsoon circulation and mechanism with reference to India [5] 12. Climatic classification after Thornthwaite (1955) and Oliver [5]	DK AD SD	**18**		
	CC-5 PRACTICAL	**60**	1. Measurement of weather elements using analogue instruments: Mean daily temperature, air pressure, relative humidity, and rainfall [15] 2. Interpretation of a daily weather map of India (any two): Pre-Monsoon, Monsoon, and Post-Monsoon [20] 3. Construction and interpretation of hythergraph and climograph (G. Taylor) [15]	KB	**38**		

			4. Construction and interpretation of wind rose [10]				
	CC-6 THEORY	**15**	1. Systems approach in hydrology. Global hydrological cycle: Its physical and biological role [5] 2. Run off: controlling factors. Infiltration and evapotranspiration. Run off cycle [5] 3. Drainage basin as a hydrological unit. Principles of water harvesting and watershed management [5]	KPL	**12**		
		5	4. Groundwater: Occurrence and storage. Factors controlling recharge, discharge and movement [5]	DK	**3**		
		14	5. Major relief features of the ocean floor: Characteristics and origin according to plate tectonics [6] 6. Physical and chemical properties of ocean water [4] 7. Water mass, T–S diagram [4] 8. Air-Sea interactions, ocean circulation, wave and tide [8]	AD	**12**		
		18	9. Ocean temperature and salinity: Distribution and determinants [4] 10. Coral reefs: Formation, classification and threats [5] 11. Marine resources: Classification and	DK	**15**		

			sustainable utilisation [4] 12. Sea level change: Types and causes [5]				
	CC-6 PRACTICAL	**60**	1. Construction and interpretation of rating curves [10] 2. Construction and interpretation of hydrographs and unit hydrographs [15] 3. Construction and interpretation of monthly rainfall dispersion diagram (Quartile method), Climatic water budget and Ergograph [25] 4. Construction of Theissen polygon from precipitation data [10]	KPL	**40**		
	CC-7 THEORY	**120**	1. Importance and significance of statistics in Geography [4] 2. Discrete and continuous data, population and samples, scales of measurement (nominal, ordinal, interval and ratio) [5] 3. Sources of geographical data for statistical analysis [4] 4. Collection of data and preparation of statistical tables [5] 5. Sampling: Need, types, significance, and methods of random sampling [4] 6. Theoretical distribution: Frequency, cumulative frequency, normal, and probability [6]	SB	**75**		

			7. Central tendency: Mean, median, mode, and partition values [6] 8. Measures of dispersion range, mean deviation, standard deviation, and coefficient of variation [6] 9. Association and correlation: Product moment correlation and rank correlation, [5] 10. Regression: Linear and non-linear [5] 11. Time series analysis: Moving average [5] 12. Hypothesis testing: Chi-square test and T-test [5]				
	SEC THEORY	**7**	1. Components of a coastal zone. Coastal morphodynamic variables and their role in evolution of coastal forms [7]	SD	**6**		
		23	2. Environmental impacts and management of mining, oil exploration, salt manufacturing, land reclamation and tourism [8] 3. Coastal hazards and their management using structural and non-structural measures: Erosion, flood, sand encroachment, dune degeneration, estuarine sedimentation and pollution [8] 4. Principles of Coastal Zone Management. Exclusive Economic Zone and Coastal	KPL	**20**		

			Regulation Zones with reference to India. [7]				
		8	3. Coastal hazards and their management using structural and non-structural measures: Erosion, flood, sand encroachment, dune degeneration, estuarine sedimentation, and pollution [8]	SB	**6**		
		7	4. Principles of Coastal Zone Management. Exclusive Economic Zone and Coastal Regulation Zones regarding India. [7]	KB	**6**		
III GENERAL	GE-3 THEORY	5	1. Sectors of the economy: Primary, Secondary, Tertiary and Quaternary. Factors affecting location of economic activities [5]	SB	**4**		
		15	2. Location of economic activities: Theories of von Thünen, Lösch, and Weber [5] 3. Location of industries with special reference to India: Cotton, Iron and Steel [5] 4. Globalisation and integration of world economies [5]	DK	**13**		
		21	5. Human Society: Structure, functions, social systems. Population and migration: overview, causes and effects [5] 6. Types and characteristics	AD	**18**		

			of social organisations: Primitive, hunting–gathering, agrarian, industrial [5] 7. Race, Language and Religion: Origin, characteristics and spatial variations [6] 8. Social Issues: Diversity, conflict and transformation [5]				
		20	1. Carl Sauer: cultural landscape and its elements [6] 2. Rural and urban settlements: Differentiation in cultural landscapes [5] 3. Cultural regions and cultural realms [5] 4. Diffusion of culture and innovations [4]	SD	**18**		
	GE-3 PRACTICAL	35	1. State-wise variation in occupational structure by proportional divided circles [15] 2. Time series analysis of industrial production using any two manufactured goods from India [20]	SB	**30**		
		15	3. Measuring arithmetic growth rate of population comparing two datasets [15]	KB	**14**		
		10	4. Nearest neighbour analysis: Rural example from Survey of India 1:50k topographical maps [10]	KPL	**7**		
V HONORS	CC-11 THEORY	16	1. Research in Geography: Meaning, types and significance [5]	KB	14		

			2. Literature review and formulation of research design [5] 3. Defining research problem, objectives and hypothesis [6]				
		14	4. Research materials and methods [4] 5. Techniques of writing scientific reports: Preparing notes, references, bibliography, abstract, and keywords [6] 6. Plagiarism: Classification and prevention [4]	SB	12		
		16	7. Fieldwork in Geographical studies: Role and significance. Selection of study area and objectives. Pre-field academic preparations. Ethics of fieldwork [6] 8. Field techniques and tools: Observation (participant, non-participant), questionnaires (open, closed, structured, non-structured). Interview [5] 9. Field techniques and tools: Landscape survey using transects and quadrants, constructing a sketch, photo and video recording [5]	DK	12		
		14	10. Positioning and collection of samples. Preparation of inventory from field data [4]	AD	12		

			11. Post-field tabulation, processing and analysis of quantitative and qualitative data [5] 12. Fieldwork: Logistics and handling of emergencies [5]				
	CC-11 PRACTICAL	60	To be assigned after receiving instructions from the Board of Studies		35		
	CC-12 THEORY	60	1. Principles of Remote Sensing (RS): Types of RS satellites and sensors [5] 2. Sensor resolutions and their applications regarding IRS and Landsat missions [5] 3. Image referencing schemes and acquisition procedure of free geospatial data from NRSC / Bhuvan and USGS [5] 4. Preparation of False Colour Composites from IRS LISS-3 and Landsat TM / OLI data. [5] 5. Principles of image interpretation. Preparation of inventories of landuse land cover (LULC) features from satellite images [5] 6. Acquisition and utilisation of free Digital Elevation Model data: CartoDEM, SRTM and ALOS [5]	KPL	45		
			7. GIS data structures types: Spatial and non-spatial, raster	KPL			

			and vector [5] 8. Principles of preparing attribute tables, data manipulation, and overlay analysis [6] 9. Principles and significance of buffer preparation [4] 10. Principles and significance of overlay analysis [5]				
			11. Principles of GNSS positioning and waypoint collection [5] 12. Principles of transferring of GNSS waypoints to GIS. Area and length calculations from GNSS data [5]	KPL			
	CC-12 PRACTICAL	60	1. Image georeferencing and enhancement. Preparation of reflectance libraries of LULC features across different image bands of IRS L3 or Landsat OLI data [15] 2. Supervised image classification, class editing and post-classification analysis [15] 3. Digitisation of features and administrative boundaries. Data attachment, overlay and preparation of annotated thematic maps [20] 4. Waypoint collection from GNSS receivers and exporting to GIS database [10]	KPL	45		

