

**AM SYLLABUS (2008-2012)**

**GEOGRAPHY**

**AM 13**

**SYLLABUS**

<b>Geography</b> <b>Syllabus</b>	<b>AM 13</b>	(Available in September)
Paper I (2 hrs) + Paper II (2 hrs) + Paper III (2 hrs) + Short-Term Field Reports + Individual Fieldwork Report		

**INTRODUCTION**

Geography is a subject that straddles the natural and social sciences. It is also a subject that looks at phenomena from the spatial perspective, more specifically geography looks at the distributions over the earth's surface. When compiling a syllabus of studies one has to include the main physical characteristics that make up the natural environment and the central themes that govern humans and their actions on the planet.

The syllabus will enable students to use their acquired geographical knowledge in real life situations and as a basis for life-long education. The range of learning skills includes:

- recalling relevant content from geographic subject matter;
- understanding the diverse characteristics of people, places and environments;
- interpreting maps, globes and other geographic tools and technologies such as charts, graphs, aerial photographs;
- understanding that space and spatial relationships are fundamental components of human interdependence on the local, regional, or global scale;
- recognizing the spatial relationships between people and their environments; and
- solving problems systematically using geographic methods.

This syllabus is an attempt at making geography a user-friendly subject, where students following it will pass through a positive experience. This course of study places an emphasis on the classroom element together with fieldwork practical. Special attention has also been given to include the geography of the Maltese Islands as a core area.

**ASSESSMENT OBJECTIVES**

The examination will assess the ability of the candidate:

1. *With reference to knowledge and understanding*

- To recall accurately specific factual information relating to physical and human concepts, principles, theories and physical and human inter-relatedness across a range of scales and time sequences.
- to demonstrate an understanding of geographical ideas relating to physical and human processes which either on their own or in combination, underline distributions and spatial outcomes across a range of scales and time sequences
- to demonstrate a critical awareness of the value of the application of theories.
- to show an awareness that while geographical projects are concerned with data collection, presentation, analysis, interpretation, and the formulation of conclusions, these may be both tentative and incomplete.

2. *With reference to skills*

- To analyze, organise, and present information in a coherent essay or a structured response from data stimulus material.
- To collate, present and interpret data from a wide range of primary and secondary sources and in a variety of forms.
- To collate, apply or evaluate evidence in problem solving situations.
- To undertake a teacher-led and an individual geographical project.
- To apply a range of skills to personal and group fieldwork and to use suitable geographical techniques.
- To acquire an awareness of the significance of the attitudes and values of others and of the impact of cultural differences on geographical issues.
- To demonstrate an understanding of the decision making and of the values and perceptions of the decision makers.

## THE EXAMINATION

The candidates will be examined over the following:

1. **Three written papers:** each of two hours duration and each carrying 24 % of the total examination mark;
2. **Short-term field reports** that carry a total of 6 % of the total examination mark; and
3. an **Individual field-work report** carrying 22 % of the total examination mark.

**The written papers** (24+24+24 = 72 %) Each paper consists of three sections: A, B and C, from which candidates will be required to answer three questions, one question from each section.

### **Paper I: to consist of *nine* questions with *three* questions in each of three sections:**

Section A: Physical Geography of the Maltese Islands

Section B: Human Geography of the Maltese Islands

Section C: Fieldwork and Statistical Techniques

*Candidates are to answer one question from each section in two hours.*

### **Paper II: to consist of *nine* questions with *three* questions in each of three sections:**

Section A: Atmospheric Processes

Section B: Geomorphology

Section C: Biospheric Processes

*Candidates are to answer one question from each section in two hours.*

### **Paper III: to consist *nine* questions with *three* questions in each of three sections**

Section A: Human Geography and the Developing World

Section B: Issues in Resource Management

Section C: The Geography of Tourism and Recreation.

*Candidates are to answer one question from each section in two hours.*

The choice of questions is the same for all three papers.

### **The Short-term field reports (6 %)**

The short-term reports are freely structured and are written accounts of two teacher-guided field trips.

### **The Individual Fieldwork Report (22 %)**

The Individual Fieldwork Report is a longer report of 2500-4000 words, structured according to specified criteria.

## THE PRACTICAL WORK

### **Short-term field reports**

- These reports are intended to ensure that the candidate has participated in the teacher-guided field trips.
- The choice of topics is open but should be balanced to contain both human and physical aspects of Maltese geography.
- The length of reports should reflect the nature the true nature of the field work and must not exceed 1000 words each.
- Working, forming part as a member of a group, is accepted.
- The work submitted must be certified by the teacher/tutor concerned and thereby satisfy the examiners that the candidate has adequate experience of field work.

