**2021-2022**

**The University of Burdwan**
**B.A. /B.Sc. (Honours) in Geography**
**Semester-I**
**Hiralal Bhakat College**

**CC1: Geotectonics and Geomorphology**
**Unit-1: Geotectonics**

| Topic | Teachers' Name |
|---|---|
| 1. Earth's tectonic and structural evolution with reference to geological time scale | ND |
| 2. Earth's interior with special reference to seismology | ND |
| 3. Concept of Isostasy: Theories of Airy and Pratt | BM |
| 4. Plate Tectonics: Processes at constructive, conservative, destructive boundaries and hotspots: resulting landforms | BM |

**Unit- 2: Geomorphology**

| Topic | Teachers' Name |
|---|---|
| 1. Degradational processes: Weathering, mass wasting and resultant landforms. | RIS |
| 2. Models of landscape evolution: Views of Davis, Penck, and Hack. | CG |
| 3. Slope Development: Concept of Wood | CG |
| 4. Development of river network and landforms on uniclinal and folded structures. | CG |
| 5. Types of rocks, mineralogical composition of igneous rocks; Landforms on igneous rocks with special reference to Granite and Basalt. | BS |
| 6. Karst landforms: Surface and sub-surface. | BS |
| 7. Glacial and fluvio-glacial processes and landforms. | RIS |
| 8. Aeolian and fluvio-aeolian processes and landforms. | BS |

**CC2: Theory (Cartographic Techniques and Geological map study)**

| Topic | Teachers' Name |
|---|---|
| 1. Maps: Classification and Types. | IM |
| 2. Concept of Scales: Plain, Comparative, Diagonal and Vernier. | IM |
| 3. Coordinate Systems: Polar and Rectangular. Concept of Geoid and Spheroid. Map Projections. | ND/BS |
| 4. Concept of Generating Globe, Grids: Angular and Linear Systems of Measurement. | BS |
| 5. Survey of India Topographical Maps: Reference scheme of Old and Open series. | BM |
| 6.1 Delineation of Drainage Basin from Survey of India Topographical Map. | CG |
| 6.2 Concept of Relief, Slope and Stream Order. | CG |
| 7. Types of rocks and minerals. Characteristics of Granite, Basalt, Dolerite, Pegmatite, Gneiss, Shale, Sandstone, Slate, Marble, Quartzite, Quartz, Feldspar, Mica, Limestone, Calcite, Bauxite, Magnetite, Hematite, Galena. | SG |
| 8. Concept of Bedding Plane, Unconformity and Non-conformity, thickness of Bed, Dip, Throw, Hade, heave. | SG |

**CC 2: Practical (Cartographic Techniques and Geological Map Study)**

| Topic | Teachers' Name |
|---|---|
| 1. Construction of Scales: Plain, Comparative, Diagonal and Vernier. | RIS |
| 2. Construction of Projections: Polar Zenithal Stereographic, Simple Conic with two Standard Parallels, Bonne's and Mercator's. | BS |
| 3.1 Construction and Interpretation of Relief Profiles (Superimposed, Projected and Composite), Preparation of Relative Relief Map. | BM |
| 3.2 Slope map (Wentworth), and Stream Ordering (Strahler) on a Drainage Basin. | CG |
| 4. Geological Map (Problems related to Horizontal, Uniclinal, Folded and Faulted structure); Drawing of Geological section and Interpretation of the Map | SG |

**The University of Burdwan**
**B.A. /B.Sc. (Honours) in Geography**
**Semester-III**
**Hiralal Bhakat College**

**CC 5: Theory (Climatology)**
**Unit 1: Elements of the Atmosphere**

| Topic | Teachers' Name |
|---|---|
| 1. Nature, composition and layering of the atmosphere. | ND |
| 2. Insolation: controlling factors. Heat budget of the atmosphere. | ND |
| 3. Temperature: horizontal and vertical distribution. Inversion of temperature: types, causes and consequences. | BM |
| 4. Greenhouse effect and importance of ozone layer. | BM |

**Unit 2: Atmospheric Phenomena, Climate Change and Climatic Classification**

| Topic | Teachers' Name |
|---|---|
| 1. Condensation: Processes and forms. Mechanism of precipitation: Bergeron-Findeisen theory, collision and coalescence. Forms of precipitation. | BS |
| 2. Air mass: Typology, origin, characteristics and modification. | CG |
| 3. Fronts: warm and cold; frontogenesis and frontolysis. | BS |
| 4. Weather: stability and instability; barotropic and baroclinic conditions. | CG |
| 5. Circulation in the atmosphere: Planetary winds, jet stream and monsoons. | RIS |
| 6. Tropical and mid-latitude cyclones. | RIS |
| 7. Evidences and causes of climate change. | SG |
| 8. Climatic classification after Köppen, Thornthwaite (1948). | ND |

