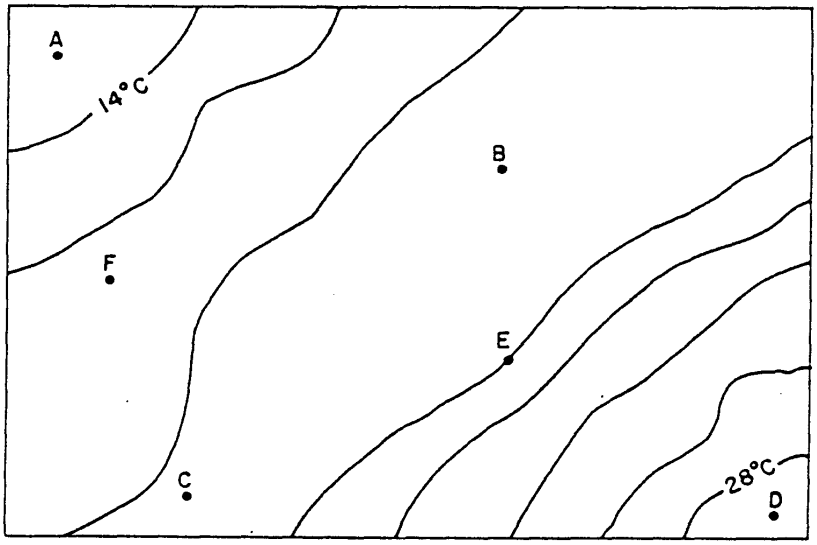
ENERGY IN EARTH PROCESSES REVIEW #1

Base your answers to **questions 1-3** on the isoline map shown below. The map represents various temperatures taken 1 meter above the floor in a closed room. Letters A through F are various locations in the room also located 1 meter above the floor.



1. The approximate temperature at location B is
   (1) 22° C (3) 17°C
   (2) 24° C (4) 19°C

2. A heat source is most likely located at
   (1) E (3) A
   (2) B (4) D

3. By which process do air currents transfer heat energy throughout the room?
   (1) convection (3) radiation
   (2) absorption (4) conduction

4. What is the basic difference between ultraviolet, visible, and infrared radiation?
   (1) half-life (3) wavelength
   (2) temperature (4) wave velocity

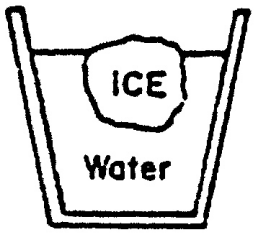
5. At which temperature would an object radiate the greatest amount of electromagnetic energy?
   (1) 0°F (3) 5°C
   (2) 230K (4) 10°F

6. An example of a heat sink is
   (1) an iceberg on a summer day (3) steam from heated ground water
   (2) magma erupting from a volcano (4) an ocean current beginning at the Equator

7. Which energy transformation occurs as a rock falls freely for the top of a vertical cliff?
   (1) The rock's potential energy decreases and its kinetic energy increases
   (2) The rock's potential energy increases and its kinetic energy decreases.
   (3) The rock's potential energy and kinetic energy both decrease.
   (4) The rock's potential and kinetic energy both increase.

8. Which statement best describes the pattern of energy flow in a system?
   (1) Energy flows from cooler temperatures to warmer temperatures.
   (2) Energy flow is cyclical, so that equilibrium is never reached.
   (3) Energy flows from energy sinks to energy sources.
   (4) Energy flows from energy sources to energy sinks.

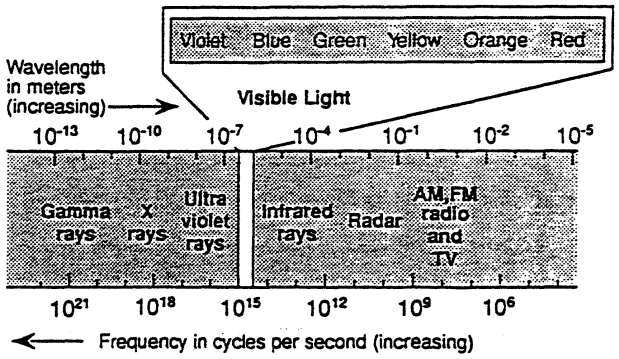
9. The diagram at the right represents a glass of ice water on a warm day. Which statement describes the principal energy flow that is occurring in the glass of ice water?
   1 The glass is releasing energy to the air.
   2 The air is receiving energy from the water.
   3 The ice is releasing energy to the air.
   4 The water is releasing energy to the ice.



