

**UNIVERSITY OF KALYANI**

**REVISED SYLLABUS**

**FOR THREE YEARS B.A./ B.Sc. DEGREE COURSE**

**(HONOURS AND GENERAL)**

**IN**

**GEOGRAPHY**

**According to the Examination Pattern**

**Part – I, Part- II & Part- III**

**WITH EFFECT FROM THE ACADEMIC SESSION**

**2016-2017**

## **University of Kalyani**

### **B.A. /B.Sc. (Honours) Course in Geography (Revised Syllabus)**

**(W.e.f. from the Academic Session 2016-2017)**

#### **Part- I(Honours) (Full Marks: 200)**

<b>Paper</b>	<b>Group</b>	<b>Marks</b>	<b>Full Marks</b>
<b>Paper I: Physical Geography</b>	<b>Group - A: Geotectonics</b>	<b>35</b>	<b>75</b>
	<b>Group – B: Geomorphology</b>	<b>40</b>	
<b>Paper II: Soil and Biogeography</b>	<b>Group – A: Soil Geography</b>	<b>35</b>	<b>75</b>
	<b>Group –B: Biogeography</b>	<b>40</b>	
<b>Paper III: Practical</b>	<b>Group – A: Scale</b>	<b>10</b>	<b>50</b>
	<b>Group – B: Cartograms</b>	<b>10</b>	
	<b>Group – C: Geological Maps</b>	<b>14</b>	
	<b>Group – D: Rocks and Minerals</b>	<b>6</b>	
	<b>Group –E: Laboratory Note Book and Viva Voce</b>	<b>10</b>	

(Figures in the bracket represent number of Lectures)

**PART- I**

**Paper – I: Physical Geography**(No. of Lectures – 90)

**75 Marks**

**Group – A: Geotectonics** (*No. of lectures – 40*)

**35 Marks**

1. Origin of the Earth & Universe: Kant, P.L.Laplace, Otto Schmidt, G.Kuiper, Stephen Hawking (08)
2. Geological Time Scale (04)
3. Concepts of Isostasy: Airy, Pratt, Daly, Hayford and Vening Meinesz (05)
4. Continental Drift Theory; Sea Floor Spreading; Plate Tectonic Theory (08)
5. Earthquake and Vulcanicity (08)
6. Epeirogenic and Orogenic Movements – Folds and Faults. (07)

**Group – B: Geomorphology** (*No. of lectures – 50*)

**40 Marks**

1. Scope, content and development of Geomorphology (06)
2. Influence of lithology on landforms (06)
3. Landform Evolution in Uniclinal, Folded and Faulted structure. (08)
4. Types of weathering and its resultant landforms; Processes of mass wasting (08)
5. Cyclic and non cyclic concepts of landscape evolution: Davis, Penck, King and Hack(11)
6. Evolution of landforms under Fluvial, Glacial, Aeolian, Marine and Karst processes (11)

(Figures in the bracket represent number of Lectures)

**Paper – II: Soil and Biogeography**(No. of Lectures –90) **75 Marks**

**Group – A: Soil Geography** (No. of lectures –40) **35 Marks**

1. Soil: Definition, composition, processes and factors of formation (06)
2. Concept of zonal, azonal and intrazonal soils; concept of Soil Taxonomy (06)
3. Profile development: Podzols. Chernozems and Laterites (06)
4. Physical and chemical properties of soil: Texture, Structure, Moisture, Colour, Soil Reaction and Organic matter (12)
5. Soil erosion: types and factors; measures of soil conservation (10)

**Group –B: Biogeography** (No. of lectures- 50) **40 Marks**

1. Definition of biosphere and biogeography; Meaning of Ecology, Ecosystem, Environment, Ecotone, Communities, Habitat, Niche, Biotopes and Biomes (08)
2. Trophic structure, food chain and food web and Energy flow in ecosystems (06)
3. Factors of Plant Ecology: Light, Heat, Moisture, Wind and Topography (06)
4. Bio-geochemical cycles: Carbon and Nitrogen (06)
5. Study of Biomes; Tropical Rainforest, Tropical Grassland, Tropical Desert, Boreal and Temperate Grasslands (16)
6. Biodiversity and its importance (08)

