

Most of these come from marking our own students' papers, so they are the mistakes made in this classroom. Number conversions cost more marks than any other single thing.

1 · Data representation

✗ Converting 101 to binary as 1000101 or 0001101.

✓ $101 = 64 + 32 + 4 + 1$, **so 1100101.**

Marked wrong four separate times in our classes. Write the place values 128 64 32 16 8 4 2 1 above the digits before you start.

class

✗ Reading 00010011 as 18, missing the final 1.

✓ $16 + 2 + 1 = 19$. **Check the 2^0 column last, every time.**

The same slip appears in three separate class scripts – the rightmost bit is the one that gets dropped.

class

✗ Reading 00100010 as 32.

✓ $32 + 2 = 34$: **bits are set at positions 5 and 1.**

Marked in class. Count the columns from the right, starting at zero.

class

✗ Converting hex E as 1101.

✓ **Hex E is 14, which is 1110.**

Marked in class: 1101 is D, so E3 became D3 and every bit after it was wrong.

E 14, 1110

class

✗ Converting binary 10000010 to hex as 52 or A2.

✓ **Split into nibbles: $1000 = 8$, $0010 = 2$, so 82.**

Marked wrong three times in class. Splitting into fours first makes it mechanical.

class

✗ Giving the denary value when the question asked for the binary stored in a register.

✓ **Read which base the answer must be in, then convert once.**

A class script converted E3 to 225 correctly and answered the wrong question.

class

✗ Saying computers use binary because it makes addition faster.

✓ **Because electronic components have two stable states – on and off, high and low voltage.**

Marked in class: the reason is hardware reliability, not arithmetic speed.

class

✗ Defining colour depth as ‘the colour’s number’.

✓ **The number of BITS used to represent the colour of each pixel.**

Marked in class. Resolution is a different quantity – pixels per unit length, or the total pixel count.

class

✗ Defining resolution vaguely as ‘how clear the image is’.

✓ **The number of pixels per unit length, or the total number of pixels.**

Marked in class as too vague to credit.

class

2 · Data transmission

✗ Calling a one-way voice link duplex because two people are talking.

✓ **Data from a microphone to a speaker travels one way only: simplex.**

Marked in class. Decide which way the DATA goes, not how many people are involved.

class

✗ Saying SSL secures data ‘by using HTTPS’.

✓ **SSL ENCRYPTS the data while it is being transmitted.**

Marked in class: HTTPS is the protocol that uses SSL, so this restates the question.

SSL

class

✗ Naming IPv4 as a type of encryption.

✓ **Asymmetric, or public-key, encryption.**

Marked in class – IPv4 is an addressing protocol.

IPv4

class

✗ Describing IPv6 only as ‘a very big space’.

✓ **128-bit addresses, written as eight groups of four hex digits separated by colons.**

Marked in class: the address space point was accepted, the format points were not valid.

IPv6 128 ,

class

3 · Hardware

✗ Describing an embedded system by what the device does.

✓ **A computer system with a MICROPROCESSOR dedicated to one specific task inside a larger device.**

Marked wrong four separate times in class – every answer described the air conditioning or the remote control instead of the system.

class

✗ Saying RAM stores data permanently.

✓ **RAM is VOLATILE: it holds the data and instructions in use, and loses them when the power goes.**

Marked in class. Volatility is the property the question is testing.

RAM

class

4 · Software

✗ Saying an interpreter makes a program run more smoothly.

✓ **It runs the code line by line, which makes errors easier to find DURING DEVELOPMENT. Compiled code usually runs faster.**

Marked in class – the benefit is for the developer, not for the finished program.

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class

✗ Saying a high-level language is difficult to learn.

✓ **High-level languages are designed to be EASIER to read and write; the drawback is that the code must be translated.**

Marked in class: the candidate had written a correct point and crossed it out.

class

5 · The internet and its uses

✗ Naming cookies as the feature that lets you return to a site quickly.