Private candidates are also required to submit the two short fieldwork reports of their own practical work. Normally, these will be assessed by the Board of Examiners throughout. Advice on the choice of topics and further guidance may be obtained from the MATSEC office.

## THE INDIVIDUAL FIELDWORK REPORT

- The individual inquiry is primarily intended to assess the basic skills needed for geographical research or investigation performed by the candidate.
- Candidates should seek advice on the choice of a suitable topic, sources of relevant information and appropriate fieldwork, analytical and presentational techniques.
- Data collection in the field is an essential requirement.
- All inquiries should normally involve the formulation and testing of a suitable hypothesis manageable within the time available.
- Private candidates must submit to the MATSEC Support Unit their proposed title together with an outline plan of the proposed work.
- Topics selected should not be too complex to allow valid conclusions to be drawn, nor too large in area or scale; suitable topics will be small in scale and specific in nature;
- The enquiry should show clear evidence of careful planning of hypothesis formulation, data collection and data analysis;
- the enquiry should show the candidate's ability to select and use a range of appropriate methods for the accurate observation, collection, sampling (if appropriate) and measurement of data.
- The enquiry should demonstrate the use of appropriate techniques to represent clearly the data collected; techniques may include descriptive statistical (e.g. mean, mode, median, percentages), cartographic, graphic (including Lorenz curve) and diagrammatic forms.
- The candidate is required to use appropriate techniques to analyze the data that have been collected; these techniques **must** include at least one statistical method of analysis to test the hypotheses (e.g., Spearman rank correlation, Chi-squared test).
- The submitted report should take the form of a short written account, which should not exceed 4000 words in length; it should be illustrated with relevant maps, diagrams and, if appropriate, photographs; it must be neatly hand-written, typed or word-processed on A4 paper and paginated.
- The individual report will count for 22 % of the total examination mark, the assessment criteria are presented overleaf.

A **Statement of Authenticity** (as shown in Appendix I, page 20) is to be duly filled and signed by both candidate and tutor, and presented with the Fieldwork report. Candidates are to get a copy of this Statement by photocopying it from this syllabus.

**Assessment Criteria 1: Investigation and Planning**

<b>Marks assigned</b>		<b>Marks given</b>
<b>16 – 20</b>	Well organised. Clear, realistic plan. Full statement of aims in Enquiry. Identified hypothesis/es independently. Links to theoretical background. Clear location.	
<b>11 – 15</b>	Appropriate aims and sound planning. Aims and location described in Enquiry. Identified hypothesis/es independently. Some theoretical background.	
<b>6 – 10</b>	Proposal lists aims and data collection. Aims and location stated in Enquiry. Needed some assistance to identify hypothesis. A little relevant theoretical background.	
<b>0 – 5</b>	Much assistance needed in planning Enquiry. Aims and location indicated in Enquiry. Needed substantial assistance to identify hypothesis/es. No understanding or ability in planning investigation.	

**Assessment Criteria 2: Data Collection**

<b>Marks assigned</b>		<b>Marks given</b>
<b>16 – 20</b>	Systematic research programme based on substantial data collection with a wide range of accurate observations/measurements. Data collection and sampling methods. Considers all significant factors affecting data collection.	
<b>12 – 15</b>	Accurate observations and measurements. Explanation of data collection methods, including sampling. Some factors affecting data collection commented on.	
<b>6 – 11</b>	Narrow range of data collected. Some assistance needed in this section. Data collection methods described and some factors affecting them noted.	
<b>0 – 5</b>	Limited ability to complete research or make observations. One method of data collection. Much assistance needed in this section. Unable to carry out research on the topic.	

**Assessment Criteria 3: Data Presentation**

<b>Marks assigned</b>		<b>Marks given</b>
<b>12 – 15</b>	Candidate selected appropriate and varied range of presentation techniques (such as graphs, flow diagrams, labelled sketch diagrams, tables). All methods executed precisely and accurately. Full annotation and integration into text. Well organised and logical presentation.	
<b>8 – 11</b>	Candidate selected and used appropriate presentation techniques. All competently executed and clearly labelled. Data organised and presented clearly.	
<b>4 – 7</b>	Candidate selected and used limited range of straightforward techniques. Most were appropriate, and executed neatly with sufficient labelling. Some meaningful organisation. Some assistance required in this section.	
<b>0 – 3</b>	Candidate used simple techniques, some of which were appropriate. One or two methods used. Labels give some information. Some organisation of material attempted. Much assistance required in this section. No attempt made to present data collected.	