**Paper – III: Practical**

**50 Marks**

**Group – A: Scale**

**10 Marks**

1. Scales: Linear, Comparative, Vernier and Diagonal scales
2. Enlargement and reduction of scale

**Group – B: Cartograms**

**10 Marks**

1. Proportional Diagrams: Circles; Pie; Square; Dot and Sphere
2. Taylor's Climograph; Hythergraph; Wind Rose Diagram
3. Choropleth Map
4. Flow Diagram

**Group – C: Geological Maps**

**14 Marks**

Interpretation of geological maps and drawing of sections:  
Horizontal, Uniclinal, Faults and Folds

**Group – D: Rocks and Minerals**

**6 Marks**

Megascopic identification of Rocks & minerals

1. Rocks:

Granite, Basalt, Dolerite, Shale, Sandstone, Limestone, Conglomerate, Laterite, Slate, Phyllite, Schist, Marble, Quartzite and Gneiss

2. Minerals:

Talc, Gypsum, Calcite, Mica, Feldspar, Quartz, Chalcopryrite, Hematite, Magnetite, Bauxite, Galena

**Group –E: Laboratory Note Book and Viva Voce**

**(5+5) = 10 Marks**

**B.A. /B.Sc. (Honours) Course in Geography**  
**(Revised Syllabus)**  
(W.e.f. from the Academic Session 2016-2017)

**Part- II (Honours)**  
**(Full Marks: 200)**

<b>Paper</b>	<b>Group</b>	<b>Marks</b>	<b>Full Marks</b>
<b>Paper IV: Climatology, Hydrology and Oceanography</b>	<b>Group - A: Climatology</b>	<b>35</b>	<b>75</b>
	<b>Group – B: Hydrology</b>	<b>20</b>	
	<b>Group – C: Oceanography</b>	<b>20</b>	
<b>Paper V: Social, Cultural and Population Geography</b>	<b>Group – A: Social and Cultural Geography</b>	<b>40</b>	<b>75</b>
	<b>Group –B: Population Geography</b>	<b>35</b>	
<b>Paper VI: (Practical) Statistical Methods</b>	<b>Group – A: Application of Statistical Methods</b>	<b>40</b>	<b>50</b>
	<b>Group – B: Laboratory Note Book and Viva Voce</b>	<b>5+5 = 10</b>	

(Figures in the bracket represent number of Lectures)

## **PART – II**

### **Paper – IV: Climatology, Hydrology and Oceanography (No. of Lectures- 90) 75 Marks**

#### **Group – A: Climatology (No. of lectures –40) 35 Marks**

1. Insolation and Heat budget (04)
2. Horizontal and vertical distribution of temperature; Inversion of temperature (06)
3. Pressure belts and General wind circulation; Air mass: typology, origin and characteristics (08)
4. Jet streams; Origin of Indian Monsoon (06)
5. Process and forms of condensation; Forms and mechanisms of precipitation: Ice Crystal Theory and Collision Coalescence Theory (08)
6. Tropical and Temperate cyclones (04)
7. Climatic classification after Koppen and Thornthwaite (1931 and 1948) (04)

#### **Group – B: Hydrology (No. of lectures –25) 20 Marks**

1. Scope and content of Hydrology and its relevance (04)
2. Global Hydrological Cycle (04)
3. Factors influencing runoff and infiltration, evaporation and transpiration (08)
4. Components, factors and processes controlling storage and movement of ground water (09)

#### **Group-C: Oceanography (No. of lectures-25) 20Marks**

1. Nature and scope of Oceanography (02)
2. Temperature, salinity and density of sea water (03)
3. Ocean currents: Pacific, Atlantic and Indian Ocean (06)
4. Bottom topography: Pacific, Atlantic and Indian Ocean (09)
5. Formation, characteristics and theories of origin of coral reefs (05)

(Figures in the bracket represent number of Lectures)

**Paper – V: Social, Cultural and Population Geography(No. of Lectures- 90)      75 Marks**

**Group – A: Social and Cultural Geography (No. of lectures –50)      40 Marks**

1. Scope and content of Social and Cultural Geography (04)
2. Concept of space : social and material space (04)
3. Indicators of social wellbeing (02)
4. Social elements: class, caste, language, religion, race and ethnicity with special reference to India (10)
5. Indian tribes with special reference to Toda, Jarwa, Khasi and Santhal (08)
6. Concepts: culture, community, society, cultural hearth and cultural realms (07)
7. Settlements as social entities; site and situation of rural settlements; rural and urban settlement classification: genetic and functional; theories of urban morphology (Concentric zone theory, Sector theory and Multiple nuclei theory) (15)

