

**COMPUTER SCIENCE  
FOR CAPE  
UNIT 2  
PAPER 1 PAST PAPERS**

**BATCH #6**

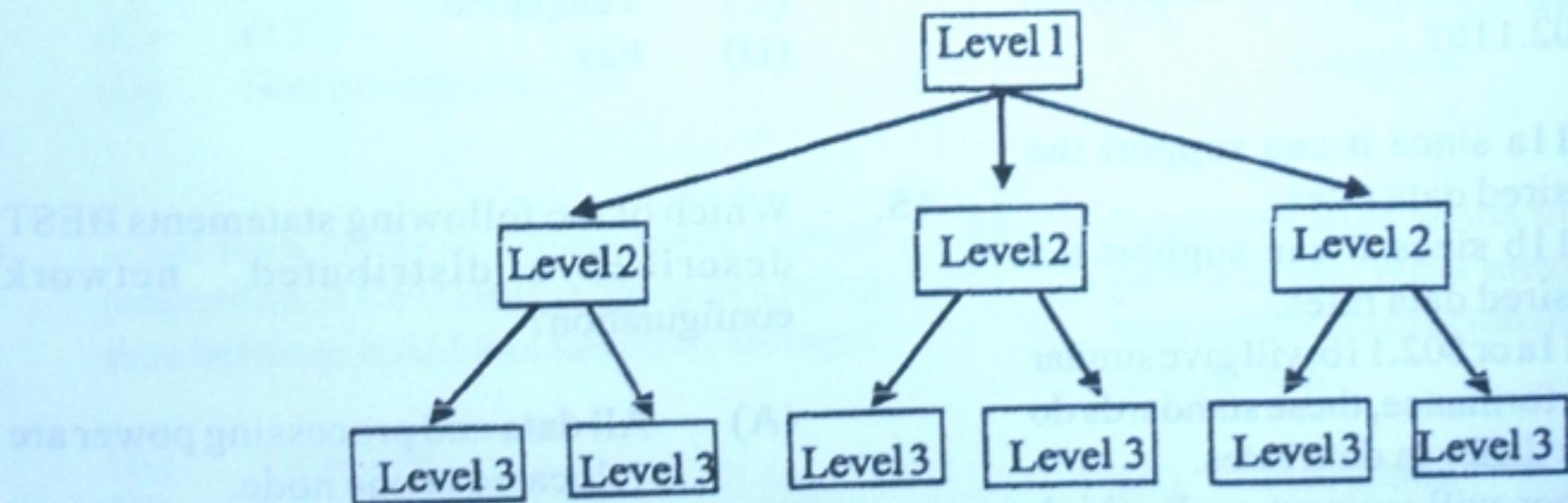
**COMPILED BY: ALEX STEWART**

**CERTAIN QUESTIONS  
WITHIN THIS BATCH  
HAVE BEEN DEPRECATED**

**(FOR EXAMPLE, QUESTIONS RELATING TO  
OBJECT ORIENTED PROGRAMMING (OOP)  
AND THE JAVA PROGRAMMING LANGUAGE)**

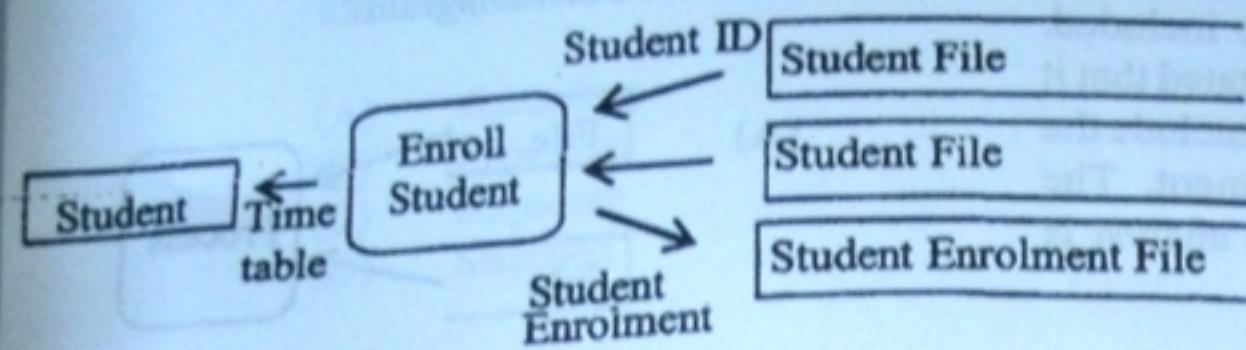
1. Which of the following software development approaches is MOST likely to result in punctual completion of a new software product?
- Prototyping
  - Waterfall
  - Fountain
  - Evolutionary
3. At which stage of the Software Development process is the user MOST involved?
- Requirements specification
  - System design
  - Program design
  - Testing
2. User involvement is important in the development of complex systems because
- it identifies the problems with the system
  - it allows the exchange of information
  - it leads to a bigger, less efficient system
- I only
  - II only
  - III only
  - I and II only

Item 4 refers to the following diagram.