	DSE-A THEORY	15	1. The science of climate change: Origin, scope and trends [5] 2. Climate change with reference to the geological time scale [6] 3. Evidences and factors of climate change: The nature–man dichotomy [4]	KB	12		
		10	4. Greenhouse gases and global warming [5] 5. Electromagnetic spectrum, atmospheric window, heat balance of the earth [5]	SB	7		
		5	6. Global climatic assessment: IPCC reports [5]	SD	4		
		15	7. Climate change and vulnerability: Physical; economic and social [5] 8. Impact of climate change: Agriculture and water; flora and fauna; human health and morbidity [5] 9. Global initiatives to climate change mitigation: Kyoto Protocol, carbon trading, clean development mechanism, COP, climate fund [5]	DK	10		
		15	10. Climate change vulnerability assessment and adaptive strategies with particular reference to South Asia [5]	AD	10		

			11. National Action Plan on climate change [5] 12. Role of urban local bodies, panchayats, and educational institutions on climate change mitigation: Awareness and action programmes [5]				
	DSE-A PRACTICAL	10	1. Analysis of trends of temperatures (maximum and minimum of about three decades) of any India Meteorological Department (IMD) station [10]	KB	6		
		15	2. Comparative analysis of seasonal variability of rainfall on the basis of monthly data of any two IMD stations [15]	DK	10		
		15	3. Annual rainfall variability of about three decades for any two representative climatic regions of India [15]	AD	10		
		20	4. Preparation of an inventory of extreme climatic events and mitigation measure of any climatic region / country of South Asia for a period of one decade on the basis of secondary information [20]	SB	15		
	DSE-B THEORY	30	1. Definition, scope and content of cultural geography [5] 2. Development of cultural	SD	20		

			geography in relation to allied disciplines [5] 3. Cultural hearth and realm, cultural diffusion, diffusion of major world religions and languages [6] 4. Cultural segregation and cultural diversity, culture, technology and development. [5] 5. Races and racial groups of the world [5] 6. Cultural regions of India [4]				
		3	7. Rural settlement: Definition, nature and characteristics [3]	KB	2		
		12	8. Rural settlement: Site, situation, and morphology [5] 9. Rural house types concerning India, social segregation in rural areas. Census of India categories of rural settlements [7]	AD	10		
		3	10. Urban settlement: Census of India definition and categories [3]	SB	2		
		12	11. Urban morphology: Models of Burgess, Hoyt, Harris, and Ullman. [7] 12. City-region and conurbation. Functional classification of cities:	DK	10		

			Schemes of Harris, Nelson, and McKenzie [5]				
	DSE-B PRACTICAL	10	1. Mapping language distribution of India [10]	SD	8		
		35	2. CD block-wise housing distribution in any district of West Bengal using proportional square [20] 3. Identification of rural settlement types from Survey of India 1:50k topographical maps [15]	KB	25		
		15	4. Social area analysis of a city (Shevky & Bell) [15]	SB	10		
V GENERAL	DSE-A THEORY	60	1. Definition of region. Types and need of regional planning [3] 2. Choice of a region for planning; characteristics of an ideal planning region; delineation of planning region [7] 3. Regionalization of India for planning (agro-ecological zones) [5] 4. Strategies/models for regional planning: growth pole model of Perroux [6] 5. Growth centre model in Indian context; concept of village cluster [4] 6. Problem regions and regional planning; backward regions and regional plans: special area development plans in India.	SD,AD & DK	45		

			DVC: success and failures [5] 7. Changing concept of development and underdevelopment; Efficiency-equity debate [5] 8. Indicators of development: Economic, social and environmental. Concept of human development [5] 9. Regional development in India, regional inequality, disparity and diversity [5] 10. Development and regional disparities in India since Independence: Disparities in agricultural development [5] 11. Development and regional disparities in India since Independence: Disparities in industrial development [5] 12. Development and regional disparities in India since independence : Disparities in human resource development in terms of education and health [5]				
	DSE-A PRCTICAL	60	1. Delineation of regions according to given criteria using Weavers method [15] 2. Determination of sphere of influence by gravity model [15] 3. Measurement of inequality by Lorenz curve and	SD,AD & DK	45		

			location quotient [15] 4. Preparation of Z score and composite Index from suitable data				

Lesson Plan for CBCS Syllabus

Subject: Geography

Session: 2021-22 (ONLINE MODE)

SEMESTER	UNIT	CLASSES AVAILABLE (APPROX)	TOPIC	NAME OF THE TEACHER	NO. OF LECTURES	REMEDIAL/TUTORIAL	REMARKS
I HONOURS	**CC-1 THEORY**	**7**	1. Earth's tectonic and structural evolution with reference to geological time scale [3] 2. Earth's interior with special reference to seismology	DK	**6**		
		20	2. Isostasy: Models of Airy, Pratt, and their applicability [3] 3. Plate Tectonics as a unified theory of global tectonics: Processes and landforms at plate margins and hotspots [10] 4. Folds and Faults—origin and types. [4]	SD	**14**		
		4	5. Degradational processes: Weathering, mass wasting, and	KB	**3**		

			resultant landforms [5]				
		6	6. Processes of entrainment, transportation, and deposition by different geomorphic agents. Role of humans in landform development [4]	KPL	**5**		
		5	7. Development of river network and landforms on uniclinal and folded structures. Surface expression of faults [7]	AD	**7**		
		4	8. Development of river network and landforms on granites, basalts and limestones [4]	DK	**4**		
		4	9. Coastal processes and landforms [4]	SD	**4**		
		4	10. Glacial and glacio-fluvial processes and landforms [4]	KB	**4**		
		8	11. Aeolian and fluvio-aeolian processes and landforms [4]	KPL	**4**		

		8	12. Role of time in geomorphology: Schumm and Lichty's model. Models on landscape evolution: Views of Davis, Penck, King, and Hack. Significance of systems approach [8]	AD	**8**		
	CC-1 PRACTICAL	**20** **15**	1. Measurement of dip and strike using clinometer [6] 2. Megascopic identification of (a) mineral samples: Bauxite, calcite, chalcopyrite, feldspar, galena, gypsum, hematite, magnetite, mica, quartz, talc, tourmaline; and (b) rock samples: Granite, basalt, dolerite, laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss,	KPL KPL KB (RELIEF) KPL (DRAINAGE)	**18** **13**		

			quartzite, marble [14] 3. Extraction and interpretation of geomorphic information from Survey of India 1:50k topographical maps of plateau region: Construction of relief profiles (superimposed, projected, and composite).				
		15 **10**	3. Delineation of drainage basins. Construction of relative relief map, slope map (Wentworth's method), drainage density map, stream ordering (Strahler), and bifurcation ratio on a drainage basin (c. 5' x 5') [35] 4. Construction of hypsometric curve and derivation of hypsometric integer of a drainage basin	KB (RELIEF) KPL (DRAINGE)	**13** **10**		

			(c. 5’ x 5’) from Survey of India 1:50k topographical maps of plateau region [5]				
	CC-2 THEORY	**8**	1. Maps: Components and classification [4]	DK	**8**		
		6	2. Concept and application of scales: Plain, comparative, diagonal and Vernier [8]	KB	**6**		
		2	3. Coordinate systems: Polar and rectangular [6]	AD	**2**		
		5	4. Concept of generating globe [2]	AD	**5**		
		5	5. Grids: Angular and linear systems of measurement [5]	AD	**5**		
		4	6. Bearing: Magnetic and true, whole-circle and reduced [5]	SD	**4**		
		8	7. Concept of geoid and spheroid with special reference to Everest and WGS-84 [4]	SD	**8**		
		2	8. Map projections: Classification,	DK	**2**		

			properties and uses [8]				
		10	9. Concept and significance of UTM projection [2]	DK	**8**		
		5	10. Representation of data using dots, spheres and divided proportional circles [5] 11. Representation of data using isopleth, choropleth, and chorochromatic maps [5]	KB	**4**		
		6	12. Survey of India topographical maps: Reference scheme of old series	SD	**5**		
		16	12. Survey of India topographical maps: Reference scheme of open series. Information on the margin of maps [6]	SD	**13**		
	CC-2 PRACTICAL	**16**	1. Graphical construction of scales: Plain, comparative,	KB	**15**		

			diagonal and Vernier [16]				
		20	2. Construction of projections: Polar Zenithal Stereographic, Simple Conic with one standard parallel, Bonne's, Cylindrical Equal Area, and Mercator's [20]	AD	**20**		
		24	3. Thematic maps: Proportional squares, pie diagrams with proportional circles, dots and spheres [12] 4. Thematic maps: Choropleth, isopleth, and chorochromatic maps [12]	KB	**12**		
I GENERAL	**GE-1 THEORY**	**3**	1. Earth's interior with special reference to seismology [3]	DK	**3**		
		7	2. Plate Tectonics as a unified theory of global tectonics. Formation of major relief features of	SD	**5**		

			the ocean floor and continents according to Plate Tectonics [7]				
		6	3. Folds and faults: Classification and surface expressions [6]	SD	**5**		
		4	4. Degradational processes: Weathering, mass wasting, and resultant landforms [4]	AD	**3**		
		12	5. Principal geomorphic agents. Classification and evolution of fluvial 5. Principal geomorphic agents. Classification and evolution of coastal, aeolian, and glacial landforms [12]	AD SD	**10**		
		7	6. Basic models of slope evolution: Decline, replacement, and retreat. Systems approach and its significance in geomorphology [6].	DK	**6**		