**CC6: Theory (Statistical Methods in Geography)**
**Unit: 1**

| Topic | Teachers' Name |
|---|---|
| 1. Importance and significance of Statistics in Geography. Discrete and continuous data, population and samples, scales of measurement (nominal, ordinal, interval and ratio), sources of data. | IM |
| 2. Collection of data and formation of statistical tables | IM |
| 3. Sampling: Need, types, and significance and methods of random sampling. | ND |
| 4. Distribution: frequency, cumulative frequency. | ND |

**Unit- 2**

| Topic | Teachers' Name |
|---|---|
| 1. Central tendency: Mean, median, mode, partition values. | BS |
| 2. Measures of dispersion range, mean deviation, standard deviation, coefficient of variation. | BS |
| 3. Association and correlation: Rank correlation, product moment correlation. | SG |
| 4. Linear Regression and time series analysis. | RIS |

**CC 6: Practical (Statistical Methods in Geography)**

| Topic | Teachers' Name |
|---|---|
| 1. Construction of data matrix with each row representing an aerial unit (Districts / Blocks / Mouzas / Towns) and corresponding columns of relevant attributes. | ND |
| 2. Based on the above, a frequency table, measures of central tendency and dispersion would be computed and interpreted. | ND |
| 3. Histograms and frequency curve would be prepared on the dataset. | SG |
| 4. Based on of the sample set and using two relevant attributes, a scatter diagram and regression line would be plotted and residual from regression would be mapped with a short interpretation. | RIS |

**CC 7 – Geography of India**

**Unit 1: Geography of India**

| Topic | Teachers' Name |
|---|---|
| 1. Geology and physiographic divisions | BS |
| 2. Climate, soil and vegetation: Characteristics and classification | BS |
| 3. Population: Distribution, growth, structure and policy | SG |
| 4. Distribution of population by race, caste, religion, language, tribes | SG |
| 5. Agricultural regions, Green revolution and its consequences | RIS |
| 6. Mineral and power resources distribution and utilisation of iron ore, coal, petroleum | BM |
| 7. Industrial development since independence. | CG |
| 8. Regionalisation of India: Views of Spate and Bhatt. | CG |

**Unit 2: Geography of West Bengal**

| Topic | Teachers' Name |
|---|---|
| 1. Physical perspectives: Physiographic divisions, forest and water resources | RIS |
| 2. Population: Growth, distribution and human development | SG |
| 3. Resources: Mining, agriculture and industries | BM |
| 4. Regional Development: Darjeeling Hills and Sundarban | CG |

**SEC 1 – Computer Basics and Computer Applications**

| Topic | Teachers' Name |
|---|---|
| 1. Numbering Systems; Binary Arithmetic | BS/ND |
| 2. Data Computation, Storing and Formatting in Spreadsheets: Computation of Rank, Mean, Median, Mode, Standard Deviation, Moving Averages, Derivation of Correlation, Covariance and regression; Selection of technique and interpretation. | BS/ND |
| 3. Preparation of Annoted Diagrams and its interpretation: Scatter diagram and Histogram | BS/ND |
| 4. Internet Surfing: Generation and extraction of information | BS/ND |

**The University of Burdwan**
**B.A. /B.Sc. (Honours) in Geography**
**Semester-V**
**Hiralal Bhakat College**

**CC-11**: **Research Methodology & Field Work**

**Unit 1: Research Methodology**

| Topic | Teachers' Name |
|---|---|
| 1. Research in Geography: Meaning, types and significance | IM |
| 2. Significance of Literature review in research | IM |
| 3 Defining research problem, objectives and hypothesis. Research materials and methods | IM |
| 4. Techniques of writing scientific reports: Preparing notes, references, bibliography (APA Style), abstract and keywords | IM |

**Unit 2: Field Work**

| Topic | Teachers' Name |
|---|---|
| 1. Fieldwork in Geographical studies – Role and significance. Selection of study area and objectives. Pre-field preparations. Ethics of fieldwork | CG |
| 2. Field techniques and tools: Questionnaires (open, closed, structured, non-structured). Interview with special reverence to focused group discussions. | CG |
| 3. Field techniques and tools: Landscape survey using transects and quadrants, constructing a sketch, photo and video recording. | CG |
| 4. Collection of samples. Preparation of inventory from field data. Post-field tasks. | CG |

