## JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
### Mahindra École Centrale
### End-semester Regular Examination
### (R16 REGULATION)

**Program: B. Tech.    Branch: ME    Year: III    Semester: II**
**Subject: Earth and Environmental Sciences (ES303)**

Date: 13-05-2019                                          Start Time: 10:00 AM
Time Duration: 3 Hours                                    Max. Marks: 100

*Instructions:*
*1) All the parts of a question should be answered consecutively.*
*2) Part-1 has to be answered at same place and consecutively.*
*3) Neat and labelled diagrams must be drawn wherever necessary.*

## PART-1
**Q.1. All the questions are mandatory and carry equal marks**          **(10 x 1 = 10 Marks)**

i.    _____ is non-renewable form of energy.

    a) Biomass              b) Petroleum           c) Tidal energy

ii.   Forest canopy acts as a sink for $CO_2$, reducing the problem of _____ caused by green house gas.

    a) Global warming       b) Droughts            c) Air pollution

iii.  _____ is a energy generating mineral.

    a) Lead        b) Coal            c) Nickel

iv.   The energy harnessed from the earth's interiors is called _____ energy

    a) Hidden      b) Deep            c) Geothermal

v.    _____ refers to the variety and variability among all groups of living organisms.

    a) Diversity   b) Variability     c) Biodiversity

[P.T.O]

vi. The point on a fault at which the first movement occurs during an earthquake is called the
_____.
a) Centre      b) Hypocenter      c) Epicenter.

vii. _____ is a technique of increasing the recharge of groundwater by capturing and storing of rainwater.
a) Water spreading     b) Water shedding      c) Rainwater harvesting

viii. A highly permeable layer of sediment or rock containing water is called _____
a) Saturated rock      b)porous rock      c) aquifer

ix. _____ is the cleanest fossil fuel.
a) Natural oil      b) Natural gas      c) Coal

x. The _____ dispute between Tamil nadu and Karnataka is almost hundred years old.
a) Cauvery water      b) Indus water      c) Pennar water

## PART-2
**Q.2. Attempt any *five* and draw the diagram if necessary.**          (5 x 6 = 30 Marks)
i. Explain Greenhouse effect and its relation with Global warming.
ii. Explain in detail about the reasons behind Acid Rain.
iii. What is the difference between resettlement and rehabilitation? Why are they important?
iv. What do you mean by anthropocentric and ecocentric? Which one do you belive is right and why?
v. Classify earth layers and also give their approximate thicknesses with the help of a neat sketch.
vi. How is air pollution harmful to society and environment in general? Describe in details the sources and affects of air pollution?

## PART-3
**Q.3. Answer any *five* of the following:**          (5 x 8 = 40 Marks)
i. Name and explain the various steps involved in nitrogen cycle.
ii. Hydrologic cycle has many components. Describe each component and explain their significance. Explain different branches and applications of hydrology.
iii. Sketch three different types of faults and show the direction of movement with the help of arrows.
iv. Explain different atmosphere layers and give example usage for each layer.

[P.T.O]

v.   Explain nebular hypothesis with the help of diagram.
vi.  Explain the term sustainability. And in brief explain three pillars of sustainability.

**PART-4**
**Q.4. Answer any *two* of the following:**                                    **(2 x 10 = 20 Marks)**
i.   Explain the main reasons for increasing demand of natural resources in the context of human population.
ii.  Write short notes on
     a) Greenhouse effect
     b) Global warming
     c) Acid rain
     d) Ecological Resilience
     e) Nutrient cycling.
iii. Why do you think biodiversity is important in the context of ecological balance? Explain in details. Define ecosystem productivity and discuss all the factors that determine ecosystem productivity.

-------------------------------------------- *All the best* ------------------------------------------------------