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FACULTY OF BASIC AND APPLIED SCIENCES
DEPARTMENT OF PHYSICAL AND CHEMICAL SCIENCES
B.SC DEGREE EXAMINATIONS SECOND SEMESTER 2017/2018 ACADEMIC SESSION

COURSE CODE: PHY 410

COURSE TITLE: ENERGY AND THE ENVIRONMENT

DURATION: 2 HOURS

INSTRUCTION: *Attempt any 4 of the 5 questions*

HOD'S SIGNATURE

1. (a) Explain Photovoltaic electricity (PV). State its advantages and disadvantages
(b) The energy input into a 40-watt light bulb is 40 watts. The output is 950 lumens. Determine the efficiency of the light bulb. (Note: One lumen is equivalent to 0.001496 Watts.)
2. (a) Explain renewable sources of energy with relevant examples. State five advantages and disadvantages for a society to switch from non-renewable to renewable source of energy.
(b) In 2000, Nigeria had consumed 18.11×10^9 Joules of oil and the growth rate was 5% per year. Calculate the consumption (barrel) at a time 80 years later and determine the number of years for doubling the original value of the oil (1 barrel of oil equivalent = 6.11×10^9 Joules)
3. (a) What are fossil fuels? Give examples.
(b) Explain the production of coal and state the problems associated with production in Nigeria.
4. Discuss the following sources of energy with respect to their advantages and disadvantages:
(i) Coal (ii) Nuclear (iii) Hydroelectric (iv) Wind (v) Biomass
5. (a) Explain the following (i) Global Warming (ii) Permian-Triassic thermal maximum
(b) Explain energy predicament, energy policy and energy transition. State different factors that would make a transformational energy policy difficult in Nigeria.