**CC-11 (Practical):** R**esearch Methodology and Field Work**

| Topic | Teachers' Name |
|---|---|
| Preparation of field Report | IM, ND, CG, BS, BM, SG, RIS |

**CC 12: Remote Sensing and GIS**

**Unit 1: Remote Sensing**

| Topic | Teachers' Name |
|---|---|
| 1. Definition, Concepts and Principles of Remote Sensing (RS): Types of Air Photo, RS satellites, sensors and platforms. | BS |
| 2. EMR Interaction with Atmosphere and Earth Surface, Sensor resolutions and their applications with reference to IRS | BS |
| 3. Principles of False Colour Composites (FCC) from IRS LISS-III and Landsat Images (ETM+) data: Image Processing, Pre-processing; Enhancement; Classification. | RIS |
| 4. Principles of image interpretation for Forest, Water and Soil | RIS |

**Unit 2: GIS and GNSS**

| Topic | Teachers' Name |
|---|---|
| 1. Definition and Components of Geographical Information System (GIS) and raster and vector data structures | RIS |
| 2. Principles of preparing attribute tables and overlay analysis | ND |
| 3. Principles of GNSS positioning - Uses and Waypoint Collection Methods | ND |

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| 4. Applications of Geographical Information System in Flood Management and Urban Sprawl | ND |

**CC 12 (Practical): Remote Sensing and GIS**

| Topic | Teachers' Name |
|---|---|
| 1.Georeferencing of Scanned Maps | ND |
| 2.Preparation of FCC using IRS LISS-III and/or Landsat (ETM+) data | ND |
| 3.Preparation of LULC Map by Supervised Image Classification (Maximum Likelihood) using IRS LISS-III or Landsat (ETM+) data | ND |
| 4. Digitisation of Point. Line and Polygon Features and Preparation of Thematic Map (using bar, pie and choropleth method | ND |

**DSE-1 (Theoretical): Cultural and Settlement Geography**

**Unit 1: Cultural Geography**

| Topic | Teachers' Name |
|---|---|
| 1. Definition, Scope and Content of Cultural Geography | CG |
| 2. Development of Cultural Geography | CG |
| 3. Concept of Cultural Hearth, Realm; Cultural Landscape | CG |
| 4. Cultural Innovation and Diffusion; Diffusion of Major World Religions | IM |
| 5.Cultural Segregation, Cultural Diversity, and Acculturation | IM |
| 6. Major Races of the World: Distribution and Characteristics | SG |

**Unit 2: Settlement Geography**

| Topic | Teachers' Name |
|---|---|
| 1. Scope and Content of Settlement Geography | BM |
| 2. Definition and Characteristics of Rural Settlement | BM |
| 3. Rural Settlements: Site and Situation | BM |
| 4. Urban Settlements: Census Definition, Urban Outgrowth, Urban Agglomeration | SG |
| 5. Urban Morphology: Classical Models of Burgess, Hoyt, Harris and Ullman | RIS |
| 6. Functional Classification of Cities: Harris and Nelson | BS |

**DSE-2 (Theoretical): Population Geography**

**Unit 1**

| Topic | Teachers' Name |
|---|---|
| 1. Development of Population Geography; Relation between Population Geography and Demography | SG |
| 2. Determinants of Population Dynamics; Concept of Optimum Population | SG |
| 3. Theories of population growth: Malthusian Theory and Marxian Approach, Demographic Transition Model | RIS |
| 4. Distribution, Density and Growth of Population in India since 1951 | RIS |

**Unit 2**

| Topic | Teachers' Name |
|---|---|
| 1. Population Composition and Characteristics: Age-Sex; Female-Male Ratio | CG |
| 2. Measures of Fertility and Mortality | CG |

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|---|---|
| 3. Population Composition of India: Rural and Urban, Occupational Structure as per Census of India | SG |
| 4. Migration: Theories, Causes and Types | SG |
| 5. Concept of Human Development Index | SG |
| 6. Population and development: population-resource regions, | BM |
| 7. Population policies in Selected Countries: Sweden and China | BM |
| 8.Contemporary Issues in Population: Health and Unemployment | CG |

NOTE:

1. IM- Indranil Mondal
2. ND – Niladri Das
3. RIS – Rejaul Islam Sana
4. BM- Biswajit Mondal
5. CG- Chandan Ghosh
6. BS – Biplob Sen
7. SG – Sajal Ghosh

HEAD
DEPARTMENT OF GEOGRAPHY
HIRALAL BHAKAT COLLEGE
NALHATI, BIRBHUM