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**NATIONAL OPEN UNIVERSITY OF NIGERIA**

**PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA**

**FACULTY OF SCIENCES**

**DEPARTMENT OF PURE AND APPLIED SCIENCE**

**2019\_1 SEMESTER EXAMINATION**

**COURSE CODE: PHY 457**

**COURSE TITLE: ENVIRONMENTAL PHYSICS**

**CREDIT UNIT 3**

**TIME ALLOWED (2½ HRS)**

**INSTRUCTION: *Answer question 1 and any other four questions***

**QUESTION 1**

**1a** Define environmental physics **2 marks**

**b** Discuss the following and their effects on the environment

**i** Air pollution **3 marks**

**ii** Thermal Pollution **3 marks**

**iii** Fossil Fuel steam plant **3 marks**

**c** All synchronous satellites are put into orbit whose radius r = 4.23 x 107m the orbit

is in the plane of the equator. The arc length s that separate two adjacent synchronous

satellites is 7.4 X105 m. Find the angular separation of the satellites in degrees. **6 marks**

**d** Explain the concepts of processing of remote sensing data **5 marks**

**QUESTION 2**

Discuss the following briefly as related with global weather and climatic patterns

**a.** weathering and landform **4 marks**

**b.** human activity and the environment **4 marks**

**c.** greenhouse effect **4 marks**

**QUESTION 3**

**11.** Discuss the following energy resources

**a** Hydroelectric Power Plant **4 marks**

**b** Wind Power Plants **4 marks**

**c** Solar Energy **4 marks**

**QUESTION 4**

**a** Differentiate between the ozone layer depletion and global warming **4.5 marks**

**b** Discuss the different areas where environmental modeling can be applicable **3 marks**

**c** Discuss briefly the three software use in environmental modeling. **4.5marks**

**QUESTION 5**

**a** Explain the concept of the Two-Body problem in details 6 **marks**

**b** Explain the concept of the many-body problem in details **6 marks**

**QUESTION 6**

**a** Explain energy cycle **6 marks**

**b** Describe the two mechanisms by which wind is produced **6 marks**