4. The diagram BEST illustrates the
- bottom-up model
  - top-down model
  - class diagram
  - data flow diagram

Items 5 - 7 refer to the following diagram.



5. The 'student' can BEST be described as  
a/an

- (A) data flow
- (B) process
- (C) storage
- (D) entity

6. One error in the diagram is that

- (A) there are too many files
- (B) there is only one entity
- (C) a data flow has not been labelled
- (D) there is no process within the system

7. An analyst will use the above diagram

- (A) to train users of the system
- (B) to train managers how to use the system
- (C) to write program code
- (D) to gain understanding about the system

8. One reason for a feasibility study in the development of a software system is

- (A) to determine the likelihood of project success
- (B) to determine how much profit can be made by the analyst
- (C) to determine what type of system should be implemented
- (D) to get relevant information from users for the design of the new system

9.

Which of the following software development models will MOST LIKELY lead to a finished system from which users will derive the greatest satisfaction?

- (A) Waterfall
- (B) Fountain
- (C) Reuse-oriented
- (D) Prototyping

10.

During the analysis phase of a project, a systems analyst spent a day at the client's company taking note of the processes involved as employees performed their roles. This can be termed

- (A) prototyping
- (B) observing
- (C) using questionnaires
- (D) interviewing

11.

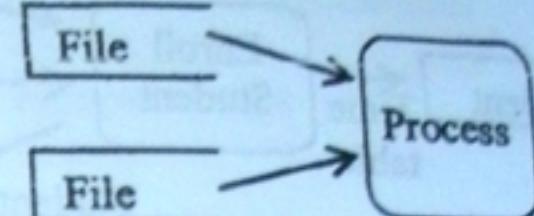
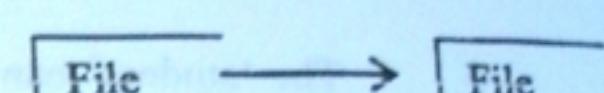
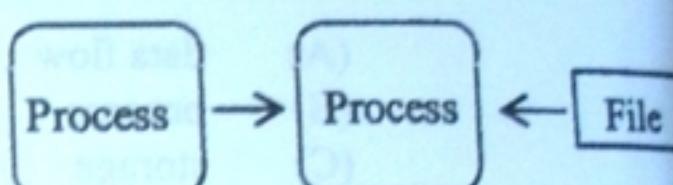
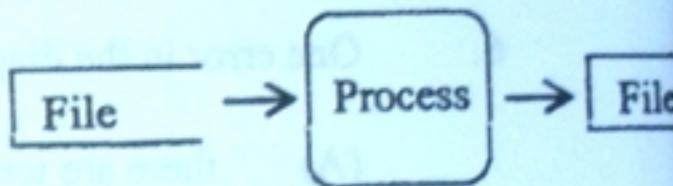
During the development of a software system Mr Phillip discovered a new program that would help him to draw system models more efficiently. This software is MOST LIKELY

- (A) an antivirus
- (B) a CASE tool
- (C) object-oriented
- (D) a programming tool

12.

