Name:_____, **Team:**_____

1. When a geophysical survey is carried out, energy that is put into the ground is affected primarily by?
   (a) The mathematical methods of manipulating data.
   (b) A few prisms or layers in the ground.
   (c) The distribution of the materials physical properties.
   (d) Chemical alteration.

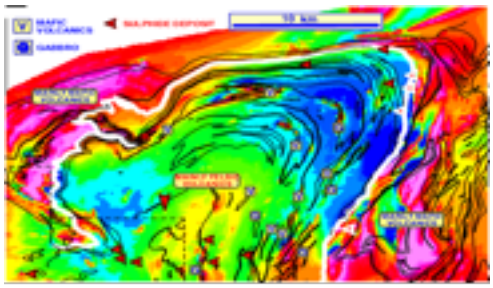
2. Here are 7 useful quantities:
   - density
   - clay content
   - location of rock type
   - hardness
   - grain size distribution
   - electrical conductivity
   - magnetic susceptibility

   How many are physical properties, to which geophysical surveys respond directly? Indicate them with a circle.
   (a) 2
   (b) 3
   (c) 4
   (d) 5

3. When planning to survey a region using geophysics, which of the following is the **MOST** important aspect to consider?
   (a) That you choose a surveying method capable of exploiting the contrast in physical properties between what you are looking for, and the background rock.
   (b) That your line spacing is sufficiently small so you can plot any observable anomalies with sufficient detail.
   (c) That you always remember to take multiple measurements at each position so you can average the readings and get good quality data.
   (d) That you always survey using more than one method. That way, you can make sure you don‘t miss anything.

4. Geophysical methods can be sensitive to:
   (a) Only man-made objects composed of metal
   (b) Any object with a significant contrast of physical properties with the surrounding
   (c) Only large-scale geological structures
   (d) Any slightly change in the materials nature

5. Which of the following options best describes the map of the geophysical data shown below:



Total Magnetic Field Map of Bathurst Mining Camp

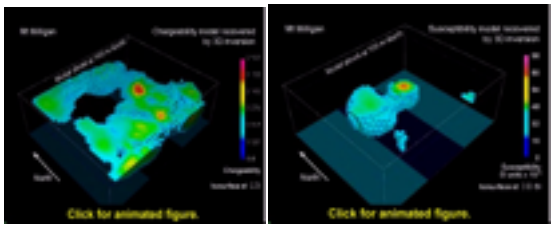
   (a) Mathematical estimation of a physical property distribution.
   (b) A geologically interpretable map of a geophysical response.
   (c) Contour map of a field site
   (d) An image of faults and other structures

6. The geophysical process of "inverting" the data refers to
   (a) Plotting the data in the form of a map
   (b) Using the data to generate a 3D distribution of a physical property.
   (c) Inferring structural contacts from the data values
   (d) Reversing the coordinate dimensions on the axis of the data map.

7. On which platform can a geophysical survey be carried out?
   (a) An airplane
   (b) A satellite
   (c) A boat
   (d) All of them

8. Before the development of inversion techniques, the principle challenge when working with DC electrical measurements was:
   (a) Measurements were not very accurate.
   (b) Signals could not be made to penetrate deep enough.
   (c) Plots of measurements could provide only distorted impressions of physical property distributions.
   (d) Geophysicists did not understand what affected the penetration depth of source currents had.

9. In "Seeing Underground," two 3D models were shown as part of the mineral exploration example. These models are shown below.



The **most** useful contribution to understanding about the ore body came from

(a) Correlating the distribution of both physical properties.

(b) Using the magnetic susceptibility model to estimate the chargeability model.

(c) A chargeability model derived from electrical measurements.

(d) A magnetic susceptibility model derived from magnetic data.

10. Geophysical methods can be classified into two broad categories: Active and passive. Active methods use a source to generate a response in the underground while Passive methods use naturally occurring phenomenon. Using your current knowledge, choose the correct answer:

(a) Magnetics, EM and GPR methods are active methods. Gravity and DC Resistivity are passive methods

(b) Magnetics and DC resistivity are passive methods. Gravity, EM and GPR are active methods

(c) Magnetics and gravity are passive methods. EM, DC resistivity and GPR are active methods

(d) Magnetics and gravity are active methods. EM, DC resistivity and GPR are passive methods

Answers

Q	**A**
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	