COMPUTER HOLIDAY HOMEWORK

Technology is fundamentally changing the way we live, work, relate to one another and to the external world. The speed, breadth and depth of current breakthroughs has no historical precedent and is disrupting almost every sector in every country. Now more than ever, the advent of new technology has the potential to transform environmental protection. The hunt for new smarter ways to support our development has always been a key driver of technological advancement. Today as our civilisation faces a new unprecedented challenge, technology can play a crucial role in decoupling development and environmental degradation. As global biodiversity continues to decline steeply, the health and functioning of crucial ecosystems like forests, the ocean, rivers and wetlands will be affected. Coupled with climate change impacts which are evident in warnings from scientists and the increasing frequency and intensity of extreme weather events worldwide; this is going to be disastrous for the ecological balance of the planet and for our survival. Earth Overshoot Day is a stark reminder of the urgent actions individuals, countries and the global community must take to protect forests, oceans, wildlife and freshwater resources and help achieve resilience and sustainable development for all.

ICT innovation to make this world more eco-sustainable can be targeted at two different but very specific directions.
1. Improving current ICT technology by reducing dependency on non-sustainable material and promoting use of eco-friendly material while improving the quality of products and providing users with better services.
2. Innovating ICT technology to help identify, measure, track and value the many services and resources nature provides us with.

For us to make progress towards development of an eco-friendly world and technology, it is important innovation in both directions are made swiftly and simultaneously. Together, these directions lead us to the same destination – a better and sustainable future. Companies and individuals must step forward as making a difference at a global level requires a

community, co-operation, action and determination. However, we must also take into account the fact that with every day, every month, every year we are losing valuable time thus, we must take rapid and relevant steps. Going further into topic, it's time to focus on the solutions which we know exist or have the potential to be developed and this is where technology, along with behavioural change, can help us reboot the health of our nature and planet.

GREEN COMPUTING

"Going Green" is a rising trend establishing itself as the preferred way of doing things while saving the environment. This now appears in a large number of aspects in our lives, such as recycling, energy-efficient devices, clean energy sources, eco-friendly vehicles, green buildings. Green computing is the environmentally responsible and eco-friendly use of computers and their resources. Over years it has quickly emerged as the most effective means of utilising technology.

In basic terms, Green Computing involves reducing the **environmental impact of technology**. That means using less energy, reducing waste and promoting sustainability. Green computing aims to reduce the carbon footprint generated by the Information Technology and Systems business and related industries. Energy-efficiency and e-waste are two major techniques involved in green computing. **Energy efficiency** involves implementation of energy-efficient central processing units (CPUs), servers and peripherals as well as reduced resource consumption. **E-waste** is the proper disposal of electronic waste.

It is further divided into three broad categories based on the part they play in making an ICT product.

1. **Green Designing** – Designing and visualizing a product.
2. **Green IT** – Making an eco-sustainable user-environment involving both hardware and software.
3. **Green Manufacturing** – Manufacturing product in as eco-sustainable way as possible and ensure decline in pollution caused by it.
4. **Green Energy** – Ensuring that entire energy setup is eco-friendly for both the individual product and the manufacturing infrastructure.
5. **Green Disposal** – Last but not the least, disposal of product. This includes an eco-friendly permanent disposal or a recycle/reuse alternative.

A perfect example of such product is the **Iameco Computer** made by the Irish company, **MicroPro**. It was first thought and patented by **Fraunhofer Institute for Reliability and Micro-integration (IZM)** in **Berlin**. Although, manufacturing rights were then given to MicroPro in a contract. Iameco is actually a combination of words – '**I am eco**'. Iameco computer is a **touchscreen PC** housed in a **wooden case** and is low on energy consumption. Manufacturers claim that the computer requires **70% less power** than traditional computer. The product concept prioritises recycling; around **98% of the computer is recyclable** as several standard components have been built in, making it easier to repair. To make it energy efficient **eco-friendly LEDs** have been used along with a special **energy-efficient cooler**. Iameco also has a range of eco-sustainable laptops, keyboards and other accessories.