**Assessment Criteria 4: Analysis and Interpretation**

<b>Marks assigned</b>		<b>Marks given</b>
<b>23 – 30</b>	Effective, coherent and independent analysis and interpretation, using all information collected and presented, directly related to aims. Significant interrelationships and patterns identified and developed. Statistical analysis, significance testing accurate and appropriate. Good use of geographical terminology.	
<b>15 – 22</b>	Some independent analysis and interpretation; used most of data collected; referred to aims of Enquiry. Some interrelationships identified and commented upon. Statistical analysis accurate where used. Appropriate geographical terminology. Moderate use of geographical terms.	
<b>7 – 14</b>	Some relevant analytical points linked to aims of Enquiry and referring to much of data collected. Some interrelationships noted. Some assistance required in this section. Appropriate geographical terminology used in places. Very moderate use of geographical terms.	
<b>0 – 6</b>	Description of collected data. Much assistance needed to identify some interrelationships and patterns. No Analysis and aims of Enquiry not related. Scarce use of geographical terms. No attempt made to analyse or interpret data collected.	

**Assessment Criteria 5: Conclusions and Evaluation**

<b>Marks assigned</b>		<b>Marks given</b>
<b>12 – 15</b>	All information used to provide answers and reach concise and clear conclusions. Conclusions justified and related directly to aims of Enquiry. Awareness of the limitations of the conclusions. Evaluation of Enquiry as a whole. Comment on the possibilities for further studies on the topic. Good use of geographical terminology.	
<b>8 – 11</b>	Reference to data collected to draw some logical conclusions related to aims of enquiry. Some evaluative comment. Some opportunities for further study described. Appropriate geographical terms used.	
<b>4 – 7</b>	Some use of data collected to draw straightforward conclusions. May have required some assistance. Conclusions presented as facts rather than partial, tentative or incomplete. Little opportunities for further study suggested. Evaluation linked to data collection. Some appropriate geographical terminology.	
<b>0 – 3</b>	Much assistance required to produce a basic conclusion, with only an indirect link to data collected and/or aims of Enquiry. Much comment repetitive of ideas noted elsewhere. Minimal use of geographical terminology. No attempt made to draw conclusions to the Enquiry.	

**Total marks out of 100 marks**

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**PAPER 1**

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**UNIT ONE**

***PHYSICAL GEOGRAPHY OF THE MALTESE ISLANDS***

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The aim of this section is to examine the location and spatial spread of the components that make up and influence the natural environment of the Maltese Islands.

**Position and size**

- position (latitude and longitude); situation with respect to the continental mainlands; the islands of the archipelago.

**Geology and geomorphology**

- types, origin, formation and age of the Maltese sedimentary rocks;
- topography and limestone landforms; faults and faulting; theories of dry valley formation;

**Climate**

- main characteristics of the Maltese climate.

**Soils**

- main types of soils, soil complexes formed through human agency.

**Water resources**

- passage of water through rocks, natural sources (rainwater), natural reservoirs (aquifers - main-sea level, and perched), wells and springs; extraction of water;
- management of water resources.

**Ecological systems**

- terrestrial ecosystems - major communities that form part of the successional sequence towards the climatic climax, i.e. - sclerophyll forest, maquis (sclerophyllous scrub), garigue, steppic grassland;
- terrestrial ecosystems - minor communities which are either specialized to occupy particular habitats that are rare in the islands, or a relics from a previous ecological regime, now surviving in a few refugia, i.e. - coastal communities: saline marshlands, transitional coastal wetland; sand dunes, low-lying rocky coasts, rupestral communities; freshwater communities: temporary rainwater pools, permanent pools, watercourse communities, permanent springs; and caves;
- other ecosystems, i.e. - agroecosystems, semi-natural woodland (Buskett), afforestation areas disturbed ground
- marine ecosystems; supralittoral (splash zone), mediolittoral communities (intertidal), upper infralittoral communities (shallow waters).

**Environmental issues**

- soil erosion (natural and accelerated);
- degradation of habitats and loss of biodiversity
- lack of environmental resources (e.g. minerals, fossil fuels, soils);
- sea level rise;
- lack of water resources; exploitation and degradation of water resources; sources of pollution; water supply problems.

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## UNIT TWO

### *HUMAN GEOGRAPHY OF THE MALTESE ISLANDS*

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The emphasis of this section is on the spatial location of the factors associated with the presence of man on the Maltese Islands. The plans, policies and strategies aimed at controlling man's use and abuse are also considered.

#### **Population and settlement**

- population growth and decline; birth and mortality rates; distribution of population; international migration;
- settlement patterns and types of settlement; housing and home ownership, including second homes and vacant dwellings.

#### **Agriculture**

- problems with local agriculture; main food crops; animal husbandry; farming population; part-time farming;
- fishing; problems with local fishing; fish catches; aquaculture; services for fishermen along the coast; part-time fishermen.

#### **Extractive industries**

- quarrying; the building industry; saltpanning.

#### **Manufacturing industries**

- light industries, industrial estates; marine-related industries.