		9	7. Global hydrological cycle: Its physical and biological role [2] 8. Run off: Controlling factors. Concept of ecological flow [3] 9. Drainage basin as a hydrological unit. Principles of watershed management [3]	KPL	**9**		
		15	10. Physical and chemical properties of ocean water. Distribution and determinants of temperature and salinity [4] 11. Ocean circulation, wave, and tide [7] 12. Marine resources: Classification and sustainable utilisation [3]	AD	**13**		
	GE-1 PRACTICAL	**20**	1. Megascopic identification of mineral samples: Bauxite, calcite, chalcopyrite, feldspar, galena,	KPL	**20**		

			hematite, mica, quartz, talc, tourmaline [8] 2. Megascopic identification of rock samples: Granite, basalt, laterite, limestone, shale, sandstone, conglomerate, slate, phyllite, schist, gneiss, quartzite [12]				
		20	3. Extraction of physiographic information from Survey of India 1:50k topographical maps of plateau region: Construction and interpretation of relief profiles (superimposed, projected and composite), Construction and interpretation of relative relief map (c. 5'×5') [20]	KB	**20**		
		20	4. Extraction of drainage information from	KPL	**20**		

			Survey of India topographical maps of plateau region: Extraction and interpretation of channel features and drainage patterns, Construction of channel profiles [20]				
II HONOURS	**CC-3 THEORY**	**4**	1. Nature, scope and recent trends. Elements of human geography [4]	DK	**2**		
		16	2. Approaches to Human Geography: Resource, locational, landscape, environment [6] 3. Concept and classification of race. Ethnicity [5] 4. Space, society, and cultural regions (language and religion) [5]	SD	**15**		
		6	5. Evolution of human societies: Hunting and food gathering, pastoral nomadism,	AD	**5**		

			subsistence farming, and industrial society [6]				
		4	6. Human adaptation to environment: Case studies of Eskimo, Masai and Maori [4]	KPL	**3**		
		5	7. Population growth and distribution, composition; demographic transition [5]	KB	**4**		
		5 **5** **5** **5**	8. Population–resource regions (Ackerman) [5] 9. Development–environment conflict [5] 10. Types and patterns of rural settlements [5] 11. Rural house types in India [5]	DK	**2** **2** **2** **2**		
		5	12. Morphology and hierarchy of urban settlements [5]	AD	**3**		
	CC-3 PRACTICAL	**12**	1. Spatial variation in continent- or country-level	AD	**10**		

			religious composition by divided proportional circles [12]				
		15	2. Measuring arithmetic growth rate of population comparing two decadal datasets [15]	KB	**10**		
		20	3. Types of age-sex pyramids (progressive, regressive, intermediate, and stationary): Graphical representation and analysis [20]	DK	**15**		
		13	4. Nearest neighbour analysis from Survey of India 1:50k topographical maps of plain region (c. 5' x 5') [13]	KPL	**10**		
	CC-4 THEORY	**4**	1. Concepts of rounding, scientific notation. Logarithm and anti-logarithm. Natural and log scales [4]	SD	**4**		

		2	2. Concept of diagrammatic representation of data [2]	AD	**1**		
		10	3. Preparation and interpretation of geological maps [5] 4. Preparation and interpretation of weather maps [5]	KB	**6**		
		5	5. Preparation and interpretation land use land cover maps [5]	SD	**3**		
		10	6. Preparation and interpretation of socio-economic maps [5] 7. Principal national agencies producing thematic maps in India: NATMO, GSI, NBSSLUP, NHO, and NRSC / Bhuvan [5]	DK	**6**		
		12	8. Basic concepts of surveying and survey equipment: Prismatic compass [5] 9. Basic concepts of surveying and survey equipment: Dumpy level [7]	KPL	**10**		

		7	10. Basic concepts of surveying and survey equipment: Theodolite [7]	AD	**6**		
		5	11. Basic concepts of surveying and survey equipment: Abney level [5]	DK	**4**		
		5	12. Basic concepts of surveying and survey equipment: Laser distance measurer [5]	SD	**4**		
	CC-4 PRACTICAL	**22**	1. Traverse survey using prismatic compass [10] 2. Profile survey using dumpy Level [12]	KPL	**18**		
		18	3. Height determination of base accessible and inaccessible (same vertical plane method) objects by theodolite [18]	AD	**15**		
		20	4. Interpretation of geological maps with uniclinal structure, folds, unconformity, and intrusions [20]	KB	**18**		

II GENERAL	**GE-2 THEORY**	**5**	1. Insolation and Heat Budget. Horizontal and vertical distribution of atmospheric temperature and pressure [5]	DK	**3**		
		20	2. Overview of planetary wind systems. Indian Monsoons: Mechanisms and controls [6] 3. Atmospheric disturbances: Tropical and temperate cyclones. Thunderstorms [7] 4. Overview of global climatic change: Greenhouse effect. Ozone depletion [5] 5. Scheme of world climatic classification by Köppen [2]	SD	**18**		
		4	6. Factors of soil formation [4]	KPL	**3**		
		16	7. Soil profile development under different climatic	AD	**14**		

			conditions: Laterite, Podsol, and Chernozem [6] 8. Physical and chemical properties of soils: Texture, structure, pH, salinity, and NPK status [6] 9. USDA classification of soils. Soil erosion and its management [4]				
		6	10. Ecosystem and Biomes. Distribution and characteristics of tropical rainforest; Savannah, and hot desert biomes [6]	KPL	**5**		
		9	11. Plant types, occurrence and ecological adaptations: Halophytes, xerophytes, hydrophytes, and mesophytes [5] 12. Biodiversity: Types, threats and management with	DK	**7**		

			special reference to India [4]				
	GE-2 PRACTICAL	**20**	1. Interpretation of daily weather map of India (any one): Pre-Monsoon or Monsoon or Post-Monsoon [20]	SD	**18**		
		20	2. Construction and interpretation of hythergraph, climograph (G. Taylor) and wind rose (seasonal) [20]	KB	**18**		
		10	3. Determination of soil type by ternary diagram textural plotting [10]	DK	**8**		
		10	4. Preparation of peoples' biodiversity register [10]	SD	**8**		
III HONOURS	**CC-5 THEORY**	**20**	1. Nature, composition and layering of the atmosphere [4] 2. Insolation: Controlling factors. Heat budget of the atmosphere [6] 3. Temperature: horizontal and vertical distribution.	KB	**18**		

			Inversion of temperature: types, causes and consequences [6] 4. Overview of climate change: Greenhouse effect. Formation, depletion, and significance of the ozone layer [4]				
		20	5. Condensation: Process and forms. Mechanism of precipitation: Bergeron-Findeisen theory, collision and coalescence. Forms of precipitation [6]	DK	**18**		
			6. Air mass: Typology, origin, characteristics and modification [4] 7. Fronts: Warm and cold, frontogenesis, and frontolysis [5] 8. Weather: Stability and instability, barotropic and	SD			

			baroclinic conditions [5] 9. Circulation in the atmosphere: Planetary winds, jet streams, index cycle [5]				
		20	10. Atmospheric disturbances: Tropical and mid-latitude cyclones, thunderstorms [5]	DK	**18**		
			11. Monsoon circulation and mechanism with reference to India [5]	AD			
			12. Climatic classification after Thornthwaite (1955) and Oliver [5]	SD			
	CC-5 PRACTICAL	**60**	1. Measurement of weather elements using analogue instruments: Mean daily temperature, air pressure, relative humidity, and rainfall [15] 2. Interpretation of a daily weather map of India (any two):	KB	**38**		

