Worksheet – Virtualization

Vocabulary

1. Discuss the defining characteristics of each of the following:

ecosystem	*A set of tools, libraries, and applications designed for a particular purpose or platform*
workflow	*A sequence of tasks or processes carried out by individuals, groups, or organizations to complete an objective.*
virtualization	*creating a virtual version of something such as a computer system, storage device, or network resource.*
thin client	*a computer that uses resources (processing power, storage) on a remote server rather than local resources.*
snapshot ***(vs backup)***	***Pearson definition**: while a backup focuses on data, a snapshot makes a copy of the entire system state, including software and settings.* ***Alternative definition**: "backup" suggests long-term storage in a separate device and/or location while a "snapshot" may be a locally stored copy intended for quick recovery of misconfiguration or corruption.*
portability	*the ease with which computing services can be transferred between systems and providers.*
encapsulate	*to group or bundle together related data and or functions.*

2. Answer the questions.

a) Describe three types of virtualization.

i) **desktop**: run multiple operating systems on a single desktop, for example, running a Microsoft Windows environment on a Mac computer.

ii) **storage**: pool multiple physical storage devices into a single virtual pool, simplifying storage management.

iii) **network**: enables virtual networks that are isolated, even though they may share the same underlying physical network.

b) What is the difference between a type 1 and type 2 hypervisor.

A type 1 hypervisor runs directly on the physical hardware without an underlying operating system, whereas a type 2 hypervisor runs as a software application on top of an existing host OS.

c) What is the difference between containerization and a virtual machine?

Both are virtualization of a computer system. A virtual machine simulates the computer hardware, allowing installation of a full operating system. From the perspective of the operating system, it is operating directly on hardware and has no knowledge of the software layer (the hypervisor) in between. Meanwhile, containerization simulates an operating system. From the perspective of the application software, it has its own isolated operating system.

Also, review the table *COMPARISON OF CONTAINERISATION AND VIRTUAL MACHINES* in Pearson's IT Student Book 2 page 34.