#### **Services**

- tourism; trade and commerce.

#### **Communications**

- roads, airports; sea and air traffic; ports; container terminal; cruise liners; radio, TV networks; information technology (IT).

#### **Energy**

- location of power stations; energy demand; importation of fuel; LPG, fuel storage

#### **Environmental issues**

- waste disposal and waste management;
- quarrying;
- landscape protection;
- land use conflicts;
- nature conservation, hunting and trapping;
- urban spread;
- heritage loss, including village cores;
- development control "latest laws".



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**UNIT THREE**  
**FIELDWORK, CARTOGRAPHY AND STATISTICAL ANALYSIS**

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This unit will test students in both fieldwork techniques and the planning of fieldwork to tackle a problem or issue that centres on geographical matter within the Maltese Islands. The focus will be on practicality, design planning, the nature of the data required, its presentation, analysis and interpretation. Cartographic techniques will also be tested since map literacy is also considered to be both academically important and practically useful.

Fieldwork is recognised as an established component of geographical education. It is one of the distinctive attributes of geography, offering valuable learning opportunities. The aim of geographic fieldwork is to understand geography at the local scale and to gain experience of gathering, analysing and presenting data. The application of geographical concepts and skills in the investigation of an identified problem or issue in the field is considered to be an essential part of the geographical sciences.

The use of statistical analysis is considered to be an indispensable skill for the geographer. Fieldwork methods generally involve the gathering of information in the form of numerical quantities. Analysis of the data often involves the use of appropriate statistical methods to identify similarities and differences.

### **1. Cartographic component**

Interpretation of thematic and quantitative maps as exemplified by:

- choropleth maps
- dot maps ( to illustrate the distribution of features)
- isoline maps (= isopleth maps)
- weather charts

### **2. Statistical component**

Graphic and diagrammatic techniques:

- bar diagrams (including composite bar charts)
- pie charts
- scatter graphs
- line (= arithmetic) graphs
- logarithmic graphs
- triangular graphs (= ternary diagrams)
- time-series graphs
- flow diagrams
- Lorenz curve

### **Descriptive and analytical statistical techniques**

- concept of normal distribution and skewness
- histograms
- frequency curves
- significance and confidence limits
- concept of simple correlation and correlation coefficient
- sampling error
- data types (nominal, ordinal, interval)

### **Measures of central tendency and dispersion**

- median
- mode
- median (plus running mean)
- range
- quartiles, inter-quartiles and percentiles
- standard deviation

### Description of spatial distributions

- Location quotient (LQ)
- Lorenz curve (to display the concentration of activities within an area)
- Nearest neighbour analysis (as a test for 'non-randomness' and as a means to give a statistical meaning to 'clustered', 'dispersed', 'random' and to regular distribution of phenomena over space)

### Relationship between data

- scatter diagrams (correlation graphs to show the relationship between dependent and independent variables)
- Chi-squared test ( $\chi^2$ )
- Spearman rank correlation coefficient ( $r_s$ )

$$r_s = \frac{1 - 6 \sum d^2}{n^3 - n}$$

where:  $r_s$  = Spearman's Rank Correlation  
 $\Sigma$  = total  
 d = difference in rank  
 n = number of cases

- Student's t-distribution (to establish statistical significance of  $r_s$ )

### General

- Tabulation (the clear and concise rendition of data on tables)
- Flow diagrams (= system diagram) construction
- Pictograms (the use of pictures to show observed results)
- Rose diagrams (to display orientated data)
- Desire lines (to illustrate the direction and scale of movement between areas or points of origin and destination)

### 4. Fieldwork Component

- Concept of the 'scientific method' in fieldwork investigation; hypothesis testing
- Data collection: primary research and secondary sources
- Sampling (obtaining a representative view from a sample of the population): random, systematic and stratified sampling methods;
- Bias in sampling (distortion or error in the sampled data);
- The use of quadrats, transects (belt and line) e.g. as in vegetation studies and land-use transects; random numbers
- Questionnaires: the design of a 'good questionnaire'; closed- and open-questions; questionnaire administration
- Surveys (data collection without questionnaires): different types of surveys, e.g. land-use surveys; land-use transects; environmental surveys
- Interviews (going beyond the formal nature of questionnaires): the conduction of interviews in order to see how people stand on an issue or how they act in certain circumstances
- Measurement of slope form and angle, e.g. the use of pantometers, clinometers, ranging rods.
- Sketches, e.g. to show landform or feature of interest; labeling/annotation of sketch work.
- Soil data collection and description: soil profile and horizon descriptions
- Velocity determination of streams: direct flow meter reading, flotation (timed) method, Manning's Equation (formula and relevant data to be supplied during examination)

