

**M.Sc. DEGREE I SEMESTER EXAMINATION IN ENVIRONMENTAL TECHNOLOGY,  
NOVEMBER 2007**

**ENV/ENB 2103 PHYSICAL PROCESS IN THE ENVIRONMENT**

Time: 3 Hours

Maximum marks : 50

**PART – A**

**(25 Marks)****I. Fill in the Blanks:****(5×½ = 2½)**

1. During an El Nino surface air pressure tends to be \_\_\_\_\_ than normal in the western
2. The \_\_\_\_\_ is the outermost layer of Earth's atmosphere.
3. The \_\_\_\_\_ the ocean wave the \_\_\_\_\_ it travels.
4. If the relative humidity is \_\_\_\_\_, the capacity for air to hold water is \_\_\_\_\_ . Therefore, the amount of evaporation is \_\_\_\_\_ and the heat removed from the body is \_\_\_\_\_.
5. At 0° latitude, 30° latitude, and 60° latitude, the surface air pressure tends to be \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ respectively.

**II. State the following is TRUE or FLASE****(5×½ = 2½)**

1. The vertical motions of rip currents pull people under the water.
2. At night, temperatures will normally be higher under cloudy skies than under clear skies.
3. The tropopause is highest at the north and south poles.
4. Moist air weighs less than dry air.
5. Sea water freezes at 28.5°F (-2°C)

**III. Define the following****(5×1 = 5)**

1. Geological Time scale
2. Ebb Tide
3. Coriolis Force
4. Inversion
5. Albedo

**IV. Distinguish between the following****(4×½ = 6)**

1. Upwelling and sinking
2. Eulerian and Lagrangian flow
3. Isothermal and adiabatic processes
4. Geostrophic and gradient wind

**V. Write short notes on any ONE of the following.****(1×3 = 3)**

1. Vertical structure of the oceans
2. Meteorological factors effecting Air Pollution

**VI. Write an essay on any ONE of the following.****(1×6 = 6)**

1. Hydrological processes and the water budget of lakes and rivers
2. Indian monsoon
3. Heat budget of the earth – atmosphere system

*(Turn over)*

**PART – B****(25 Marks)**

**Answer all the questions**  
**All questions carry equal marks**

VII. Choose the most appropriate answer from the following (10×½ = 5)

1. The top three gases in the atmosphere are
  - a. Nitrogen, Oxygen, and Carbon Dioxide
  - b. Nitrogen, Argon, and Oxygen
  - c. Oxygen, Neon, and Argon
  - d. Helium, Nitrogen, Carbon Dioxide
2. Heat travels through empty space by:
  - a. Evaporation
  - b. Conduction
  - c. Convection
  - d. Radiation
3. A sunburn is caused by which method of heat transfer:
  - a. Radiation
  - b. Convection
  - c. Conduction
4. During an equinox, the Sun is directly over what part of the Earth at noon?
  - a. Southern Hemisphere
  - b. Tropic of Capricorn
  - c. Equator
  - d. Tropic of Cancer
5. The hydrologic cycle is:
  - a. Evaporation, condensation, precipitation
  - b. Convection, conduction, condensation
  - c. Rain, sunshine, condensation
6. The brief cloud that forms when you exhale on a cold winter day was formed because of:
  - a. Evaporation
  - b. Condensation
  - c. Precipitation
7. The Inter-Tropical Convergence Zone exists because of the convergence of the:
  - a. fronts
  - b. trade winds
  - c. downslope winds
  - d. hurricane winds

*(Contd.....3)*

8. Strong tropical cyclones in the western North Pacific Ocean are called:
- hurricanes
  - tropical storms
  - cyclones
  - typhoons
9. The visible portion the electromagnetic spectrum includes what colors?
- red, white, and blue
  - red, yellow, green, blue
  - infrared, ultraviolet, blue
  - green, purple, maroon, infrared
10. On average the \_\_\_\_\_ is the saltiest body of water on the earth.
- Great Salt Lake
  - Black Sea
  - Dead Sea
  - Saltine Sea

VIII. Write notes on any FOUR of the following

(4×2½ = 10)

- Atmospheric stability
- Kepler's laws of planetary motion
- Natural disasters
- Geological formations in India
- Aquifers
- Warm and cold cloud seeding
- Exploitation of ground water

IX. Elaborate upon any TWO of the following

(2×5 = 10)

- Air pollution Modeling
- Southwest and Northeast monsoons
- Atmospheric Boundary layer
- Water conservation and budgeting

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