**Group B: Population Geography (No. of lectures - 40)      35 Marks**

1. Population growth: global trends and patterns (05)
2. Determinants and measures of fertility, mortality and morbidity (08)
3. Population structure: age and sex specific (04)
4. Theories of population growth: Malthus and Marx; Demographic Transition Model (10)
5. Migration: types, factors and consequences (08)
6. Population Policy in India (05)



**Paper VI: (Practical) Statistical Methods**

**50 Marks**

**Group – A: Application of Statistical methods**

**40 Marks**

1. Nature of statistical data and scales of their measurement; tabulation and classification of data
2. Concepts of Sampling Techniques (Random, Systematic and Stratified); Test of Significance: Students' t-test and Chi-square test
3. Frequency distribution: Frequency curve and polygon; Histogram and Ogives
4. Measures of central tendency and dispersion: Mean, Median and Mode; Mean Deviation and Standard Deviation; Co-efficient of Variation; Z-score
5. Product moment correlation after Pearson and Rank correlation after Spearman; Scatter diagram; Regression analysis and fitting of trend line using bi-variate data
6. Time Series Analysis: Trend line (Semi Average, Moving Average and Least Square method)

**Group-B: Laboratory Note Book and Viva Voce**

**(5+5) = 10 Marks**

**B.A. /B.Sc. (Honours) Course in Geography**  
**(Revised Syllabus)**  
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**Part- III (Honours)**  
**(Full Marks: 400)**

<b>Paper</b>	<b>Group</b>	<b>Marks</b>	<b>Full Marks</b>
<b>Paper VII: Nature of Geography, Political and Economic Geography</b>	<b>Group - A: Nature of Geography</b>	<b>30</b>	<b>80</b>
	<b>Group – B: Political Geography</b>	<b>20</b>	
	<b>Group – C: Economic Geography</b>	<b>30</b>	
<b>Paper VIII: Contemporary Issues in Geography, Remote Sensing and GIS</b>	<b>Group – A: Contemporary Issues in Geography</b>	<b>30</b>	<b>80</b>
	<b>Group –B: Remote Sensing and GIS</b>	<b>50</b>	
<b>Paper IX: Regional Geography</b>	-	-	<b>80</b>
<b>Paper X: Practical</b>	-	<b>70+10</b>	<b>80</b>
<b>Paper XI: Practical</b>	-	<b>70+10</b>	<b>80</b>

(Figures in the bracket represent number of Lectures)

### **PART – III**

#### **Paper – VII: Nature of Geography, Political and Economic Geography**

(No. of Lectures- 100) **80 Marks**

##### **Group – A: Nature of Geography (No. of lectures –35)**

**30 Marks**

1. Development of Geography in the Ancient and Mediaeval Periods (10)
2. Development of Geography in the 19<sup>th</sup> Century: Contributions of Humboldt and Ritter (05)
3. Concepts of Determinism, Possibilism and Neo-Determinism (10)
4. Development of Geography in the 20<sup>th</sup> Century: Concept of Areal Differentiation, Positivism, Quantitative and Critical revolution in Geography; Welfare Geography (10)

##### **Group – B: Political Geography (No. of lectures –30)**

**20 Marks**

1. Scope and content of Political Geography (08)
2. Heartland and Rimland theories (10)
3. Boundaries and Frontiers (06)
4. Nature of Administrative areas with reference to India (06)

##### **Group-C: Economic Geography (No. of lectures-35)**

**30Marks**

1. Scope and content of Economic Geography (04)
2. Sectors of Economy: Primary, Secondary, Tertiary and Quaternary (06)
3. Primary Economic Activities: (i) Agriculture: Classification after Whittlesey and Von Thunen's Model (ii) Fishing: Distribution of world fishing zones (iii) Forestry: Types and management (10)
4. Industry :
  - a. Theories of industrial location: (Weber and Losch)
  - b. i) Iron and Steel Industry of Japan.
  - ii) Paper Industry of Canada.
  - iii) Cotton Textile Industry of U.S.A.
  - iv) Petrochemical Industry of India. (15)

(Figures in the bracket represent number of Lectures)

**Paper – VIII: Contemporary Issues in Geography, Remote Sensing and GIS**

(No. of Lectures- 100)