## PAPER TWO

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### UNIT FOUR

#### *ATMOSPHERIC PROCESSES AND PATTERNS*

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- sources of atmospheric energy; solar radiation budget; migration of the solar energy, long-wave/short-wave radiation; water vapour, carbon dioxide and ozone;
- atmospheric properties, i.e. - moisture and heat, vertical and horizontal variations on a global scale; stability and instability, cloud formations and types; types of precipitation (frontal, orographic, conventional), global patterns of precipitation;
- global circulation, i.e. – The Tricellular model, ITCZ, jet streams and Rossby waves, air masses and their characteristics, fronts, cyclones and anticyclones, global wind systems, ocean currents and ocean circulation;
- location and broad outline characteristics of major climatic zones, including diurnal, seasonal, and annual variation in climate parameters; Arctic, cool temperate western margins, cool temperate continental, Mediterranean, Asian monsoonal climate, tropical deserts, tropical continental areas, tropical eastern margins, equatorial.
- origin and development of temperate cyclones (depressions) and anticyclones;
- the nature and occurrence of extreme events - storms, snowfall, drought
- origin, development, movement and character of tropical cyclones (hurricanes);
- water balance, water surplus and water deficits;

#### **Coastal climates**

- at the macro scale: the comparison between oceanic and continental climates; at the meso scale: comparisons of coastal and inland climates; at the local scale, the nature and origin of land and sea breezes;
- storm surges.

#### **Sea-level change**

- nature and causes of eustatic and isostatic changes; raised beaches; the causes, threat and scale of present and future sea-level change.

#### **Environmental Issues**

- greenhouse effect and destruction of the ozone layer;
- basic concepts of environmental hazards and related risk assessment; the prediction and management of extreme climatic hazards, i.e. – cyclones, snowfall, storms (mid-latitude depressions), fog and smog, drought.
- the hazards to life posed by climatic uncertainty and drought in semi-arid regions.

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**UNIT FIVE**  
**GEOMORPOLOGY**

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**Global tectonics**

- structure of the earth (core, mantle, crust); the nature and components of the continental and ocean crust (such as mountain ranges, trenches, mid-ocean ridges, rift valleys);
- elementary plate tectonics, i.e. theory and evidence of continental drift, sea-floor spreading; constructive, destructive, collision and conservative plate margins and associated landforms; *convergent and transcurrent plate junctions and associated landforms; volcanoes earthquakes, orogenesis.*

**Environmental issues**

- origin, pattern and characteristics of global hazards, i.e. earthquakes, volcanoes; hazard and risk assessment, tsunamis;

**Rocks, weathering and landform evolution**

- global patterns of weathering
- weathering processes and weathering products under humid and arid tropical conditions; the nature and origin of inselbergs;
- the dynamics of sand and silt transportation in arid environments and the formation of dunes; processes of wind erosion. i.e. deflation and abrasion; the formation of desert pavements (regs), deflation hollows, ventifacts, zeugens and yardangs;
- water erosion in arid and semi--arid environments, wadis, alluvial fans, and arroyos;
- characteristic slope forms; pediments and pediplains;
- basins of inland drainage, salt lakes, salt pans and playas.

**Coastal environments**

**The coast as a physical unit**

- a transition zone between land and sea;
- coastal zonation, i.e. - offshore, foreshore and backshore;
- sea-level change and concept of emergent and submergent coastlines.

**Tides and waves**

- macro, meso and micro tidal environments;
- wave form and motion; constructive and destructive waves; storm waves and swell wave environments; longshore drift.

**Processes of weathering and erosion**

- wetting and drying, salt crystallization and solution weathering;
- wave quarrying (hydraulic action), abrasion, attrition, solution;
- wave refraction;
- coastal mass movement phenomena.

**Coastal landforms**

- erosional landforms, i.e. - shore (wave-cut) platforms, bays and headlands, cliffs and associated features; influence of rock type and rock structure on the form and evolution of bays and cliffs;
- constructional landforms, i.e. - beaches, their form and composition, beach profiles and changes through time; erosion, transport and deposition by waves; bars, spits, forelands and barrier beaches; origin and development of sand dunes, mud flats and salt marshes;
- raised beaches

### **Environmental Issues**

- coastal erosional hazards, i.e. cliff retreat and cliff collapse;
- design and effectiveness of coastal and flood protection measures; hard and soft engineering solutions to problems of coastal erosion; sea walls, groynes, creation of offshore islands, beach recharging;
- land reclamation, methods, schemes and associated problems;
- problems posed for the human occupancy of coastal areas by rising sea-levels at the present day and in the future;
- the fragility of coastal environments; problems of beach, spit and sand dune instability due to human actions; beach and off-shore gravel extraction; impacts of sea walls, breakwaters and groynes; methods of sand dune stabilization.