			Pre-Monsoon, Monsoon, and Post-Monsoon [20] 3. Construction and interpretation of hythergraph and climograph (G. Taylor) [15] 4. Construction and interpretation of wind rose [10]				
	CC-6 THEORY	**15**	1. Systems approach in hydrology. Global hydrological cycle: Its physical and biological role [5] 2. Run off: controlling factors. Infiltration and evapotranspiration. Run off cycle [5] 3. Drainage basin as a hydrological unit. Principles of water harvesting and watershed management [5]	KPL	**12**		
		5	4. Groundwater: Occurrence and storage. Factors controlling	DK	**3**		

			recharge, discharge and movement [5]				
		14	5. Major relief features of the ocean floor: Characteristics and origin according to plate tectonics [6] 6. Physical and chemical properties of ocean water [4] 7. Water mass, T–S diagram [4] 8. Air-Sea interactions, ocean circulation, wave and tide [8]	AD	**12**		
		18	9. Ocean temperature and salinity: Distribution and determinants [4] 10. Coral reefs: Formation, classification and threats [5] 11. Marine resources: Classification and sustainable utilisation [4] 12. Sea level change: Types and causes [5]	DK	**15**		
	CC-6 PRACTICAL	**60**	1. Construction and interpretation of	KPL	**40**		

			rating curves [10] 2. Construction and interpretation of hydrographs and unit hydrographs [15] 3. Construction and interpretation of monthly rainfall dispersion diagram (Quartile method), Climatic water budget and Ergograph [25] 4. Construction of Theissen polygon from precipitation data [10]				
	CC-7 THEORY & PRACTICAL	**120**	1. Importance and significance of statistics in Geography [4] 2. Discrete and continuous data, population and samples, scales of measurement (nominal, ordinal, interval and ratio) [5] 3. Sources of geographical data for statistical analysis [4] 4. Collection of data	AD & DK +SD	**75**		

			and preparation of statistical tables [5] 5. Sampling: Need, types, significance, and methods of random sampling [4] (DK) 6. Theoretical distribution: Frequency, cumulative frequency, normal, and probability [6] 7. Central tendency: Mean, median, mode, and partition values [6] 8. Measures of dispersion range, mean deviation, standard deviation, and coefficient of variation [6] (AD) 9. Association and correlation: Product moment correlation and rank correlation, [5] (AD) 10. Regression: Linear and non-linear [5] 11. Time series analysis:				

			Moving average [5] 12. Hypothesis testing: Chi-square test and T-test [5] (SD)				
	CC-7 PRACTICAL	**7**	1. Construction of data matrix with each row representing an areal unit (districts / blocks / mouzas / towns) and corresponding columns of relevant attributes [15] 2. Based on the above, a frequency table, measures of central tendency, and dispersion would be computed and interpreted using histogram and frequency curve [15] 3. From the data matrix, a sample set (20%) would be drawn using random, systematic, and stratified methods of sampling and the samples would be	AD	**6**		

			located on a map with an explanation of the methods used [15] 4. Based on the sample set and using two relevant attributes, a scatter diagram and linear regression line would be plotted and residual from regression would be mapped with a short interpretation [15]				
	SEC THEORY	**23**	1. Components of a coastal zone. Coastal morphodynamic variables and their role in evolution of coastal forms [7]	SD	**20**		
		8	2. Environmental impacts and management of mining, oil exploration, salt manufacturing, land reclamation and tourism [8]	KPL	**6**		
		7	3. Coastal hazards and their	SD	**6**		

			management using structural and non-structural measures: Erosion, flood, sand encroachment, dune degeneration, estuarine sedimentation and pollution [8]				
		8	4. Principles of Coastal Zone Management. Exclusive Economic Zone and Coastal Regulation Zones with reference to India. [7]	KB	**6**		
III GENERAL	**GE-3 THEORY**	5	1. Sectors of the economy: Primary, Secondary, Tertiary and Quaternary. Factors affecting location of economic activities [5]	DK	**4**		
		15	2. Location of economic activities: Theories of von Thünen, Lösch, and Weber [5] 3. Location of industries with	DK	**13**		

			special reference to India: Cotton, Iron and Steel [5] 4. Globalisation and integration of world economies [5]				
		21	5. Human Society: Structure, functions, social systems. Population and migration: overview, causes and effects [5] 6. Types and characteristics of social organisations: Primitive, hunting–gathering, agrarian, industrial [5] 7. Race, Language and Religion: Origin, characteristics and spatial variations [6] 8. Social Issues: Diversity, conflict and transformation [5]	AD	**18**		
		20	1. Carl Sauer: cultural landscape and its elements [6] 2. Rural and urban settlements:	SD	**18**		

			Differentiation in cultural landscapes [5] 3. Cultural regions and cultural realms [5] 4. Diffusion of culture and innovations [4]				
	GE-3 PRACTICAL	35	1. State-wise variation in occupational structure by proportional divided circles [15] (SD) 2. Time series analysis of industrial production using any two manufactured goods from India [20] (DK)	SD DK	**30**		
		15	3. Measuring arithmetic growth rate of population comparing two datasets [15]	KB	**14**		
		10	4. Nearest neighbour analysis: Rural example from Survey of India 1:50k topographical maps [10]	KPL	**7**		

IV HONOURS	**CC-8 THEORY**	**20**	1. Meaning and approaches to economic geography [4] 2. Concepts in economic geography: Goods and services, production, exchange, and consumption [6] 3. Concept of economic man. Theories of choices [6] 4. Economic distance and transport costs [4]	SD	**18**		
		4	5. Concept and classification of economic activities [4]	DK	**3**		
		6	6. Factors affecting location of economic activity with special reference to agriculture (von Thünen), and industry (Weber) [6]	AD	**6**		
		6	7. Primary activities:	KB	**4**		

			Agriculture, forestry, fishing, and mining [6]				
		6	8. Secondary activities: Classification of manufacturing, concept of manufacturing regions, special economic zones and technology parks [6]	AD	**4**		
		14	9. Tertiary activities: Transport, trade and services [6] 10. Transnational sea-routes, railways and highways with reference to India [4] 11. International trade and economic blocs [4]	SD	**12**		
		4	12. WTO and BRICS: Evolution, structure and functions [4]	DK	**3**		
	CC-8 PRACTICAL	**10**	1. Choropleth mapping of state-wise variation in GDP [10]	AD	**8**		

		15	2. State-wise variation in occupational structure by proportional divided circles [15]	SD	**10**		
		35	3. Time series analysis of industrial production (India and West Bengal) [20] 4. Transport network analysis by detour index and shortest path analysis [15]	DK	**20**		
	CC-9 **THEORY**	**4**	1. Regions: Concept, types, and delineation [4]	KB	**3**		
		16	2. Regional Planning: Types, principles, objectives, tools and techniques [6] 3. Regional planning and multi-level planning in India [6] 4. Concept of metropolitan area and urban agglomeration [4]	DK	**14**		

		16	5. Concept of growth and development, growth versus development [6] 6. Indicators of development: Economic, demographic, and environmental [6] 7. Human development: Concept and measurement [4]	AD	**14**		
		4	8. Theories and models for regional development: Cumulative causation (Myrdal) [4]	KPL	**4**		
		6	9. Models and theories in regional development: Stages of development (Rostow), growth pole model (Perroux) [6]	KB	**5**		
		14	10. Underdevelopment: Concept and causes [4] 11. Regional development in	SD	**13**		

