Team # _____

TBL 1: A geophysical journey around Ireland – 7 Step Process

Part 1: Multiple Choice (10 points)

1. Due to the large amount of noise in urban areas:
    A. All electromagnetic methods are useless in urban areas
    B. Station spacing must be large in urban areas
    C. Our choice in effective geophysical methods is limited in urban areas
    D. Geophysics can only be performed at night in urban areas

2. The geophysical surveys used at the sand and gravel and granite quarries, Co. Wicklow included:
    A. Microgravity, GPR, 2D resistivity
    B. EM31, 2D resistivity, seismic refraction
    C. EM31, seismic reflection, airborne geophysics
    D. Magnetic, GPR, EM31

3. What information had GPR offered for the peat detection project?
    A. Origin of the peat
    B. An estimation of carbon stock
    C. Volume of the peat resource
    D. The PH of the peaty soil

4. In the Karst investigations presented in the paper, cavities are associated with features of
    A. Gravity high and low resistivity
    B. Gravity low and low resistivity
    C. Gravity high and high resistivity
    D. Gravity low and high resistivity

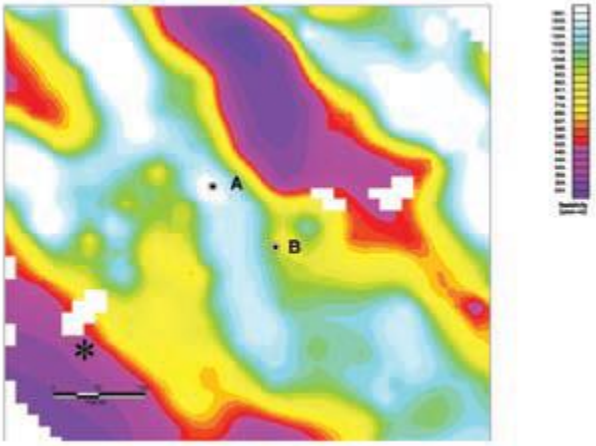
5. In County Limerick, in what capacity were resistivity and IP (chargeability) surveys used to assist in mineral exploration?
    A. Regional geologic mapping
    B. Locating new regions of Lead-Zinc mineralization
    C. Assessing slope stability for new mine sites
    D. Target drilling in regions where mineralization had been intersected

6. The magnetic data from North Ireland was acquired with sensors in/on
    A. Boreholes
    B. Surface
    C. ATVs
    D. Aircrafts

7. A pollution plume of a landfill was discovered using

A. Magnetic anomaly imagery
B. Electrical conductivity imagery
C. Radiometrics
D. Total magnetic intensity

8. The following image shows

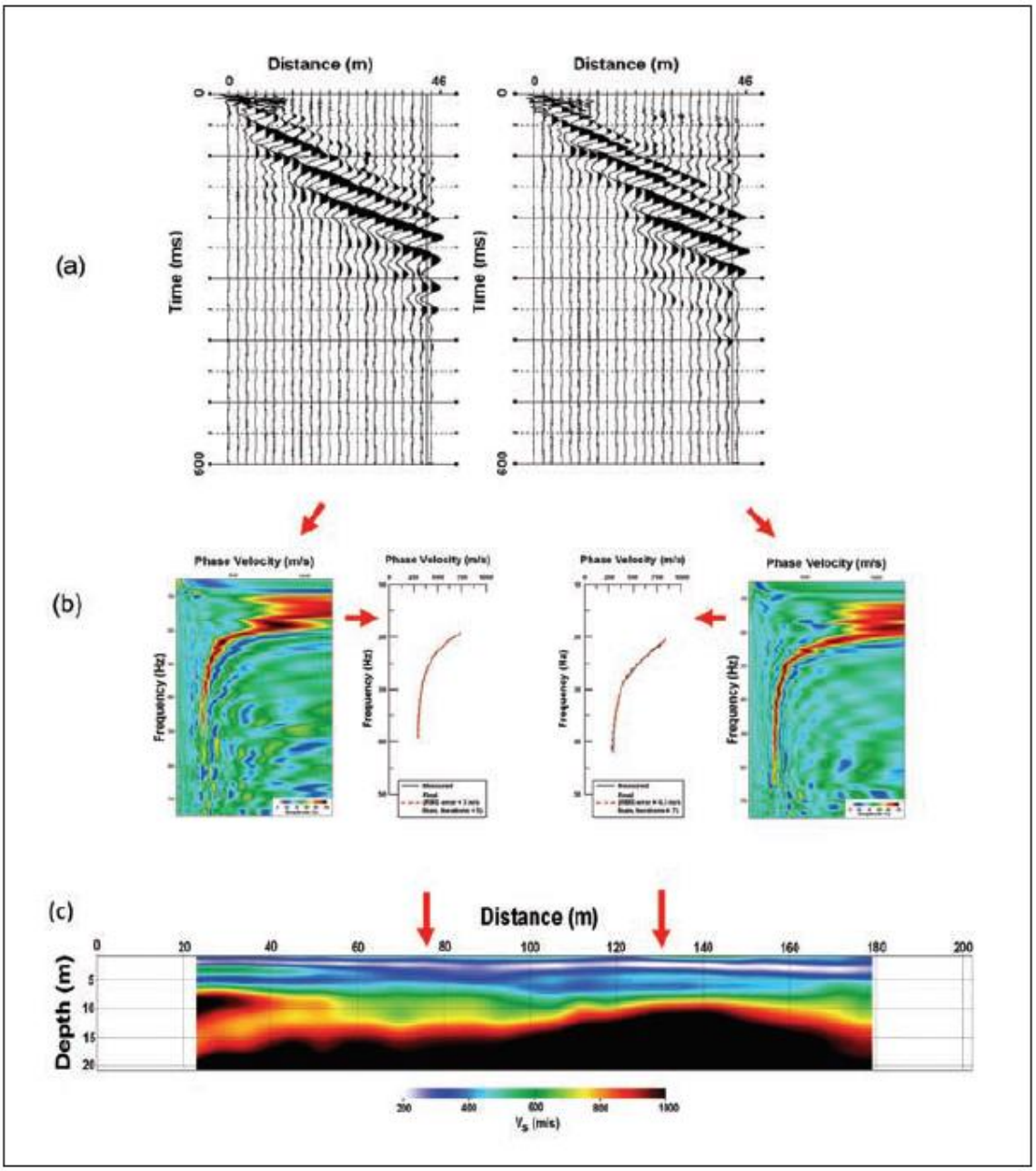


A. An apparent resistivity map
B. A seismic reflection profile
C. GPR data and interpretation
D. A 2D resistivity model

9. In the presented case studies, which geophysical method had the highest spatial (vertical and/or horizontal) resolution? (Use the figure to assess)

A. 2D resistivity
B. GPR
C. Gravity
D. Seismic

10. In Figure2 of the paper, (a) is the original measured data, (b) is the processed data derived from (a), (c) is a velocity model of the subsurface. What is the technique used to convert (b) to (c)?



A. Inversion
B. Signal processing
C. Multichannel analysis
D. Dispersion curve picking

Part 2: Short Answer (10 pts)

- Select **one** of the case studies from the paper
- Discuss the case study amongst yourselves
- Summarize the chosen case history in the 7-step framework in the table below
- Hand this in at the end of the class

Case history
Setup
Properties
Survey
Data
Processing
Interpretation
Synthesis