### **Fluvial systems and processes**

- the drainage basin as an environmental system, i.e. - an integrated physical environment unified by the transfer of energy and mass and involving the dynamic interaction of weathering, slope, soil, vegetation and water flows;
- basin morphology and stream ordering systems (ie Strahler's and Miller's; Shreve's);
- drainage density, drainage patterns and factors controlling them;
- the drainage basin hydrological cycle; main components of flow and exchanges in temperate drainage basins, i.e. - precipitation inputs, interception, stemflow, dripflow, direct (channel) precipitation; pathways of water movement, i.e. - overland flow, throughflow, infiltration, percolation and groundwater flow; outputs; seasonal variations; influence of vegetation communities and land use within basin of these flows and exchanges; (flotation method and direct metre reading, Manning's equation)
- the river hydrograph, i.e., flow components and comparison of low and storm flow conditions, and the influence of land-use, basin shape and size;
- river flow; type of water flow, i.e. laminar, turbulent; patterns of flow, downstream and across channels;
- downstream variations in river flow, i.e. - velocity and discharge; the measurement of discharge and velocity of river flow
- downstream variations in river morphology, i.e., cross section, gradient;
- downstream changes in valley long and cross profiles; relationships of changes to geology, and to geomorphologic history, i.e. - terraces, kinkpoints;
- channel erosion processes, i.e. - attrition, abrasion (corrasion), solution (corrosion) and hydraulic action; vertical, lateral and headwater erosion;
- transport and deposition processes; solute, suspended and bed load, their origin and character.
- processes of slope development and resultant slope forms; mass movement phenomena, surface and sub-surface wash, colluvation;
- slope form i.e. straight, concave, convex;
- soil-slope relationships, influence of slope angle and slope position on soil drainage and properties, soil catenas;
- influence of slopes and soil on vegetation and land use;
- impact of human activities on slopes, and river flow within basin; flood hazards associated with urban growth and land use change; flood hazard assessment; water quality, water balance and water supply; effects of river regulation and land use change on channel morphology and sediment transport.

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**UNIT SIX**  
*BIOSPHERIC PROCESSES AND PATTERNS*

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- energy flow; nutrient cycling of tropical rainforests; food chains and trophic levels; plant succession, climax and subclimax communities, arresting factors, including human activity;
- global patterns of soils and vegetation in relation to climate and their influence on patterns of runoff, sediment and solute yield.

**Soils and vegetation**

- factors of soil and vegetation formations, i.e. - parent material, relief, climate, time, biota; role of human activity in accelerating or retarding soil formation;
- processes of soil formation, i.e. - weathering, leaching, podzolization;
- the concept of soil catenas
- soil properties, i.e. - pH, cation exchange capacity, base saturation;
- the concept of soil fertility in relation to human and physical factors;
- vegetation formations, i.e. – savannah (woodlands & grasslands), broad-leaved deciduous forest, Mediterranean evergreen scrub, tropical rainforest (deciduous & evergreen) desert scrub; and their associated soils and nutrient cycles;
- plant adaptations to semi-arid tropics (savanna), temperate (broad-leaved deciduous & Mediterranean evergreen scrub) and desert climatic conditions.

**Environmental Issues**

- causes and environmental consequences, of the destruction of tropical rainforests;
- soil erosion, land degradation and desertification; causes and consequences.
- the potential and problems of irrigation development in arid and semi-arid regions - water storage, water quality, waterlogging and salinization.

**PAPER 3**

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**UNIT SEVEN**

*HUMAN GEOGRAPHY AND THE DEVELOPING WORLD*

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**Population**

- size, growth changes, density and distribution of world population with special reference to the developing world;
- concepts of optimum, over- and under-population, carrying capacity, problems of food supply;
- physical and human factors underlying population distribution at world, national, regional and local scales;
- nature and uses of population pyramids; demographic transition model and its applicability; the applicability of the model in contemporary conditions;
- population composition, demographic, socio-economic and cultural concepts; the cultural, ethnic and religious characteristics of world population, including those of the developing world.

**Migration**

- classification of migration by duration, distance and motivation; the main types of internal and international migration;
- theories of migration and causes of movement; the gravity model

**Settlement classification, hierarchy, urban land use, and urbanization process**

- Rank-size rule; Christaller's central-place theory as a basis for analyzing settlement patterns (K3, K4 and K7); concepts of hierarchy, threshold and range;
- world urbanization trends in the growth of large cities, primacy and associated problems; the cause of urban growth and decline within developed and less developed countries; rural to urban migration and counter urbanization trends; Alonso's urban land use (bid-rent) theory;
- urban residential segregation (socio-economic, ethnic); theories of segregation (Burgess and Hoyt);
- causes, characteristics and consequences of squatter settlements and shanty towns
- classification of rural settlements by morphology; physical and human factors underlying the development of nucleated and dispersed rural settlements.
- the phenomenon of primacy and associated problems
- social and economic criteria used to identify least developed, less-developed and newly industrialized countries, i.e.,- use of GNP per capita; percentage employment in the major sector of the economy; Human Development Index; literacy levels; the physical quality of life index.