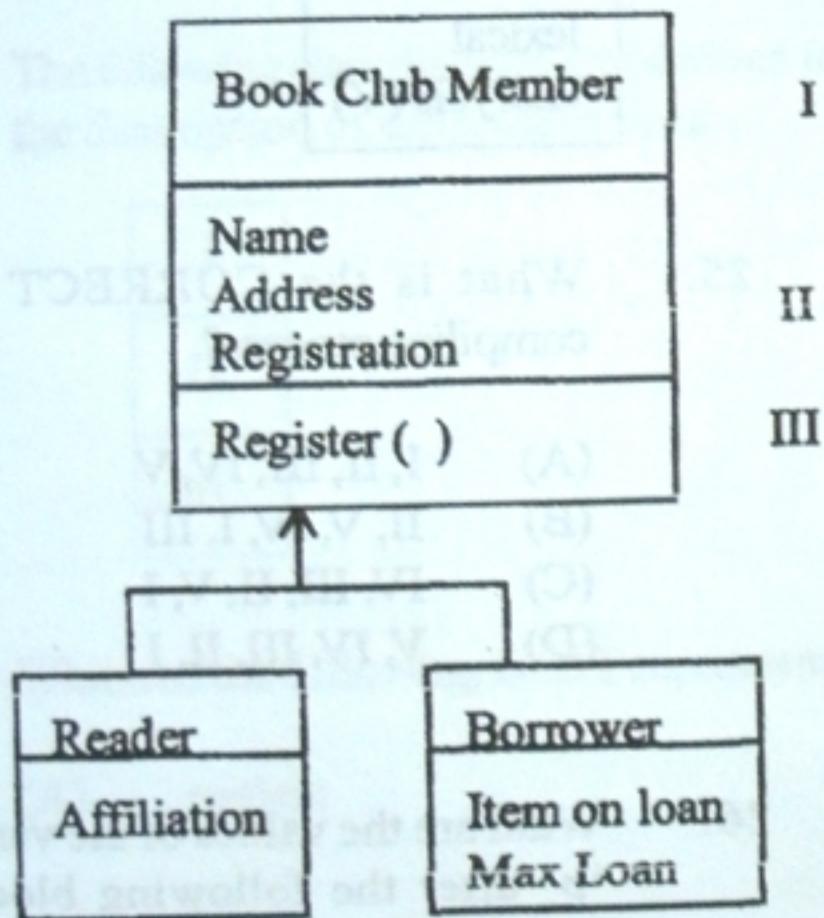
A data dictionary may contain which of the following?

- (A) Entities and relationships
- (B) Processes and data flows
- (C) Fields and descriptions
- (D) Variables and program code

- 13.** While a system was being tested for implementation, the client remembered that she wanted a particular feature included. However, the systems analyst stated that it would be extremely difficult to include the feature at this stage of development. The approach that was used by the analyst is MOST LIKELY
- (A) prototyping
  - (B) waterfall
  - (C) fountain
  - (D) evolutionary
- 14.** Because of the complexity of modern systems and computer products, there is a need for
- (A) structured software development processes
  - (B) structured object-oriented programs
  - (C) structured charts
  - (D) structured software teams
- 15.** The aspect of the feasibility study which determines whether the current work practices and procedures are adequate to support the new system is termed
- (A) operational feasibility
  - (B) legal feasibility
  - (C) technical feasibility
  - (D) economical feasibility
- 16.** Which of the following activities is possible in a Data Flow Diagram?
- (A) 
  - (B) 
  - (C) 
  - (D) 
- 17.** Which user interface style is BEST suited to enable faster interaction with the computer for experienced or power users?
- (A) Command Language
  - (B) Expert Systems
  - (C) Graphical User Interface
  - (D) Menu selection
- 18.** While using a particular program a student experienced difficulty because the icons and menus were not done the conventional way. Which of the following elements of software design was not taken into consideration?
- (A) Consistency of interface design
  - (B) Colour coordination
  - (C) Clarity of output to screen
  - (D) Configuration of code

19. A 'while' loop is an example of which of the following constructs?
- (A) Ascending
  - (B) Repetition
  - (C) Sequence
  - (D) Selection
20. A subroutine (function/method) which is defined in terms of itself is said to be
- (A) iterative
  - (B) recursive
  - (C) selective
  - (D) incremental
22. The section of the diagram labelled II contains the
- (A) class name
  - (B) instance variables
  - (C) methods of the class
  - (D) class declaration
23. A programming language that is English-like in nature and that is designed to manipulate a relational database can be BEST categorized as a
- (A) 1 GL
  - (B) 2 GL
  - (C) 4 GL
  - (D) 5 GL

Items 21 - 22 refer to the following diagram.



21. The diagram above is an example of
- (A) a Data Flow Diagram
  - (B) a Semantic Data Node
  - (C) an Entity Relationship Diagram
  - (D) a Class Diagram

24. Which of the following steps represents the CORRECT ordered sequence that changes the configuration shown in Diagram 1 into the configuration shown in Diagram 2?

