2580008

THE UNIVERSITY of York

Degree Examination 2007

ENVIRONMENT DEPARTMENT

MSc Environmental Economics & Environmental Management
MSc Environmental Economics

ENVIRONMENTAL VALUATION

Time allowed: **two hours**

You must answer **THREE** questions from **SIX**

Pay adequate attention to spelling, punctuation and grammar, so that your answers can be readily understood

Question 1

(a) Explain the meaning of the following welfare measures, using sketch diagrams as appropriate. Take care to distinguish between 'old' and 'new' frames of reference, and between changes in the price of market goods and changes in the quality of non-market environmental goods.

(i) Compensating variation (CV) (15% of marks for this question)

(ii) Equivalent variation (EV) (15% of marks for this question)

(iii) Compensating surplus (CS) (15% of marks for this question)

(iv) Equivalent surplus (ES) (15% of marks for this question)

(b) An airport wishes to expand its schedules to include 24-hour operation. You are commissioned to carry out a valuation study to assess the scale of compensation payment that would be required to overcome objections to the expansion plan from householders who live within a 5km radius of the airport. Identify which welfare measure (CV, EV, CS or ES) corresponds to the requisite compensation payment in this situation. Illustrate your answer with a sketch diagram. (40% of marks for this question)

Question 2

(a) Briefly explain the data requirements and calculation methodologies of the following frameworks for policy assessment. Comment on likely data availability for each framework.

(i) cost effectiveness analysis (15% of marks for this question)

(ii) cost utility analysis (15% of marks for this question)

(iii) cost benefit analysis (15% of marks for this question)

(b) Cost effectiveness analysis and cost utility analysis have been applied over recent years to assess the performance of programmes to conserve individual species and habitats. Discuss the advantages and disadvantages of these, and alternative, approaches for assessing delivery of biodiversity conservation objectives. (55% of marks for this question)

Question 3

(a) Explain the basis of hedonic pricing as a technique for valuing environmental quality (15% of marks from this question)

(b) Which categories of environmental value could be captured by an appropriately constructed hedonic pricing study (15% of marks from this question)

(c) Comment on likely sources of data for the dependent and independent variables used within a hedonic pricing study. (25% of marks for this question)

(d) Comment on the role of the hedonic price function within hedonic price estimation. (15% of marks from this question)

(e) Using examples, discuss the use of the hedonic method for valuing water quality and air quality. (30% of marks for this question)

Question 4

(a) Explain the basis of the simple zonal travel cost method for estimating the value of accessing a recreational site such as a beach or a forest. (25% of marks for this question)

(b) Explain how the individual-based travel cost method overcomes some of the inadequacies of the simple zonal approach. (20% of marks for this question)

(c) Discuss assumptions and design decisions within the travel cost method which typically exert a strong influence over estimated site value. (25% of marks for this question)

(d) Using examples, discuss the contribution that spatially-linked (GIS) data can make to travel cost valuation. (30% of marks for this question)

Question 5

(a) Explain the basis of the contingent valuation method and outline, briefly, the stages involved in implementing a contingent valuation study. (25% of marks for this question)

(b) Outline, briefly, the advantages and disadvantages of 3 different elicitation formats for the willingness-to-pay question in a contingent valuation study (20% of marks for this question)

(c) Provide a short description of the following issues in the context of contingent valuation:

(i) scope effect (12½ % of marks for this question)

(ii) construct validity (12½ % of marks for this question)

(d) Using examples, comment on the use of contingent valuation as a method for assessing social welfare change arising from habitat restoration. (30% of marks for this question)

Question 6

(a) Describe the objectives of the EU Water Framework Directive (WFD) and explain how key elements of that Directive are implemented within the UK (50% of marks for this question)

(b) Identify 2 potential problems which arise when attempting to value changes in water quality (20% of marks for this question)

(c) Describe the type of investigations that would be required to determine whether the WFD would pass a benefit-cost test, and comment on whether such investigations have been carried out for the WFD (30% of marks for this question)