			India: Disparity and diversity [5] 12. Need and measures for balanced development in India [5]				
	CC-9 PRACTICAL	**60**	1. Delineation of formal regions by weighted index method [15] 2. Delineation of functional regions by breaking point analysis [15] 3. Measurement of inequality by location quotient [15] 4. Measuring regional disparity by Sopher index [15]	KPL	**40**		
	CC-10 THEORY	**15**	1. Factors of soil formation [3] 2. Definition and significance of soil properties: Texture, structure, and moisture [5] 3. Definition and significance of soil properties: pH,	KB	**10**		

			organic matter, and NPK [5]				
		5	4. Soil profile. Origin and profile characteristics of lateritic, podsol and chernozem soils [6]	DK	**3**		
		4	5. Soil erosion and degradation: Factors, processes and management measures. Humans as active agents of soil transformation [5]	SD	**2**		
		6	6. Principles of soil classification: Genetic and USDA. Concept of land capability and its classification [6]	KB	**5**		
		5	7. Concepts of biosphere, ecosystem, biome, ecotone, community and ecology [5]	SD	**2**		
		5	8. Concepts of trophic structure, food chain and food web. Energy flow in ecosystems [5]	DK	**2**		

		20	9. Classification of world biomes (Whittaker). Geographical extent and characteristics of tropical rain forest, savanna, hot desert, taiga and coral reef biomes [8] 10. Bio-geochemical cycles with special reference to carbon dioxide and nitrogen [4] 11. Deforestation: Causes, consequences and management [4] 12. Biodiversity: Definition, types, threats and conservation measures [4]	KPL	**18**		
	CC-10 PRACTICAL	**60**	1. Determination of soil reaction (pH) and salinity using field kit [15] 2. Determination of soil type by ternary diagram textural plotting [15]	KB (TOPIC 1 will be shared with **AD** in off-line mode) (TOPIC 3 will be shared with **SD** in off-line mode)	**45**		

			3. Plant species diversity determination by matrix method [10] 4. Time series analysis of biogeography data [20]				
	SEC THEORY	**5**	1. Rural Development: Concept, basic elements, measures of level of rural development [5]	AD	**4**		
		10	2. Paradigms of rural development: Gandhian approach to rural development Lewis model of economic development, 'big push' theory of development, Myrdal's model of 'spread and backwash effects' [10]	KPL	**8**		
		10	3. Area based approach to rural development: Drought prone area programmes, PMGSY, SJSY,	DK	**8**		

			MNREGA, Jan Dhan Yojana [10]				
		5	4. Rural Governance: Panchayati Raj System and rural development policies and Programmes in India [5]	KB	**4**		
IV GENERAL	**GE-4 THEORY**	**14**	1. Maps: Classification and types. Scales: Types, significance, and applications [3] 2. Coordinate systems: Polar and rectangular. Bearing: Magnetic and true, whole-circle and reduced [3] 3. Map projections: Classification, properties and uses. Concept and significance of UTM projection [8]	AD	**12**		
		17	4. Survey of India topographical maps: Reference	SD	**15**		

			scheme of old and open series. Information on the margin of maps [4] 5. Representation of data by dots and proportional circles [4] 6. Representation of data by isopleth and choropleth [4] 7. Principal national agencies producing thematic maps in India: GSI, NATMO, NBSSLUP, NHO, and NRSC. Acquaintance with Bhuvan platform [5]				
		21	8. Basics of Remote Sensing: Types of satellites, sensors, bands, and resolutions with special reference to the ISRO missions [10] 9. Principles of preparing standard FCCs and classified raster images [5] 10. Principles of Geographical	DK	**18**		

			Information System: Concepts of vector types, attribute tables, buffers, and overlay analysis [6]				
		12	11. Basic concepts of surveying and survey equipment: Prismatic compass [6] 12. Basic concepts of surveying and survey equipment: Dumpy level [6]	DK	**10**		
	GE-4 PRACTICAL	**10**	1. Graphical construction of scales: Plain and comparative [10]	KB	**8**		
		20	2. Construction of projections: Simple Conic with one standard parallel, Cylindrical Equal Area,, and Polar Zenithal Stereographic [20]	AD	**18**		
		20	3. Construction of thematic maps: Proportional squares, proportional circles,	DK AND SD	**15**		

			choropleths, and isopleths [20]				
		10	4. Preparation of annotated thematic overlays from satellite standard FCCs of 1:50k	KPL	**8**		
VI HONOURS	**CC-13 THEORY**	**15**	1. Development of pre-modern Geography: Contributions of Greek, Chinese, and Indian geographers [5] 2. Impact of 'Dark Age' in Geography and Arab contributions [5] 3. Geography during the age of 'Discovery' and 'Exploration' (contributions of Portuguese voyages, Columbus, Vasco da Gama, Magellan, Thomas Cook) [5]	KB	**10**		
		7	4. Transition from cosmography to scientific Geography (contributions of	AD and DK	**6**		

			Bernard Varenius and Immanuel Kant). Dualism and Dichotomies (General vs. Particular, Physical vs. Human, Regional vs. Systematic, Determinism vs. Possibilism, Ideographic vs. Nomothetic) [7]				
		8	5. Evolution of Geographical thoughts in Germany, France, Britain, and United States of America [5] 6. Contributions of Humboldt and Ritter [3]	KPL	**4**		
		13	7. Contributions of Richthofen, Hartshorne–Schaeffer, Ratzel, La Blaché [6] 8. Trends of geography in the post World War-II period: Quantitative	SD	**10**		

			revolution, systems approach [7]				
		8	9. Structuralism and historical materialism [3] 10. Changing concept of space with special reference to Harvey [5]	DK	**6**		
		10	11. Evolution of Critical Geography: Behavioural, humanistic, and radical [5] 12. Towards post modernism: Geography in the 21st Century [5]	AD	**8**		
	CC-13 PRACTICAL	**15** **15**	1. Changing perception of maps of the world (Ptolemy, Ibn Batuta, Mercator)	SD	**5**		

		30					
			2. Mapping voyages; Columbus, Vasco da Gama, Magellan, Thomas Cook	KB	**5**		
			3. Group Presentation of five to ten students on any selected school of geographical thought (20 marks)	KPL	**30**		
	CC-14 THEORY	**4**	1. Classification of hazards and disasters. Hazard continuum [4]	KPL	**3**		
		6	2. Approaches to hazard study: Risk perception and vulnerability assessment. Hazard paradigms [6]	SD	**5**		
		5	3. Responses to hazards: Preparedness, trauma, and aftermath. Resilience, capacity building [5]	AD	**4**		
		5	4. Hazards mapping: Data and geospatial techniques (for	KPL	**4**		

			hazards enlisted in Unit II and GEO-A-CC-6-14-P) [5]				
		5	5. Earthquake: Factors, vulnerability, consequences, and management [5]	AD	**3**		
		5	6. Landslide: Factors, vulnerability, consequences, and management [5]	DK	**3**		
		5	7. Land subsidence: Factors, vulnerability, consequences, and management [5]	KB	**3**		
		5	8. Tropical cyclone: Factors, vulnerability, consequences, and management [5]	DK	**3**		
		5	9. Flood: Factors, vulnerability, consequences, and management [5]	SD	**3**		
		5	10. Riverbank erosion: Factors, vulnerability, consequences, and management [5]	AD	**3**		

		5	11. Fire: Factors, vulnerability, consequences, and management [5]	DK	**3**		
		5	12. Biohazard: Classification, vulnerability, consequences, and management [5]	SD	**3**		
	CC-14 PRACTICAL	**30+30**	Group Project Report	ALL	**50**		
	DSE-A THEORY	**10**	1. Natural resources: Concept and classification [4]	SD	**7**		
		6	2. Approaches to resource utilization: Utilitarian, conservational, community based adaptive [6]	AD	**4**		
		5	3. Significance of resources: Backbone of economic growth and development [5]	KB	**3**		
		5	4. Pressure on resources. Appraisal and conservation of natural resources [5]	KPL	**3**		

		7	5. Problems of resource depletion: global scenario (forest, water, fossil fuels) [7]	DK	**3**		
		3	6. Sustainable resource development [3]	SD	**2**		
		6	7. Distribution, utilisation, problems and management of metallic mineral resources: Iron ore, bauxite, copper [6]	AD	**4**		
		6	8. Distribution, utilisation, problems and management of non-metallic mineral resources: Limestone, mica, gypsum [6]	SD	**4**		
		10	9. Distribution, utilisation, problems and management of energy resources: Conventional and non-conventional [6]	DK	**8**		

