1.2 Computers, networks and the internet

Name: _____ Class: _____ Date: _____ **Total: 30 marks**

KEY WORDS computer • network • internet • packet • cloud computing • digital divide • privacy

Objective

Study the content areas **computers** and **networks and the internet**: how they work in outline, who controls them, and their impacts on access, **privacy** and the **digital divide**.

You must be able to:

- describe the parts of a computer system and the role of cloud computing
- explain how data travels across the internet in packets
- explain who controls key parts of the internet
- explain the digital divide with data
- evaluate the impacts of always-on connection

1 Key knowledge and worked examples

Computers

A computer takes **input**, **processes** it (CPU), **stores** it (memory and storage) and gives **output**. **Cloud computing** means using computers in large data centres over the internet, e.g. online storage. Benefits: access anywhere, less local hardware. Concerns: dependence on a few companies, energy use, who can see the data.

Networks and the internet

The **internet** is a network of networks. Data is split into **packets**, each with the address of its destination; routers send each packet along the best path, and the packets are put back together at the end. The **World Wide Web** is one service that runs on the internet (web pages); email and video calls are others.

Control: companies own the cables, data centres and platforms; governments regulate, filter or shut down access; bodies such as ICANN manage domain names.

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The digital divide

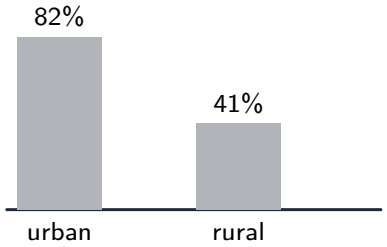
The **digital divide** is the gap between people who have useful access to digital technology and those who do not, by income, place, age, gender or skills. The ITU estimated that about 67 % of the world's people used the internet in 2023, which left about 2.6 billion people offline.

Worked example. If the world population is about 8.0 billion and 67 % are online, then offline $= 8.0 \times (1 - 0.67) \approx 2.6$ billion. Concept: **power**: people offline miss jobs, education and public services that move online.

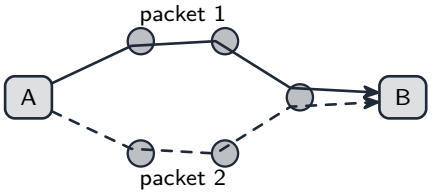
2 Practice

2.1 Distinguish the **internet** from the **World Wide Web**. [2]

2.2 In a country of 50 million people, 82 % of urban residents and 41 % of rural residents use the internet. 60 % of the people live in cities. Calculate the number of people offline, and explain **one** cause of the gap. [3]



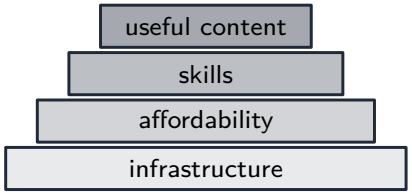
2.3 Explain how a message is sent across the internet in **packets**, and **one** advantage of this method. [4]



2.4 Evaluate the use of **cloud computing** by a school to store students' work and records. [6]

3 Exam-style questions

3.1 *(Paper 1 style.)* "Reducing the digital divide is mainly a question of building infrastructure." Discuss with reference to **one** real-world example. [15]



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