

PRIFYSGOL BANGOR BANGOR UNIVERSITY



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BANGOR
UNIVERSITY

ARHOLIADAU YSGOLORIAETHAU MYNEDIAD 2025 SCHOLARSHIP ENTRANCE EXAMINATIONS 2025

PWNC / SUBJECT: COMPUTING

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Time allowed: 2 hours

Cyfarwyddiadau / Instructions: Answer ALL questions (Total marks 100)

1. Define what is meant by classes, objects, and methods in object-oriented programming. [5]
2. Describe two features of an integrated development environment (IDE) that assist with the writing and editing of code. [5]
3. Explain the difference between high-level programming languages and low-level programming languages. Provide an example of each. [5]
4. Describe how the Waterfall model of software development works, noting one advantage and one disadvantage of this approach. [5]
5. What is meant by the term Big-O Notation in computer science? [5]
6. Explain the concept of recursion in programming. [5]
7. A university database includes a table for student records, where the StudentID is designated as the Primary Key. Explain the purpose of a primary key and discuss its importance in relational databases. [5]
8. Describe simplex, half-duplex, and full-duplex data transmission methods, and give an example of how each is used. [5]
9. Define the term data mining, and describe separately how a social media platform, advertising agency, and healthcare provider might use data mining techniques. [10]
10. Describe the Bubble Sort algorithm. Include a diagram showing the sorting process for the list [5, 2, 9, 1, 5, 6]. [10]
11. Write pseudocode for a program that reads a collection of integers (as a list or an array) and determines how many times the largest value occurs. [10]
12. Artificial Intelligence is advancing rapidly. Write a short essay explaining how you think this

technology will impact ONE of the following industries over the next decade:

- Social Media
- Video Game Development
- Education

Your essay should provide specific examples and discuss both opportunities and challenges. [30]