Weather, Climate, and Global Climate Change

The Unit-IV Exam will have questions referring to each of the following topics as discussed in class, examined in lab, and found in the reading:

1. Geologic time scale
2. Greenhouse effect vs. global warming
3. Positive feedback loop (reinforcing) vs. negative feedback loop (counterbalancing)
4. Natural carbon emissions vs anthropogenic (human-generated) carbon emissions
5. Conservation of matter vs conservation of energy (1^{st} law of thermodynamics)
6. 2^{nd} law of thermodynamics—entropy
7. Types of energy: Radiant, chemical, mechanical, kinetic, potential, electrical, nuclear
8. Carbon cycle: Photosynthesis and respiration; carbon sinks and combustion
9. Water (hydrologic) cycle
10. Specific heat and climate (lab)
11. CO_2 Emissions from fossil-fuel burning (lab)
12. Atmosphere layers and gas percentages
13. Greenhouse gases (names and formulas)
14. Coriolis effect and global wind patterns (names and latitudes)
15. High- and low-pressure weather systems
16. Global climate change (lab)
17. Thermohaline circulation (global ocean currents)
18. ENSO-normal, El Niño, and La Niña weather patterns
19. Earth's orbital cycles and seasons
20. Consequences and response to climate change