10. Heat transfer will normally occur between two objects that are close to each other if the objects have different
   (1) specific heats
   (2) temperatures
   (3) masses
   (4) densities

The diagram below shows the electromagnetic spectrum

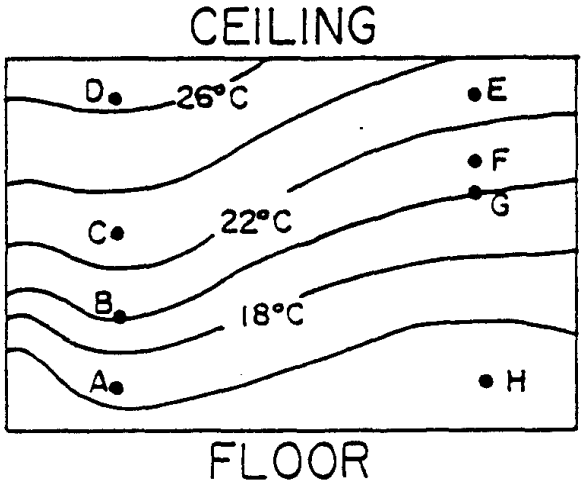
11. Which form of electromagnetic energy shown on the diagram has the lowest frequency and longest wavelength?
   (1) AM radio
   (2) infrared rays
   (3) red light
   (4) gamma rays



12. What is 140°F when converted to Celsius?
   (1) 80°C
   (2) 60°C
   (3) 90°C
   (4) 333°C

13. Electromagnetic energy from the Sun reaches the Earth's outer atmosphere by
   (1) conduction
   (2) convection
   (3) radiation
   (4) gravitation

Directions: Base your answers to **questions 14-20** on your knowledge of Earth science and on the diagram below. The diagram represents a temperature field for a vertical cross section of a room from ceiling to floor with points A -H at different locations within the room.

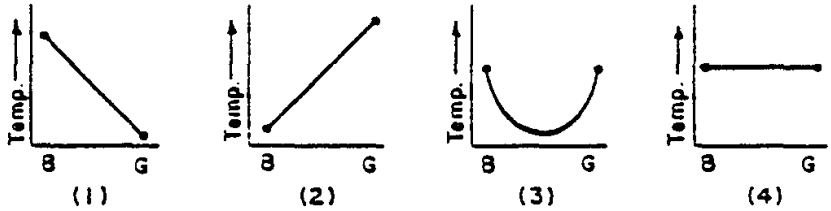


14. What is the temperature at point B?
    (1) 10°C (3) 20°C
    (2) 16° C (4) 28°C

15. Which points would probably have the same temperature?
    (1) A and H (3) C and E
    (2) B and F (4) D and E

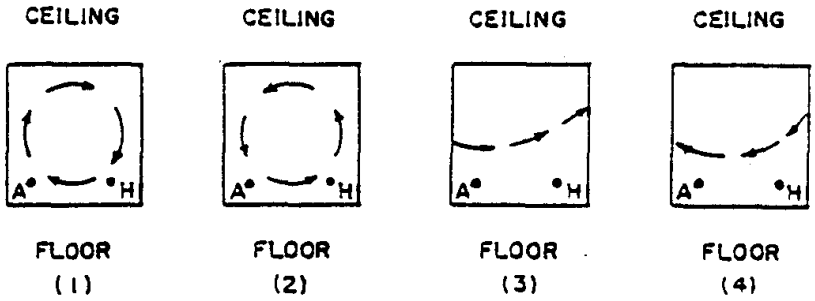
16. At which point would the air have the greatest density?
    (1) A (3) H
    (2) E (4) D

17. Which graph best represents the temperature change along the isotherm from point B to G?



18. Based on the temperatures shown, heat will flow from
    (1) point D to point E (3) point B to point G
    (2) point H to point G (4) point B to point C

19. If a heat source is located at point A, which diagram best represents the probable direction of air movement in this room?



20. The circulation of air because of density differences is known as
    (1) conduction (3) absorption
    (2) convection (4) radiation