1. Move a to Block 1
2. Move b to Block 1
3. Move c to Block 1
4. Move a to Block 2
5. Move b to Block 2
6. Move c to Block 2
7. Move a to Block 3
8. Move b to Block 3
9. Move c to Block 3
10. Move a to Block 4
11. Move b to Block 4
12. Move c to Block 4

**Diagram 1**

Block 1	Block 2	Block 3	Block 4
a		c	b

**Diagram 2**

Block 1	Block 2	Block 3	Block 4
	a	b	c

The following restrictions apply:

- Only one variable can fill one block at a time.
- A variable can move from a filled block to an empty block.
- A variable can move to an empty non-consecutive block.

- (A) 6, 8, 12, 4
- (B) 4, 8, 12, 6
- (C) 6, 3, 1, 4
- (D) 5, 1, 11, 7

Item 25 refers to the diagram below.

Code (I)  
generation

source  
code (II)

object  
code (III)

syntax  
analysis (IV)

lexical  
analysis (V)

25. What is the CORRECT order of the compiling process?

- (A) I, II, III, IV, V
- (B) II, V, IV, I, III
- (C) IV, III, II, V, I
- (D) V, IV, III, II, I

26. What are the values of the variables 'q' and 'p' after the following block of code is executed?

q = 10;  
p = 20;  
q = p;

- (A) q = 10 and p = 20
- (B) q = 30 and p = 20
- (C) q = 20 and p = 20
- (D) q = 10 and p = 10

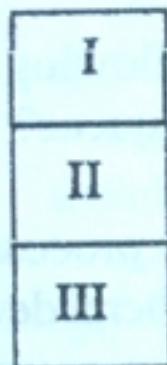
Items 27 - 28 refer to the following information.

In a hospital system a nurse records patients who come into the hospital and assigns them to a ward. If the patients are new to the hospital, the nurse records their name, address and telephone number and then assigns them to a ward.

27. From the description of the hospital system, a *patient* class can be identified. Two other classes that can be identified are

- (A) hospital, assign
- (B) address, nurse
- (C) nurse, ward
- (D) assign, ward

28. The following class diagram was derived from the description of the *patient* class.



Which of the following BEST represents II?

- (A) patient
- (B) Name  
Address  
Telephone number  
Ward number
- (C) Record()  
Assign()
- (D) Assign

29.

Susie was presented with a set of English-like instructions for a given task. She noticed that as she carefully followed the steps in sequential order the task was completed accurately and efficiently. A technical term for the set of instructions is MOST LIKELY a/an

- (A) program
- (B) source code
- (C) algorithm
- (D) object code

30.

Mark bought new graphics software for his machine which ran on a software operating system. After selling this machine he bought another one with a different operating system and found that the same software ran on it. This phenomena can be termed

- (A) maintainability
- (B) usability
- (C) portability
- (D) dependability

Item 31 refers to the following information.

Two students James and Richard wrote programs to solve a simple task. Each student's program runs on his type of computer only but not on any other type of computer.

31.

The generation of language used by BOTH students is

- (A) second
- (B) third
- (C) fourth
- (D) fifth

32. A program which enables the user to input, inspect and alter text files which may be programs or data is a/an

(A) editor  
 (B) tracer  
 (C) stepper  
 (D) linker

33. Instructions explaining how to customize a software system by setting default values and upgrade instructions can be found in which manual?

(A) Installation  
 (B) Operations  
 (C) User  
 (D) Training

34. James viewed the source code of a program and noticed patterns of binary digits throughout the program. The language used is known as a

(A) 1st generation programming language  
 (B) 2nd generation programming language  
 (C) 3rd generation programming language  
 (D) 4th generation programming language

35. Joe wants to teach his little sister, Mary, about programming, but Mary is impatient and wants to see things happen as soon as she enters program statements into the computer. Joe should use a language that utilizes

(A) an assembler  
 (B) a compiler  
 (C) an interpreter  
 (D) a profiler

36. Consider the following function *Mystery* that takes two input parameters *A* and *B* of type integer and returns an integer value:

```
Function Mystery (A, B: integer) : integer
Begin
  if B is equal to 0 then
    ans = 1
  else
    ans = A * Mystery (A, B - 1)
  end if
  return ans
End Function
```

What value is returned after execution of the function call, *Mystery* (2, 4)?