Another such example, not of a product rather an entire start-up, is **Nimble**. When amount of e-waste was rising, Nimble came up with **eco-friendly plastics**, materials **recycled from plastic bottles**, etc. to replace it. Although, fairly small company, Nimble makes various **accessories for mobiles phones** now that they have become a basic necessity. The company uses **eco-friendly material** to make things like **power banks**, braided cables, smartphone covers, **CDs and DVDs**. They products are very much **100% recyclable** and have **better specs** than similar products of fairly established companies. It also guides its users how to recycle its products once they are done using them.

GREEN INNOVATION

From the high seas to the depths of the world's most dense forests, technology can transform how we identify, measure, track and value the many services and resources nature provides us with. Green Innovation is in basic terms a fancy word used to describe innovation which is done to specifically help environmentalists and green missions. These innovations include likes of thermal drones, tracking devices, forest cameras, etc.

1. **Blockchain to revolutionize the commodity markets:** WWF in Australia, Fiji and New Zealand joined forces to stamp out illegal fishing and slave labour in the tuna fishing industry using blockchain technology. "From bait to plate", the advances in blockchain technology can help consumers track the entire journey of their tuna –

and potentially other agricultural commodities and fish – revolutionizing systems of certification and traceability.

2. **Remote sensing in planning and monitoring:** On land as well, remote sensing plays an important role in planning, monitoring, and evaluating impact on the ground. It has enabled WWF to monitor the developments of extractive industries in socially and ecologically-sensitive areas, including World Heritage sites. We're also partnering with NASA's Jet Propulsion Lab (JPL) and UCLA to develop an algorithm that enables the detection of deforestation from palm oil expansion using remote sensing data, and we're exploring the potential to expand this technology to other commodities.

3. **Drones to help monitor forest health and detect illegal logging:** Protecting the world's forests means ensuring land is protected or restored as well as healthy, providing people and wildlife what they need to survive, like clean air and water, food and jobs. And that's where drones come in to play, acting as our eyes on the forest. WRI (World Research Institute) has developed Global Forest Watch (GFW), an online forest monitoring and alert system that uses crowdsourcing, to allow anyone to create custom maps, analyse forest trends, subscribe to alerts, or download data for their local area or the entire world.

4. **Thermal imaging to combat poaching:** Every night, park rangers patrol the pitch-black savanna of Kenya's Maasai Mara National Reserve. They search for armed poachers who spill across the border from Tanzania to hunt for bush meat and ivory. For years the number of poachers overwhelmed the relatively small cadre of rangers. Technology is now helping to turn the tide. Thermal imaging video cameras enable rangers to catch poachers at record rates and deter many more from even making the attempt. Beyond direct interventions to stop poaching, WWF also uses technology to go after wildlife traffickers. To that end, we're working with a coalition of leading e-commerce and social media giants in the US and China to root out the sale of illicit wildlife products on their platforms.

5. **AI to track wildlife:** It is hard to think of technology and nature together but even advances like Artificial Intelligence (AI) that could not be further removed from the natural world are helping conservation efforts. In China, WWF and tech giant, Intel, are harnessing the power of AI to help protect wild tigers and their habitats, while also protecting countless other species as a result while helping carbon storage, vital watersheds and communities in the area.

The possibilities for technology partnerships to reboot nature are endless. Our challenge now is to scale this work beyond a few test sites and into all of the places we are working to protect the planet. More than technology, we need a fundamental shift in mindset and understanding of the role that nature and biodiversity plans in our lives and businesses.

If we continue to produce, consume and power our lives the way we do right now, forests, oceans and weather systems will be overwhelmed and collapse. Unsustainable agriculture, fisheries, infrastructure projects, mining and energy are leading to unprecedented biodiversity loss and habitat degradation, over-exploitation, pollution and climate change.

While their impacts are increasingly evident in the natural world, the consequences on people are real too. From food and water scarcity to the quality of the air we breathe, the evidence has never been clearer. We are however, in many instances, failing to make the link. Alongside the technological revolution, what we need is an equally unprecedented cultural revolution in the way we connect with the planet.