**80 Marks**

**Group – A: Contemporary Issues in Geography (No. of lectures –35)**

**30 Marks**

1. Concept of hazard and disaster: natural, quasi-natural and man-made hazards (05)
2. Seasonal climatic hazard: Flood and Drought – mechanism, environmental impact and management (10)
3. Occasional climatic hazards: Hailstorm and Tornado – mechanism, environmental impact and management (10)
4. Biotic hazard: Deforestation and Loss of Biodiversity – impact and conservation of biotic resources (10)

**Group B: Remote Sensing and GIS (No. of lectures - 65)**

**50 Marks**

1. Definition and stages of Remote Sensing; EMR and its spectral ranges; Types of Resolution in RS; Concept of FCC; Remote Sensing Platforms and Sensors –LANDSAT,SPOT and IRS (20)
2. Concept of aerial photography and photogrammetry; Type of aerial photographs; Photo - interpretation keys: Shape, Size, Tone, Colour, Texture, Pattern, Shadow, Site and Association (15)
3. Fundamental concepts of GIS; Use of RS data in GIS; Raster and Vector data format; Data Analysis: Visual and Digital Techniques of Image Interpretation; Global Positioning System; Role of RS and GIS in modern Cartography (15)
4. Application areas of RS and GIS in managing Agriculture, Forestry, Fishing and Water Resources; Monitoring Urban Growth and Environmental Degradation (15)

(Figures in the bracket represent number of Lectures)

**Paper – IX: Regional Geography**

***(No. of Lectures- 100)***

**80 Marks**

1. Concept of regions- nature and types; Methods of Regional delineation; Indicators of Regional imbalances (16)
2. Study of Regions: i) Vale of Kashmir ii) Marusthali iii) Chotanagpur Plateau iv) Indian Sundarban Delta (28)
3. Concept of Regional Planning- Macro level and Micro level; Evolution of Regional Planning in India (through Plan Period) (12)
4. Study of Planning Regions of India: National Capital Region, KMDA and DVC (20)
5. Regional Geography of West Bengal: Geology, Relief, Drainage, Climate, Soil, Vegetation, Agriculture, Mining and Industry, Population, Transport and Communication system (24)

**Paper – X: Practical**

**80 Marks**

**Group – A:**

**70 Marks**

1. Computer applications in Geography:

**35 Marks**

- (a) Fundamental concepts on Computer hardware and software
- (b) Preparation of bar, pie and line graph
- (c) Scatter diagram and trend line
- (d) Arithmetic Mean, Median and Mode
- (e) Correlation (Bi-variate data)
- (f) Standard Deviation

2. Survey: Traversing by Prismatic Compass and Dumpy level with one change point (profile drawing)

**20 Marks**

3. Weather map: Pre -monsoon, Monsoon and Post-monsoon

**15 Marks**

**Group-B: Laboratory Note Book and Viva Voce**

**(5+5) = 10 Marks**

**Paper XI: Practical**

**80 Marks**

**Group – A**

**50 Marks**

1. Projection: Cylindrical Equal Area, Mercator's, Polar Zenithal Stereographic, Simple Conical Projection with one standard parallel and Bonne's **20 Marks**
2. Topographical map interpretation (Plateau Region with R.F. 1:50,000) **10 Marks**
  - (i) Profile Drawing: Superimposed, Projected and Composite
  - (ii) Relationship between physical and cultural features using Transect chart and Scatter diagram
3. Morphometric Analysis of Drainage Basin from Topographical Map **20 Marks**
  - (i) Relative Relief
  - (ii) Drainage Frequency
  - (iii) Stream Ordering: Horton and Strahler
  - (iv) Slope analysis by Wentworth's method

**Group – B: Field Work and Field Report**

**(10+10)=20 Marks**

Select an area (rural/urban with cadastral /municipal map) and identify major landuse features and related problems. The report should be:

- (i) Hand written- within 2500 words
- (ii) Maps and diagrams not exceeding 20 pages; photographs not exceeding 5 pages
- (iii) No dry letter to be permitted