			10. Contemporary energy crisis and future scenario [4]				
		3	11. Politics of power resources [3]	KB	**2**		
		5	12. Limits to growth and sustainable use of resources. Concept of resource sharing [5]	KPL	**4**		
	DSE-A PRACTICAL	**30**	1. Mapping and area estimate of changes in forest or vegetation cover from maps and/or satellite images [15] 2. Mapping and number estimate of changes in water bodies from maps and/or satellite images [15]	KPL	**20**		
		15	3. Decadal changes in state-wise production of coal and iron ore [15]	KB	**10**		
		15	4. Computing Human Development Index: Comparative decadal change of top five Indian states [15]	SD	**10**		

	DSE-B THEORY	**5**	1. Physiographic divisions with reference to tectonic provinces [5]	KPL	**3**		
		6	2. Climate, soil and vegetation: Classification and interrelation [6]	DK	**4**		
		4	3. Population: Distribution, growth, structure, and policy [4]	AD	**3**		
		5	4. Tribes of India with special reference to Gaddi, Toda, Santal, and Jarwa [5]	AD	**4**		
		4	5. Agricultural regions. Green revolution and its consequences [4]	KPL	**3**		
		9	6. Mineral and power resources: Distribution and utilisation of iron ore, coal, petroleum, and natural gas [6] 7. Industrial development: Automobile and	DK	**8**		

			information technology [3]				
		7	8. Regionalisation of India: Physiographic (R.L. Singh) and economic (P. Sengupta) [7]	AD	**5**		
		6	9. Physical perspectives: Physiographic divisions, forest and water resources [6]	KB	**4**		
		10	10. Resources: Agriculture, mining,, and industry [6] 11. Population: Growth, distribution, and human development [4]	SD	**8**		
		4	12. Regional issues: Darjeeling Hills and Sundarban [4]	KB	**2**		
	DSE-B PRACTICAL	**15**	1. Monthly temperature and rainfall graphs of five select stations from different physiographic regions of India [15]	KB	**10**		

		15	2. Crop combination: Comparison of any two contrasting districts from West Bengal [15]	SD	**10**		
		20	3. Annual trends of production: Mineral resources and manufacturing goods over two decades [20]	AD	**10**		
		10	4. Composite Index: Comparison of developed and backward states of India [10]	DK	**8**		
VI GENERAL	**DSE-B THEORY**	**6**	1. Development of Population Geography as a field of specialization. Relation between population geography and demography. Sources of population data, their level of reliability and problems of mapping [6]	AD	**4**		

		6	2. Population distribution: Density and growth. Classical and modern theories on population growth, Demographic transition model [6]	KB	**4**		
		4	3. World patterns and determinants of population distribution and growth. Concept of optimum population [4]	DK	**3**		
		4	4. Population distribution, density, and growth in India [4]	DK	**3**		
		5	5. Types of population composition: Age–sex. rural–urban, literacy and education [5]	AD	**4**		
		5	6. Measurements of fertility and mortality. Concept of cohort and life table [5]	AD	**4**		
		7	7. Population composition of India: Urbanisation	SD	**5**		

			and occupational structure [7]				
		3	8. Migration: Causes and types [3]	KPL	**2**		
		5	9. National and international patterns of migration with reference to India [5]	SD	**4**		
		5	10. Population and development: Population–resource regions (Sekerman). Concept of human Development Index and its components [5]	DK	**3**		
		5	11. Population policies in developed and less development countries. India's population policies. Population and environment, implication for the future [5]	DK	**4**		
		5	12. Contemporary issues: Ageing of population,	SD	**4**		

			declining sex ratio, population and environment dichotomy, impact of HIV/AIDS [5]				
	DSE-B PRACTICAL	**15**	1. Population projection by arithmetic method [15]	DK	**10**		
		15	2. Population density mapping: State-wise for India [15]	AD	**10**		
		15	3. Analysis of work participation rate: Total and gender-wise for India [15]	DK	**10**		
		15	4. Analysis occupation structure by dominant and distinctive functions: Districts of West Bengal [15]	SD	**10**		

Lesson Plan for CBCS Syllabus

Subject: Geography

Session: 2022-23

SEMESTER	UNIT	CLASSES AVAILABLE (APPROX)	TOPIC	NAME OF THE TEACHER	NO. OF LECTURES	REMEDIAL/TUTORIAL	REMARKS
II HONOURS	**CC-3 THEORY**	**4**	1. Nature, scope and recent trends.	DK	**2**		

			Elements of human geography [4]				
		16	2. Approaches to Human Geography: Resource, locational, landscape, environment [6] 3. Concept and classification of race. Ethnicity [5] 4. Space, society, and cultural regions (language and religion) [5]	SD	**15**		
		6	5. Evolution of human societies: Hunting and food gathering, pastoral nomadism	SB	**5**		
		4	5. Evolution of human societies: subsistence farming, and industrial society [6]	AD	**3**		
		5	6. Human adaptation to environment: Case studies of Eskimo, Masai and Maori	KPL	**4**		
		5	7. Population growth and	KB	**4**		

			distribution, composition; demographic transition [5]				
		20	8. Population–resource regions (Ackerman) [5] 9. Development–environment conflict [5] 10. Types and patterns of rural settlements [5] 11. Rural house types in India [5]	DK	**3**		
		12	12. Morphology and hierarchy of urban settlements [5]	AD	**10**		
	CC-3 PRACTICAL	**15**	1. Spatial variation in continent- or country-level religious composition by divided proportional circles [12]	SB	**10**		
		20	2. Measuring arithmetic growth rate of population comparing two decadal datasets [15]	SD	**15**		

		13	3. Types of age-sex pyramids (progressive, regressive, intermediate, and stationary): Graphical representation and analysis [20]	SB	**10**		
		4	4. Nearest neighbour analysis from Survey of India 1:50k topographical maps of plain region (c. 5' x 5') [13]	KPL	**4**		
	CC-4 THEORY	**2**	1. Concepts of rounding, scientific notation. Logarithm and anti-logarithm. Natural and log scales [4]	SD	**1**		
		10	2. Concept of diagrammatic representation of data [2]	AD	**6**		
		5	3. Preparation and interpretation of geological maps [5] 4. Preparation and interpretation of weather maps [5]	KB	**3**		

		10	5. Preparation and interpretation land use land cover maps [5]	SD	**6**		
		12	6. Preparation and interpretation of socio-economic maps [5] 7. Principal national agencies producing thematic maps in India: NATMO, GSI, NBSSLUP, NHO, and NRSC / Bhuvan [5]	DK	**10**		
		7	8. Basic concepts of surveying and survey equipment: Prismatic compass [5] 9. Basic concepts of surveying and survey equipment: Dumpy level [7]	KPL	**6**		
		5	10. Basic concepts of surveying and survey equipment: Theodolite [7]	AD	**4**		
		5	11. Basic concepts of surveying and survey equipment: Abney level [5]	DK	**4**		
		22	12. Basic concepts of surveying and	SD	**18**		

			survey equipment: Laser distance measurer [5]				
	CC-4 PRACTICAL	**18**	1. Traverse survey using prismatic compass [10] 2. Profile survey using dumpy Level [12]	KPL	**15**		
		20	3. Height determination of base accessible and inaccessible (same vertical plane method) objects by theodolite [18]	AD	**18**		
		20	4. Interpretation of geological maps with uniclinal structure, folds, unconformity, and intrusions [20]	KB	**18**		
II GENERAL	**GE-2 THEORY**	**5**	1. Insolation and Heat Budget. Horizontal and vertical distribution of atmospheric temperature and pressure [5]	DK	**3**		
		20	2. Overview of planetary wind systems. Indian Monsoons:	SD	**18**		

