SES 204: Introduction to Atmospheric Processes
MAIN EXAMINATION

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School of Tourism & Natural Resource Management
Department of Environment, Forestry & Agriculture

SECTION A: Answer all questions

1. Using a schematic diagram, explain how cyclones and Anticyclones influence weather patterns (10 mks)

2. Differentiate between **cyclolysis** and **cyclogenesis** (5mks)

3. Explain why

    a) Aircraft landings on summer afternoons tend to be bumpier than nighttime landings, especially on clear days. (5mks)

    b) Explain why Airline passengers flying at high latitudes are exposed to higher ozone concentrations than those flying in the tropics (5mks)

SECTION B: Answer any three questions

4. Discuss the sources of Ozone, water vapour, carbon dioxide and methane, and their contribution to atmospheric processes (15mks)

5. Explain how the following phenomenon influence weather patterns over East Africa
    a) El Niño Southern Oscillation (ENSO)
    b) Indian Ocean Zonal Mode (IOZM)
    c) Madden Julien Oscillation (MJO)

    (15mks)

6. During a summer day at Narok, the following observations were reported: Surface temperature is 30°C, dew point temperature is 20°C, and surface pressure is 990mb. Calculate the following:
    a) The mixing ratio
    b) The saturation mixing ratio
    c) Potential temperature
    d) Equivalent potential temperature
    e) Lifting condensation level

    (15mks)

7. (a) What is a feedback mechanism? (2mks)
   (b) How does a positive feedback mechanism differ from a negative feedback mechanism? (3mks)
   (c) Using Energy balance equation explain how the feedback between vegetation and the atmosphere affects weather patterns (10mks)