**Group-C: Laboratory Note Book and Viva Voce**

**(5+5) = 10 Marks**

# **University of Kalyani**

## **B.A. /B.Sc. (General) Course in Geography (Revised Syllabus)**

**(W.e.f. the session 2016-2017)**

### **Part-I (General) (Full Marks: 100)**

<b>Paper</b>	<b>Group</b>	<b>Marks</b>	<b>Full Marks</b>
<b>Paper I: Physical Geography</b>	<b>Group - A: Geotectonics and Geomorphology</b>	<b>40</b>	<b>100</b>
	<b>Group – B: Climatology</b>	<b>30</b>	
	<b>Group – C: Soil and Biogeography</b>	<b>30</b>	



(Figures in the bracket represent number of Lectures)

**PART- I****Paper – I: Physical Geography (No. of lecturers-125)****100 Marks****Group – A: Geotectonics and Geomorphology (No. of lectures-45)****40 Marks**

1. Interior structure of the earth (04)
2. Influence of rocks on topography (05)
3. Continental Drift theory; Plate Tectonic theory (08)
4. Earthquake and Vulcanicity (10)
4. Evolution of landforms under Fluvial, Marine and Aeolian processes (10)
5. Cycle of erosion (after Davis and Penck) (08)

**Group- B: Climatology (No. of lectures – 40)****30 Marks**

1. Insolation and Heat Budget (05)
2. Horizontal and Vertical distribution of temperature and pressure (07)
3. Greenhouse effect and global warming (06)
4. Tropical disturbances: Thunderstorm and Cyclone (06)
5. Temperate Cyclones (05)
5. Monsoon mechanism (07)
6. Climatic classification after Koppen (04)

**Group – C: Soil and Biogeography (No. of lectures – 40)****30 Marks**

1. Definition of soil; soil composition; soil forming factors (04)
2. Processes of Profile development (06)
3. Properties of soil: Physical and Chemical (06)
4. Concept of Zonal, Azonal and Intrazonal soils (06)
5. Concepts of Ecosystems and Biomes (04)
6. Plant types and distribution (Halophyte, Xerophyte, Hydrophyte, Mesophyte, and Tropophyte) (06)
7. Biomes: Tropical rainforest, Savannah, Temperate grasslands, Hot desert (08)

# **University of Kalyani**

## **B.A. /B.Sc. (General) Course in Geography (Revised Syllabus)**

**(W.e.f. the session 2016-2017)**

### **Part-II (General) (Full Marks: 200)**

<b>Paper</b>	<b>Group</b>	<b>Marks</b>	<b>Full Marks</b>
<b>Paper II: Social, Economic and Regional Geography of India</b>	<b>Group - A: Social Geography</b>	<b>20</b>	<b>100</b>
	<b>Group – B: Economic Geography</b>	<b>30</b>	
	<b>Group – C: Regional Geography of India</b>	<b>50</b>	
<b>Paper III: Practical</b>			<b>100</b>

(Figures in the bracket represent number of Lectures)

**PART – II****Paper – II: Social, Economic and Regional Geography of India**(No. of lectures –100)**100 Marks****Group –A: Social Geography** (No. of lectures- 23)**20 Marks**

1. Growth and distribution of world population (07)
2. Migration: Types, causes and consequences of migration (08)
3. Contemporary social issues: Adult literacy, poverty, gender issues (08)

**Group –B: Economic Geography** (No. of lectures –28)**30 Marks**

1. Sectors of the economy: primary, secondary, tertiary and quaternary (05)
2. Forms of economy: (09)
  - i) Tribal economies: hunting and gathering; shifting cultivation in India
  - ii) Traditional economies: Intensive subsistence farming
  - iii) Modern economies: Commercial grain farming and mixed farming
3. Cottage, small scale and large scale industries – general characteristics and examples (05)
4. Location, problems and prospects of Indian industries: (09)
  - a) Agro-based: Cotton textile industry
  - b) Forest-based: Paper industry
  - c) Mineral-based: Iron and steel industry

**Group – C: Regional Geography of India** (No. of lectures-49)**50 Marks**

1. Concept of regions: formal and functional; macro, meso, micro regions (06)
2. Broad physiographic regions of India (04)
3. Vagaries of Indian monsoon and its impact: Problem of flood and drought (08)
4. Forest resources of India: Issues concerning deforestation (08)
5. Problems of soil erosion and conservation in India (04)
6. Regions of India: (10)
  - a) Agricultural regions of India: Special reference to Punjab-Haryana wheat belt
  - b) Industrial regions of India: Special reference to Hooghly industrial belt
  - c) Planning regions of India: Special reference to D VC Region
  - d) Biotic regions of India: Special reference to Sundarban of West Bengal
7. Racial and ethnic diversity in India: Associated problems with special reference to tribal population (09)