			Mechanisms and controls [6] 3. Atmospheric disturbances: Tropical and temperate cyclones. Thunderstorms [7] 4. Overview of global climatic change: Greenhouse effect. Ozone depletion [5] 5. Scheme of world climatic classification by Köppen [2]				
		4	6. Factors of soil formation [4]	KPL	**3**		
		16	7. Soil profile development under different climatic conditions: Laterite, Podsol, and Chernozem [6] 8. Physical and chemical properties of soils: Texture, structure, pH, salinity, and NPK status [6] 9. USDA classification of	AD	**14**		

			soils. Soil erosion and its management [4]				
		6	10. Ecosystem and Biomes. Distribution and characteristics of tropical rainforest; Savannah, and hot desert biomes [6]	KPL	**5**		
		9	11. Plant types, occurrence and ecological adaptations: Halophytes, xerophytes, hydrophytes, and mesophytes [5] 12. Biodiversity: Types, threats and management with special reference to India [4]	DK	**7**		
	GE-2 PRACTICAL	**20**	1. Interpretation of daily weather map of India (any one): Pre-Monsoon or Monsoon or Post-Monsoon [20]	SD	**18**		
		20	2. Construction and interpretation of hythergraph, climograph (G.	KB	**18**		

			Taylor) and wind rose (seasonal) [20]				
		10	3. Determination of soil type by ternary diagram textural plotting [10]	DK	**8**		
		10	4. Preparation of peoples' biodiversity register [10]	SD	**8**		
IV HONOURS	**CC-8 THEORY**	**20**	1. Meaning and approaches to economic geography [4] 2. Concepts in economic geography: Goods and services, production, exchange, and consumption [6] 3. Concept of economic man. Theories of choices [6] 4. Economic distance and transport costs [4]	SD	**18**		
		4	5. Concept and classification of economic activities [4]	DK	**3**		

		6	6. Factors affecting location of economic activity with special reference to agriculture (von Thünen), and industry (Weber) [6]	AD	**6**		
		6	7. Primary activities: Agriculture, forestry, fishing, and mining [6]	KB	**4**		
		6	8. Secondary activities: Classification of manufacturing, concept of manufacturing regions, special economic zones and technology parks [6]	AD	**4**		
		14	9. Tertiary activities: Transport, trade and services [6] 10. Transnational sea-routes, railways and highways with reference to India [4]	SD	**12**		

			11. International trade and economic blocs [4]				
		4	12. WTO and BRICS: Evolution, structure and functions [4]	DK	**3**		
	CC-8 PRACTICAL	**10**	1. Choropleth mapping of state-wise variation in GDP [10]	AD	**8**		
		15	2. State-wise variation in occupational structure by proportional divided circles [15]	SD	**10**		
		35	3. Time series analysis of industrial production (India and West Bengal) [20]	SB	**20**		
		4	4. Transport network analysis by detour index and shortest path analysis [15]	DK	**3**		
	CC-9 THEORY	**16**	1. Regions: Concept, types, and delineation [4]	KB	**14**		
		16	2. Regional Planning: Types,	DK	**14**		

			principles, objectives, tools and techniques [6] 3. Regional planning and multi-level planning in India [6] 4. Concept of metropolitan area and urban agglomeration [4]				
		4	5. Concept of growth and development, growth versus development [6] 6. Indicators of development: Economic, demographic, and environmental [6] 7. Human development: Concept and measurement [4]	AD	**4**		
		6	8. Theories and models for regional development: Cumulative causation (Myrdal) [4]	KPL	**5**		
		14	9. Models and theories in regional	KB	**13**		

			development: Stages of development (Rostow), growth pole model (Perroux) [6]				
		60	10. Underdevelopment: Concept and causes [4] 11. Regional development in India: Disparity and diversity [5] 12. Need and measures for balanced development in India [5]	SD	**40**		
	CC-9 PRACTICAL	**15**	1. Delineation of formal regions by weighted index method [15] 2. Delineation of functional regions by breaking point analysis [15] 3. Measurement of inequality by location quotient [15] 4. Measuring regional disparity	KPL	**10**		

			by Sopher index [15]				
	CC-10 THEORY	**5**	1. Factors of soil formation [3] 2. Definition and significance of soil properties: Texture, structure, and moisture [5] 3. Definition and significance of soil properties: pH, organic matter, and NPK [5]	KB	**3**		
		4	4. Soil profile. Origin and profile characteristics of lateritic, podsol and chernozem soils [6]	DK	**2**		
		6	5. Soil erosion and degradation: Factors, processes and management measures. Humans as active agents of soil transformation [5]	SD	**5**		
		5	6. Principles of soil classification: Genetic and USDA. Concept of land capability and its classification [6]	KB	**2**		

		5	7. Concepts of biosphere, ecosystem, biome, ecotone, community and ecology [5]	SB	**2**		
		20	8. Concepts of trophic structure, food chain and food web. Energy flow in ecosystems [5]	SB	**18**		
		60	9. Classification of world biomes (Whittaker). Geographical extent and characteristics of tropical rain forest, savanna, hot desert, taiga and coral reef biomes [8] 10. Bio-geochemical cycles with special reference to carbon dioxide and nitrogen [4] 11. Deforestation: Causes, consequences and management [4] 12. Biodiversity: Definition, types, threats and	AD	**45**		

			conservation measures [4]				
	CC-10 PRACTICAL	**5**	1. Determination of soil reaction (pH) and salinity using field kit [15] 2. Determination of soil type by ternary diagram textural plotting [15] 3. Plant species diversity determination by matrix method [10] 4. Time series analysis of biogeography data [20]	KB (TOPIC 1 will be shared with **AD** in off-line mode) (TOPIC 3 will be shared with **SD** in off-line mode)	**4**		
	SEC THEORY	**10**	1. Rural Development: Concept, basic elements, measures of level of rural development [5]	AD	**8**		
		10	2. Paradigms of rural development: Gandhian approach to rural development Lewis model of economic development, 'big push' theory of development,	KPL	**8**		

			Myrdal's model of 'spread and backwash effects' [10]				
		5	3. Area based approach to rural development: Drought prone area programmes, PMGSY, SJSY, MNREGA, Jan Dhan Yojana [10]	DK	**4**		
		5	4. Rural Governance: Panchayati Raj System and rural development policies and Programmes in India [5]	KB	**4**		
IV GENERAL	**GE-4 THEORY**	**14**	1. Maps: Classification and types. Scales: Types, significance, and applications [3] 2. Coordinate systems: Polar and rectangular. Bearing: Magnetic and true, whole-circle and reduced [3]	AD	**12**		

			3. Map projections: Classification, properties and uses. Concept and significance of UTM projection [8]				
		17	4. Survey of India topographical maps: Reference scheme of old and open series. Information on the margin of maps [4] 5. Representation of data by dots and proportional circles [4] 6. Representation of data by isopleth and choropleth [4] 7. Principal national agencies producing thematic maps in India: GSI, NATMO, NBSSLUP, NHO, and NRSC. Acquaintance with Bhuvan platform [5]	SD	**15**		
		21	8. Basics of Remote Sensing: Types of satellites, sensors, bands, and resolutions with	DK	**18**		

			special reference to the ISRO missions [10] 9. Principles of preparing standard FCCs and classified raster images [5] 10. Principles of Geographical Information System: Concepts of vector types, attribute tables, buffers, and overlay analysis [6]				
		12	11. Basic concepts of surveying and survey equipment: Prismatic compass [6] 12. Basic concepts of surveying and survey equipment: Dumpy level [6]	DK	**10**		
	GE-4 PRACTICAL	**10**	1. Graphical construction of scales: Plain and comparative [10]	KB	**8**		
		20	2. Construction of projections: Simple Conic with one standard parallel, Cylindrical Equal	AD	**18**		

