____ SCHOOL
SOFTWARE DESIGN AND DEVELOPMENT
2007 PRELIMINARY YEAR

TITLE:

Half Yearly Exam

NUMBER:

3

CONTRIBUTION:

20%

DATE:

19/6/08

OUTCOMES:

P1.1, P 1.2, P1.3, P2.1, P2.2, P3.1, P4.1, P4.2, P4.3, P5.1, P6.1

DESCRIPTION:

This in class exam will cover all aspects of the course covered to date. This includes:

- Social and ethical issues
- Hardware and software
- Software development approaches
- Defining the problem and planning solutions

Please refer to the syllabus for further details on the assessable learning outcomes.

SHORT RESPONSE QUESTIONS

1. Is the software response time of website important? TRUE / FALSE
2. Is the degree of user friendliness of ATM software important? TRUE / FALSE
3. Which method for protecting the software intellectual property of your business is the best:
    A. Verbal agreement
    B. Written license agreement
    C. Only doing business with friends
    D. Keeping your property secret
4. Match up the piece of hardware with its function (input, output, process, storage):
    - USB flash drive
    - Speakers
    - Webcam
    - Mouse
    - Printer
5. Which one of the following generations of languages was historically the earliest:
    A. Declarative
    B. Assembler
    C. Higher level
    D. Machine
6. Complete this sentence by choosing one of the options:

    A characteristic of older operating systems was that they did not include a [command line] OR [graphical user interface].

7. It is important for programmers and users to work as a team? TRUE / FALSE
8. Put these steps into the correct sequence for the structured approach to development:
    - ☐ Building
    - ☐ modifying
    - ☐ Planning
    - ☐ Checking
    - ☐ Defining

9. The most appropriate data structure to store the shipping details of a customer would be a:
    A. Array
    B. Record
    C. Sequential File
    D. Scrap paper
10. Convert the binary number 110110 to:
    - Decimal
    - Octal
    - Hexadecimal
11. Complete this sentence by choosing one of the options:

    Breaking a large module into smaller and smaller modules is named the [top-down] OR [bottom-up] approach.

12. Larger values may be stored in a floating point data type than in an integer data type. TRUE / FALSE
13. The hardware and operating system will place limitations on data types. TRUE / FALSE
14. **List** three areas of inclusivity which are important to consider when developing software.

15. **Classify** the following pieces of software as either System, Utility, Application, or Custom.
    - Microsoft Excel
    - Microsoft Windows Vista
    - Counter Strike
    - Narrator
16. The main reason for developing internal documentation is:
    A. To make the software easier to sell
    B. So that it is easier for developers to modify and debug the software
    C. For the end user to understand how to use the software
    D. To please the client who ordered the software
17. The fetch-execute cycle involves the following sequence of steps:
    A. Fetch, Decode, Store, Execute
    B. Execute, Store, Decode, Fetch
    C. Fetch, Decode, Execute, Store

D. Decode, Fetch, Store, Execute

18. The integer data type has the following range:
    A. 0 to 32768
    B. 0 to 1
    C. -32768 to 32768
    D. -32769 to 32769
19. **Recall** the correct order of the initiation and running of an application:
    - ☐ Load into RAM
    - ☐ Display the start screen
    - ☐ Start fetch-execute cycle
    - ☐ Locate on disk
    - ☐ Wait for user input
20. **Recall** two characteristics of each development approach:
    - Structured:
    - Prototype:
    - Rapid Application Development:
    - End User:
21. **Identify** the inputs and outputs of the following process:
    - Calculate the volume of a cylinder.

22. **Recommend** which data type (integer, string, floating point, Boolean, currency) would be best for the following chunks of data:
    - 5.6
    - $15
    - 18
    - Who are the brain police
    - true

23. Convert the following binary to decimal

(i) 101101

(ii) 101111

24. Convert the following decimal to binary

(i) 46

(ii) 24

25. Convert the following binary to hex

(i) 10100011

LONGER RESPONSE QUESTIONS

26. **Propose** a negative effect of the prolonged use computer systems. [2]

27. **Identify** the inputs and outputs of the following processes: [4]
    - Calculating the average of three numbers
    - Sell a pair of pair of shoes to a person

28. **Recommend** which control structure (sequence, selection, iteration) to use in the following scenarios: [3]
    - Continue to eat until no more food
    - Driver puts car into the correct gear depending on speed
    - Follow directions to the train stations

29. **Explain** why it is considered more difficult to locate a run-time error than a syntax error. [2]

30. **Interpret** the following pseudocode which describes a method to calculate the average of two numbers. It has a logic error in it, c**ircle** the location of the error and **modify** the pseudocode to correct it. [4]

```
BEGIN calculate_average
        get firstnumber from user
        get secondnumber from user
        set average to firstnumber + secondnumber
        print average
END
```

31. **Construct** an IPO chart for the calculate_average process in the previous question. [4]

32. **Discuss** why there is a need for project management in large software projects. [4]

33. **Explain** why software sourced from the internet is not necessarily free to use. [2]

34. **Construct** an algorithm in pseudocode which swaps two data items called item1 and item2. [4]

35. **Construct** an algorithm with a flowchart which prints all the numbers from 1 to 10. [4]