



PRIFYSGOL
BANGOR
UNIVERSITY

**YSGOL CYFRIFIADUREG A
PHEIRIANNEG ELECTRONIG
SCHOOL OF COMPUTER SCIENCE
AND ELECTRONIC ENGINEERING**

**Arholiadau Diwedd Semester Un
IONAWR 2022**

**End of Semester One Examinations
JANUARY 2022**

Amser a ganiateir: 2 awr

Time allowed: 2 hours

COMPUTER SCIENCE

Entrance Scholarship

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Answer all questions.

**Cyfanswm Marciau 100
Total marks 100**

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COMPUTER SCIENCE: Entrance Scholarship

Answer **ALL** questions (Total marks 100)

1. Describe the difference between high and low-level programming languages. [5]
2. What is meant by the term compiling? How does it relate to assembly and machine code? [5]
3. Describe two features of an integrated development environment (IDE) that are designed to assist with the writing and editing of code. [5]
4. Describe the Waterfall and Agile approaches to software development, including their advantages and disadvantages. [5]
5. What is a Linked List? Describe one benefit and one drawback of using a linked list compared with using an array. [5]
6. The University wants to store the following information about students: [5]
 - Forename(s)
 - Surname
 - Date of Birth
 - Student ID number
 - Date Enrolled
 - Year of Study (1,2,3 or 4)
 - Welsh Speaking?

Suggest the data types needed to represent this information. Include which language you have chosen in your answer.
7. What is the purpose of Predictive Analytics? Explain how it relates to Big Data. [5]
8. Define the term Data Mining, and describe how two different organisations might use data mining. [5]
9. Describe the purpose of a router within a Local Area Network. [5]
10. What is the purpose of DNS in a network? How does it help? [5]
11. What is the difference between HTTP and HTTPS as used on the World Wide Web? [5]
12. Voice input and touch screen are two types of human computer interface (HCI). Give an advantage and disadvantage of each approach. [5]

13. Using pseudo-code or a high-level language of your choice, write an insertion sort algorithm to sort an array of integers into ascending order. [10]
14. The University currently uses an ID card system to control access to its premises. This has proven problematic with students and staff damaging, swapping or losing cards. The University wishes to use a facial recognition system in its place. Describe how you design a system like this, and explain the strengths and weaknesses of using a biometric system for this purpose. [10]
15. Write a short essay about a new computing technology of your choice. How do you think this technology will affect our lives in the future? [20]