(A) 1  
 (B) 2  
 (C) 8  
 (D) 16

37. Which of the following describe suitable applications for a queue?

I. Items in a processor to be output to a peripheral device  
 II. A set of programs ready to be run by the computer  
 III. Transferring from one computer language to another

(A) I only  
 (B) II only  
 (C) I and II only  
 (D) II and III only

38. Subclasses inherit features from

(A) class methods  
 (B) super classes  
 (C) object attributes  
 (D) child classes

39. Which of the listed Graphical User interface objects does NOT help in the reduction of transcription errors?
- Check box
  - Combo box
  - List box
  - Text box
40. Queues can BEST be considered as special types of
- stacks
  - lists
  - objects
  - trees
41. A tracer is a programming tool that helps to
- evaluate the performance characteristics of a given algorithm
  - debug programs following the detection of run-time errors
  - combine object code into one addressable machine language file
  - quickly develop new programs by providing a number of pre-built components
42. After software has been tested and is ready for distribution, which of the following should NOT be included in the box that is used for distribution of the software?
- CD-ROM with the software
  - User manual and reference manual
  - Licence agreement
  - Compiler
43. A manual which can be used by non-technical staff and which contains an introduction to the system and tutorials is
- a user manual
  - an installation manual
  - an operational manual
  - a training manual
44. A programmer working in a chemical company writes a program to control production of a household detergent. In case of an emergency, the program receives an emergency stop signal and takes appropriate action. This can BEST be said to be an example of
- Data-driven programming
  - Emergency-Driven programming
  - Object-oriented programming
  - Event-driven programming
- Items 45 - 46 refer to following information.
- A consultant was hired to implement a business logic application for a particular company. Given the following implementation steps, answer the questions below.
- Coding
  - Documentation
  - Training
  - Maintaining
  - Installing
45. Which is the BEST way to order the above steps for the application?
- I, II, V, III, IV
  - I, V, IV, II, III
  - II, I, III, IV, V
  - III, II, I, V, IV
46. Which of the following activities is missing from the steps above?
- Ordering
  - Shipping
  - Designing
  - Testing

47. In case of error, a program must display a message to the current user and wait for the user to acknowledge receipt of the message. Which of the following is the MOST suitable for this task?

- (A) A window
- (B) A dialog box
- (C) A panel
- (D) A text field

48. Consider the following function/method where Max is the maximum amount of elements that can be stored in a stack and topValue is the stack pointer.

```

Procedure Demo (newItem)
Begin
  if topValue = Max then
    print 'It is full'
  else
    topValue = topValue + 1
    Stack (topValue) = newItem
  end if
End Procedure

```

The algorithm above is designed to show how

- (A) values are popped off a stack
- (B) values are pushed into a stack
- (C) top values can be replaced
- (D) values can be replaced in a stack

Items 49 - 50 refer to the following information.

Angela found that although her program compiled successfully, it was not giving her the expected outcome when it was executed.

49. What is the MOST LIKELY cause of the problem?

- (A) Syntax error
- (B) Memory error
- (C) Compilation error
- (D) Logic error

50. Which is the BEST programming environment tool Angela can use to get assistance with this problem?

- (A) Library
- (B) Editor
- (C) Debugger
- (D) Compiler

51. A student wrote a program but when he compiled it he got an error message which stated that the library could not be found. How would this affect his program?

- (A) It cannot access predefined functions.
- (B) He cannot debug his program.
- (C) No memory will be reserved for variables.
- (D) His program has logical errors.

Items 52 - 53 refer to the following information.

Paradise Cruise Shipping Company wants an object-oriented program which stores information on clients: customer name, ID number, destination and travel date.

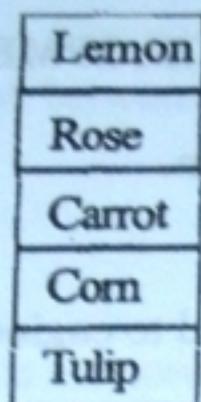
52. The MAIN class in this program would MOST likely be

- (A) ID number
- (B) destination
- (C) travel date
- (D) client

53. One of the methods of the class above would be

- (A) setName ()
- (B) IDNumber ()
- (C) name
- (D) getClient ()

**Item 54 refers to the diagram below representing stacks.**



54. After three POP operations have been performed on the stack, the three items, in order, which will be taken out of the stack are

- (A) Lemon, Rose, Carrot
- (B) Rose, Carrot, Corn
- (C) Tulip, Corn, Carrot
- (D) Carrot, Corn, Tulip

**IF YOU FINISH BEFORE TIME IS CALLED, CHECK YOUR WORK ON THIS TEST.**