<b><u>Paper – III:Practical</u></b>	<b><u>100 Marks</u></b>
1. Concept of scale: drawing of Linear scale	<b>08 Marks</b>
2. Projection by Graphical method:	<b>12 Marks</b>
i) Simple Conical with One Standard Parallel	
ii) Cylindrical Equal Area	
iii) Polar Zenithal Stereographic	
3. Cartograms: Pie graph, Bar graph (simple and compound)	<b>15 Marks</b>
4. Statistics:	<b>20Marks</b>
a) Nature and classification of data	
b) Process of tabulation and graphical representation: histogram, frequency polygon, frequency curve, ogive (more than and less than method)	
c) Measures of central tendency: mean, median and mode	
d) Measures of dispersion: range, quartile deviation, mean deviation, standard deviation, coefficient of variations	
5. Interpretation of Indian Daily Weather map (pre-monsoon, monsoon and post-monsoon) under the following heads:	<b>15 Marks</b>
i) Atmospheric pressure	
ii) Wind direction and speed	
ii) Sky condition	
iv) Precipitation	
<b>6. Field Work and Viva voce</b>	<b>20 Marks</b>
[Field Work in village within the district near the college/institution covering the following aspects:	
a) Land-use survey and its presentation on a <i>Mouza</i> map (Cadastral)	
b) Collection of door to door data through Questionnaire Survey; representation of the data by statistical methods and cartograms	
c) Preparation of a report covering Physiography, Drainage, Climate, Vegetation, Soil, Population, Mining, Fishing, Forestry, Irrigation, Agriculture, Animal Rearing, Industry, Transport, Settlement, Landuse, Folk Culture – whichever is applicable	
d) Maps and diagrams should not be more than 15 pages of A4 size	
e) The report should not be more than 1500 words. Report should be hand written (dry letters are not permitted)]	
<b>7. Laboratory Note Book and Viva Voce</b>	<b>5+5=10 Marks</b>

# University of Kalyani

## **B.A. /B.Sc. (General) Course in Geography (Revised Syllabus)**

**(w.e.f. the Academic Session 2016-2017)**

### **Part-III (General) (Full Marks: 100)**

<b>Paper</b>	<b>Group</b>	<b>Marks</b>	<b>Full Marks</b>
<b>Paper IV: Applied Geography</b>	<b>Group - A: Land use and Settlement Geography</b>	<b>30</b>	<b>100</b>
	<b>Group – B: Remote Sensing and Thematic mapping</b>	<b>30</b>	
<b>Paper IV: Practical</b>	<b>---</b>	<b>40</b>	

(Figures in the bracket represent number of Lectures)

### **PART – III**

**Paper – IV: Applied Geography (No. of lectures –50)** **60 Marks**

**Group –A: Land use and Settlement Geography (No. of lectures- 25)** **30 Marks**

1. Concept and attributes of land (03)
2. Objective and principles of landuse (06)
3. Rural Settlements: evolution, nature and characteristics, effect of physical environment (08)
4. Urban settlements: definition, morphology and function (08)

**Group –B: Remote Sensing and Thematic mapping (No. of lectures –25)** **30 Marks**

1. Definition of Remote Sensing, different methods of remote sensing; air photo and satellite imagery (05)
2. Aerial Photo: Characteristics, interpretation (05)
3. Satellite Imagery: types of satellite imageries, characteristics of IRS imageries (06)
4. Definition, objective and principles of thematic mapping (e.g. climatic map, economic and population) (09)

**Paper IV: Practical** **40 Marks**

(a).Toposheet Interpretation: **20 Marks**

1. Basis of numbering and scale of topographical sheets
2. Interpretation of 1:50,000 toposheets: plateau region and extraction of geographical information from maps, interpretation and explanation with suitable sketches, profiles and transect charts under the following heads:  
Relief, drainage, natural vegetation, transport and settlement

(b). Preparation of land use map from Aerial photographs (Drawing and interpretation)

**(8+4)=12 Marks**

**Item No: (b) is for Internal Marking (12 Marks=30 % of the paper)**

(c).Laboratory Note Book and Viva Voce **(4+4)=08 Marks**