			Area,, and Polar Zenithal Stereographic [20]				
		20	3. Construction of thematic maps: Proportional squares (DK), proportional circles (SD), **choropleths (DK)**, and isopleths (SD) [20]	DK, SD	**15**		
		10	4. Preparation of annotated thematic overlays from satellite standard FCCs of 1:50k	KPL	**8**		
VI HONOURS	**CC-13 THEORY**	**15**	1. Development of pre-modern Geography: Contributions of Greek, Chinese, and Indian geographers [5] 2. Impact of 'Dark Age' in Geography and Arab contributions [5] 3. Geography during the age of 'Discovery' and 'Exploration' (contributions of Portuguese	KB	**10**		

			voyages, Columbus, Vasco da Gama, Magellan, Thomas Cook) [5]				
		7	4. Transition from cosmography to scientific Geography (contributions of Bernard Varenius and Immanuel Kant) - AD . Dualism and Dichotomies (General vs. Particular, Physical vs. Human, Regional vs. Systematic - DK, Determinism vs. Possibilism - SD Ideographic vs. Nomothetic) – DK [7]	AD, SD and DK	**6**		
		8	5. Evolution of Geographical thoughts in Germany, France, Britain, and United States of America [5]	KPL	**4**		

			6. Contributions of Humboldt and Ritter [3]				
		13	7. Contributions of Richthofen - KPL , Hartshorne–Schaeffer - SD Ratzel, La Blaché - KPL [6] 8. Trends of geography in the post World War-II period: Quantitative revolution, systems approach – SD [7]	KPL, SD	**10**		
		8	9. Structuralism and historical materialism [3] 10. Changing concept of space with special reference to Harvey [5]	DK	**6**		
		10	11. Evolution of Critical Geography: Behavioural, humanistic, and radical [5] 12. Towards post modernism: Geography in the 21st Century [5]	AD	**8**		

	CC-13 PRACTICAL	**15**	1. Changing perception of maps of the world (Ptolemy, Ibn Batuta, Mercator)	SD	**5**		
		15	2. Mapping voyages; Columbus, Vasco da Gama, Magellan, Thomas Cook	KB	**5**		
		30	3. Group Presentation of five to ten students on any selected school of geographical thought (20 marks)	SD	**30**		
	CC-14 THEORY	**4**	1. Classification of hazards and disasters. Hazard continuum [4]	KPL	**3**		
		6	2. Approaches to hazard study: Risk perception and vulnerability assessment. Hazard paradigms [6]	SD	**5**		
		5	3. Responses to hazards: Preparedness, trauma, and aftermath. Resilience, capacity building [5]	AD	**4**		

		5	4. Hazards mapping: Data and geospatial techniques (for hazards enlisted in Unit II and GEO-A-CC-6-14-P) [5]	KPL	**4**		
		5	5. Earthquake: Factors, vulnerability, consequences, and management [5]	AD	**3**		
		5	6. Landslide: Factors, vulnerability, consequences, and management [5]	DK	**3**		
		5	7. Land subsidence: Factors, vulnerability, consequences, and management [5]	KB	**3**		
		5	8. Tropical cyclone: Factors, vulnerability, consequences, and management [5]	DK	**3**		
		5	9. Flood: Factors, vulnerability, consequences, and management [5]	SD	**3**		
		5	10. Riverbank erosion: Factors, vulnerability,	AD	**3**		

			consequences, and management [5]				
		5	11. Fire: Factors, vulnerability, consequences, and management [5]	DK	**3**		
		5	12. Biohazard: Classification, vulnerability, consequences, and management [5]	SD	**3**		
	CC-14 PRACTICAL	**30+30**	Group Project Report	GROUP 1 – KB, GROUP 2 - KPL	**50**		
	DSE-A THEORY	**10**	1. Natural resources: Concept and classification [4]	SD	**7**		
		6	2. Approaches to resource utilization: Utilitarian, conservational, community based adaptive [6]	AD	**4**		
		5	3. Significance of resources: Backbone of economic growth and development [5]	KB	**3**		
		5	4. Pressure on resources. Appraisal	KPL	**3**		

			and conservation of natural resources [5]				
		7	5. Problems of resource depletion: global scenario (forest, water, fossil fuels) [7]	DK	**3**		
		3	6. Sustainable resource development [3]	SD	**2**		
		6	7. Distribution, utilisation, problems and management of metallic mineral resources: Iron ore, bauxite, copper [6]	AD	**4**		
		6	8. Distribution, utilisation, problems and management of non-metallic mineral resources: Limestone, mica, gypsum [6]	SD	**4**		
		10	9. Distribution, utilisation, problems and management of energy resources: Conventional and	DK	**8**		

			non-conventional [6] 10. Contemporary energy crisis and future scenario [4]				
		3	11. Politics of power resources [3]	KB	**2**		
		5	12. Limits to growth and sustainable use of resources. Concept of resource sharing [5]	KPL	**4**		
	DSE-A PRACTICAL	**30**	1. Mapping and area estimate of changes in forest or vegetation cover from maps and/or satellite images [15] 2. Mapping and number estimate of changes in water bodies from maps and/or satellite images [15]	KPL	**20**		
		15	3. Decadal changes in state-wise production of coal and iron ore [15]	KB	**10**		
		15	4. Computing Human Development Index: Comparative decadal change of	SD	**10**		

			top five Indian states [15]				
	DSE-B THEORY	**5**	1. Physiographic divisions with reference to tectonic provinces [5]	DK	**3**		
		6	2. Climate, soil and vegetation: Classification and interrelation [6]	DK	**4**		
		4	3. Population: Distribution, growth, structure, and policy [4]	AD	**3**		
		5	4. Tribes of India with special reference to Gaddi, Toda, Santal, and Jarwa [5]	AD	**4**		
		4	5. Agricultural regions. Green revolution and its consequences [4]	SD	**3**		
		9	6. Mineral and power resources: Distribution and utilisation of iron ore, coal, petroleum, and natural gas [6] 7. Industrial development:	DK	**8**		

			Automobile and information technology [3]				
		7	8. Regionalisation of India: Physiographic (R.L. Singh) and economic (P. Sengupta) [7]	AD	**5**		
		6	9. Physical perspectives: Physiographic divisions, forest and water resources [6]	KB	**4**		
		10	10. Resources: Agriculture, mining,, and industry [6] 11. Population: Growth, distribution, and human development [4]	SD	**8**		
		4	12. Regional issues: Darjeeling Hills and Sundarban [4]	KB	**2**		
	DSE-B PRACTICAL	**15**	1. Monthly temperature and rainfall graphs of five select stations from different physiographic regions of India [15]	KB	**10**		

		15	2. Crop combination: Comparison of any two contrasting districts from West Bengal [15]	SD	**10**		
		20	3. Annual trends of production: Mineral resources and manufacturing goods over two decades [20]	AD	**10**		
		10	4. Composite Index: Comparison of developed and backward states of India [10]	DK	**8**		
VI GENERAL	**DSE-B THEORY**	**6**	1. Development of Population Geography as a field of specialization. Relation between population geography and demography. Sources of population data, their level of reliability and problems of mapping [6]	AD	**4**		

		6	2. Population distribution: Density and growth. Classical and modern theories on population growth, Demographic transition model [6]	KB	**4**		
		4	3. World patterns and determinants of population distribution and growth. Concept of optimum population [4]	DK	**3**		
		4	4. Population distribution, density, and growth in India [4]	DK	**3**		
		5	5. Types of population composition: Age–sex. rural–urban, literacy and education [5]	AD	**4**		
		5	6. Measurements of fertility and mortality. Concept of cohort and life table [5]	AD	**4**		
		7	7. Population composition of India: Urbanisation	SD	**5**		

			and occupational structure [7]				
		3	8. Migration: Causes and types [3]	KPL	**2**		
		5	9. National and international patterns of migration with reference to India [5]	SD	**4**		
		5	10. Population and development: Population–resource regions (Sekerman). Concept of human Development Index and its components [5]	DK	**3**		
		5	11. Population policies in developed and less development countries. India's population policies. Population and environment, implication for the future [5]	DK	**4**		
		5	12. Contemporary issues: Ageing of population,	SD	**4**		

			declining sex ratio, population and environment dichotomy, impact of HIV/AIDS [5]				
	DSE-B PRACTICAL	**15**	1. Population projection by arithmetic method [15]	DK	**10**		
		15	2. Population density mapping: State-wise for India [15]	AD	**10**		
		15	3. Analysis of work participation rate: Total and gender-wise for India [15]	DK	**10**		
		15	4. Analysis occupation structure by dominant and distinctive functions: Districts of West Bengal [15]	SD	**10**		