

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. 下列多数来自本班试卷的批改记录。进制转换是失分最多的部分。

1 · Data representation 数据表示

✗ 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.

先写出位值再转换

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.

别漏掉最低位

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.

从右往左数位置

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.

十六进制 E 是 14, 即 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.

先按四位一组拆分

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.

看清要求的进制

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.

因为元件只有两种状态

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.

色深是每像素的位数

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.

分辨率是像素数

class

2 · Data transmission 数据传输

✗ 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.

看数据流向, 不看人数

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 是加密传输的数据

class

✗ Naming IPv4 as a type of encryption.

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

Marked in class – IPv4 is an addressing protocol.

IPv4 不是加密方式

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 是 128 位、十六进制

class

3 · Hardware 硬件

✗ 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.

嵌入式系统是专用微处理器

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 断电即丢失

class

4 · Software 软件

✗ 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.

解释器方便调试, 不是更快

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.

高级语言更易学

class

5 · The internet and its uses 互联网及其应用

✗ 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.

快速访问用书签或历史记录

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.

搜索是搜索引擎的功能

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.

网络钓鱼不是恶意软件

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.

要写出识别的迹象

class

9 · Databases 数据库

✗ 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.

主键必须唯一

class

7 · Algorithm design and problem-solving 算法设计与问题求解

✗ 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.

算法题必须用伪代码

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.

流程图符号要用对

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.

数据类型要用大纲的写法

ER 2 sessions P2

8 · Programming 程序设计

✗ 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.

区别在作用域

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.

不要重复题目给的优点

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.

标识符要照抄题目

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.

二次输入必须一致才接受

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.

要用专业术语

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.

“解释”要写得更详细

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.

续答要写清题号

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.

结合题目情境作答

ER 2 sessions P1