**Economic activities**

**The role of agriculture**

- indigenous agriculture as a basis for sustainable development in one country of the developing world (i.e. - a study of peasant agriculture and its relation to development);
- the green revolution, its characteristics, advantages and disadvantages, with reference to wheat and rice

**Farming systems and agricultural land use**

- classification of farming systems and agricultural land use; the world distribution of major types of agriculture;
- concepts of Von Thunen's model of agricultural land use;
- influence of the physical environment on agricultural activities, including soils, climate, relief, altitude, slope;
- influence of human factors on agricultural activities, including economic, social, technological and political, including the Common Agricultural Policy (CAP) of the European Union.

### **Types of manufacturing activities**

- the classification of economic activities by sector (primary, secondary, tertiary, quaternary); changing relative importance of sectors;
- problems related to capital; resources; skills; transport and the natural environment.

### **Analyzing the location of manufacturing activities**

- nature and applicability of Weber's location theory; of Rawstron's concept of the 'spatial margins of profitability'; of Pred's 'behavioural approach'.

### **Manufacturing within a global economy**

- concept of a 'New International Division of Labour' (NIDC)
- location-behaviour and global organization of Multi-national Companies (MNC).

### **The nature and role of trade and aid in development**

- the Brandt Report;
- North/South trade relations;
- OPEC;
- the nature of Aid programs related to specific countries;
- problems of international debt

### **Environmental issues**

- environmental conflicts as a result of population change and redistribution; refugees;
- transnational environmental impacts of extractive, and manufacturing activities, pollution of land, air, sea and water courses, problems of acid rain and global warming;
- impacts of economic activities on landscape quality;
- environmental impacts and environmental conflicts of agricultural activities, including accelerated soil erosion and those arising from the use of agrochemical conflicts arising from land-use changes, i.e. - conflicts associated with water-resource exploitation and afforestation; potential impacts of global climate change on farming systems

### **Physical factors affecting development**

- environmental impact of the green revolution in developing countries (i.e. - soil degradation, soil and water pollution, loss of species, problems arising from the use of irrigation, health); salinization, desertification;



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**UNIT EIGHT**  
*ISSUES IN RESOURCE MANAGEMENT*

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**Definitions, classifications and appraisals of natural resources**

- finite (stock) resources and renewable (flow) resources with special reference to energy, forest, and ocean resources
- technological factors in resource use;
- changing appraisals of resources over time;
- views of resource use: the Club of Rome; the Brundtland report; Lovelock's 'Gaia' theory;
- the concept of sustainable development.

**Energy Resources**

- energy surpluses and energy deficits on a national scale with reference to countries at different levels of development
- finite resources of coal, petroleum and natural gas; modes of occurrence; methods of extraction; uses;
- renewable resources of wind, tidal and solar-power; hydro Electric Power (HEP);
- economic and social factors favouring the use of renewables; advantages and disadvantage of renewable energy
- factors influencing the locations and use of power station types; coal; oil, HEP and nuclear;
- the concept of energy resource combination

**Forest and Woodland Resources**

- natural forests and plantations; use of forests and woodland for timber, tree products, firewood, and amenity value;
- use of tropical forest resources with reference to both natural forest and managed plantations (e.g., rubber and teak);

**Problems of global resource use in the management of oceans and seas**

- demarcation of territory for purposes of mineral exploitation, fishing, waste disposal;
- fishing areas; conservation of fish stocks and EU policies on fishing;
- the whaling issue

**Environmental Issues**

- environmental impacts of extracting uranium, coal, petroleum and natural gas;
- the environmental impacts of the use of the renewable resources of wind, tidal and solar power; and HEP;
- management of forest resources; effects of acid rain on forests;
- conservation of fish stocks; waste disposal in oceans and seas and general issues concerning the dumping of wastes in seas; the world wide problems of oil spillage.

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**UNIT NINE**

*THE GEOGRAPHY OF TOURISM AND RECREATION*

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- Classifications of tourism and recreational activities;
- The distinctions between, and examples of the various types of tourism and recreational activities, i.e. – domestic and international; ecotourism; sun and sea; heritage; theme parks and purpose-built resorts; wildlife; wilderness holidays; city breaks; religious centres; cruises;
- The growth of demand for tourism and recreational activities; i.e. growth of leisure time, disposable incomes and mobility;
- Role of changes in transport technologies and networks;
- Role of changes in consumer tastes and in perceptions of place.