✓ **Bookmarks or favourites, and browser history.**

Marked in class – cookies store small data fragments, they are not a navigation feature.

class

✗ Listing ‘search’ as a function of a browser.

✓ **Rendering HTML, managing bookmarks, storing history, running JavaScript.**

Marked in class: search is what a search ENGINE does.

class

✗ Calling phishing a type of malware.

✓ **Phishing is a SOCIAL ENGINEERING attack. Malware means viruses, worms, trojans, spyware, ransomware.**

Marked in class in a question asking for three types of malware.

class

✗ Answering ‘how to identify a phishing email’ with the names of attack types.

✓ **Give the signs: a suspicious sender address, an unexpected link, urgent wording, spelling errors.**

Marked in class – brute force and social engineering are attacks, not warning signs.

class

9 · Databases

- ✗ Choosing a field with repeated values as the primary key.
- ✓ **A primary key must be UNIQUE for every record.**

Marked in class: a Yes/No field can never be a primary key.

class

7 · Algorithm design and problem-solving

- ✗ Writing an algorithm in Python or in ordinary English when the question says pseudocode.
- ✓ **Use the syllabus pseudocode: ‘FOR’, ‘NEXT’, ‘IF ... THEN ... ENDIF’, ‘←’ for assignment.**

Examiners state that candidates who answered in pseudocode as instructed achieved the best marks.

ER 3 sessions P2

- ✗ Using the wrong flowchart box – a rectangle for a decision.
- ✓ **Rectangle for a process, diamond for a decision, parallelogram for input or output.**

Examiners state that candidates aware of the meaning of each box were more successful on the flowchart question.

ER 2 sessions P2

- ✗ Declaring a variable with the data type ‘text’.
- ✓ **The syllabus types are ‘INTEGER’, ‘REAL’, ‘CHAR’, ‘STRING’ and ‘BOOLEAN’.**

Examiners record ‘text’ used as a data type where the rest of the declaration was correct.

ER 2 sessions P2

8 · Programming

- ✗ Describing variables as different because one is ‘big’ and one is ‘small’.
- ✓ **Compare their SCOPE: a local variable is usable only inside its subroutine, a global one anywhere in the program.**

Marked in class – ‘private and public’ earned the scope mark, ‘big and small’ did not.

class

- ✗ Giving a benefit the question already stated.
- ✓ **Give a different one: ‘makes files smaller’ is the same as ‘saves storage’, but ‘transmits faster’ is new.**

Marked in class in a compression question – a restated benefit earns nothing.

class

- ✗ Renaming the arrays and variables the scenario gave you.
- ✓ **Use the identifiers exactly as printed, including the capitals.**

Mark schemes state the names shown underlined must be used as given in the scenario.

MS

✗ Validating an input by asking for it twice and accepting either.

✓ **Ask twice and accept ONLY if the two are identical – that is a double-entry check.**

Set out in the mark scheme as two separate marks: entering twice, and requiring the values to match.

MS

Across every paper

✗ Answering in everyday words where the syllabus has a term.

✓ **Use the technical vocabulary, and use the key terms the question itself gives you.**

Examiners state candidates need to show greater use of technical terminology and to structure answers around the question's key terms.

ER 2 sessions P1

✗ Giving the same detail for an EXPLAIN question as for a DESCRIBE one.

✓ **EXPLAIN needs more: the reason, not just the account.**

Examiners state that candidates who matched their answer to the command word achieved better marks.

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ER 2 sessions P1

✗ Continuing an answer on an extra page without saying which question it belongs to.

✓ **Write the question number clearly at the top of the continuation.**

Examiners remind candidates of this in two separate reports; unlabelled work may not be matched to its question.

ER 2 sessions P2

■ Answer in the context the question gives – the shop, the sensor, the game. Examiners state that candidates who answered in the given context achieved better marks.

ER 2 sessions P1