**The economic, social and environmental impact of tourism and recreational activities**

- The economic impacts of tourism and recreational activities in receiving regions;
- Butler's model of tourism's role in regional and local economic development;
- Applicability of Myrdal's concept of cumulative causation in development of tourist regions; backwash and spread effects; multiplier effects;

**The growth and pattern of international tourism**

- The growth of international tourism; major patterns of international tourist flows by origins and destinations; factors influencing the volume and pattern of international tourist flows.

**The development of tourist and recreational regions**

- The contrasting nature and scale of tourism and recreational activities, and associated physical development, in a one of the following, i.e.-
  1. the coastal regions of the Mediterranean, including islands;
  2. the Alpine regions of Europe
  3. Safari Parks in Africa
- The problems, conflicts and planning policies arising as a consequence of the economic and social impacts of tourism and recreational activities;
- The role of interest groups and values in determining the nature and outcomes of conflicts;
- The role of planning policies in the development and management of tourism and recreational activities, and the resolution of associated land-use conflicts;
- Environmental impacts associated with the development of tourism and recreation; land use conflicts and planning issues arising as a consequence of environmental impacts of tourism and recreational activities; the role of interest groups and values in environmental management;
- Problems and policies of wildlife conservation in Africa; conflicts with local people; ecotourism;
- The role of the EU management of environmental problems in tourist and recreational regions in Europe.

## **Suggested Reading List**

### **Main Textbook**

Waugh, D. (2001) *Geography: An Integrated Approach*, 3rd edition. Nelson, Walton-on-Thames.

### **Maltese Islands**

Azzopardi A, (2001) *A New Geography of the Maltese Islands*. Progress Press, Malta.

Chetcuti, Buhagiar, A., Schembri, P.J. and Ventura, F. (1992) The climate of the Maltese Islands: a review. University of Malta, Malta.

State of the Environment: Report for Malta (2002)  
<http://www.mha.gov.mt/enviroment/enviroment.html>

Schembri, P.J. and Baldacchino A, (1992) *Blat, Ilma u Hajja*. Malta University Services Limited. Malta.

Pedley, M, Hughes-Clarke, M, and Galea, P. (2002) *Limestone Islands in a crystal sea. Geology of the Maltese Islands*. P.E.G. Malta

### **Dictionary**

Skinner, M. Redfern, D. and Farmer, G.(1996) *The complete A to Z Geography handbook*. London, Hodder and Stoughton.

### **Fieldwork**

Lenon B and Cleves P, (2001) *Fieldwork Techniques and Projects in Geography*, 2<sup>nd</sup> edition.. Collins Educational, London.

Frew, J. (1999) *Geography Fieldwork projects*. Nelson, Walton-on-Thames, Nelson, Walton-on-Thames.

Williams, G. (1994) *Techniques and Fieldwork in Ecology*. Collins Educational, London.

Boyce, J. and Ferretti J. (1985) *Fieldwork in Geography*. CUP, Cambridge.

### **Atlases**

*Philips' Modern School Atlas*. Latest Edition

### **Study and coursework guides**

Spencer, K. (2000) *Geography: Success at A Level*. Oxford University Press, Oxford.

Nagle, G. and Spencer, K. (2001) *AS and A level Geography through diagrams*. Oxford, OUP.

### **Further Reading**

Carr, M. (1997) *New patterns: process and change in Human Geography*. Nelson, Walton-on-Thames.

Hill, M. (1999) *Advanced Geography Case Studies*. Hodder and Stoughton, London.

Lidstone, J. (ed) *Global issues of our times*. CUP, Cambridge.

**APPENDIX I**

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**UNIVERSITY OF MALTA  
ADVANCED MATRICULATION EXAMINATION – GEOGRAPHY**

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- **The Practical work – Short-term field reports**
  - **The Individual Fieldwork Report**
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**This sheet must be completed and duly signed, and placed on top of the candidate’s work.**

**Name of School/Centre:** \_\_\_\_\_

**Name of Candidate:** \_\_\_\_\_

**Candidate’s Identity Card Number:** \_\_\_\_\_

**AUTHENTICATION by the GEOGRAPHY TUTOR**

**I declare that the candidate’s activities have been kept under regular supervision and that, to the best of my knowledge, no assistance has been given apart from any which is acceptable under the scheme of assessment and has been identified and recorded.**

**Name of Tutor (block letters):** \_\_\_\_\_

**Tutor’s Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Rubber Stamp of School/Centre:**

**AUTHENTICATION by the CANDIDATE**

**I declare that I have produced the work involved without external assistance apart from any which is acceptable under the scheme of assessment and is recorded.**

**Candidate’s Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_