(1) State 5 is the state of the machine:
A:
B: whenever the last 4 Inputs before the current input were S E S E

(2) If the most recent two inputs before the current input were M X, the state that you would be in is
A: 1

(3) If the two previous inputs (other than the current input) were S E, the machine could be in
A:
B:
C: state 3 or state 5

(4) If the three most recent inputs (other than the current input) were S E M, the machine could be in
A:
B: State 1

(5) If the two most recent inputs other than the current input were S E, the output could be
A:
B: 1 or 0

(6) What is a monotonicaly decreasing quantity that can be used to confirm termination of the loop?
A: I + 1

(7) Which of the following predicates is invariant in the loop
A:
B: $(\forall\ j, I \leq j \leq N \Rightarrow M \leq A[j])$

(8) The program above terminates with M equal to:
A:
B:
C:
D: the smallest value in the array

(9) If N is initially 0,
A: The array has only one element.

(10) The program will
A: Terminate normally only if $N \geq 0$.

(11) What is a monotonically decreasing quantity that can be used to confirm termination of the loop?
A: I

(12) Which of the following best describes the function of seespec
A:
B:
C:
D:
E: Increment L if A[I] is greater than 3 and increment S if A[I] is less than 3.

(13) Which of the following is invariant in the loop.

A:

B:

C:

D:

E: None of the above

(14) Which of the following is true if N < 0?

A:

B: The program seespec will abort or give strange results because of an improper array access.

(15) In this question, if "E" is true, you must chose "E".
If all elements of the array A have the value 3:

A:

B:

C:

D:

E: All of the above.

(16) During the design of the OFP (Onboard Flight Program) for the A-7 aircraft, described in the assigned readings, it was proposed that there be two major modules. One module would be responsible for calculating the current position and velocity of the aircraft; the other module would be responsible for calculating weapon impact points. This was ***not*** done. The reason was:

A:

B:

C:

D: unclear which module should contain those.

E:

(17) The "mythical man month effect", as discussed in the assigned readings means:

A:

B:

C: doubling the number of programmers, may not cut the development time in half.

(18) Which of the following statements about modules was ***not*** stressed in this course?

A: It is important that modules can be compiled separately.

(19) Software seems to age. Which of the following is ***not*** one of the reasons given in your reading assignments?

A:

B:

C:

D: Magnetic media degrade.

(20) Which of the following statements is a true statement about module structure?

A:

B:

C:

D: Two programs should be in the same module if they have shared design decisions that are likely to change.

(21) Which of the following statements is ***not*** true of the second modularisation of the KWIC index problem given in "On the Criteria to be used in Decomposing Systems into Modules"?

A:

B:

C:

D:

E: To save space one could use a symbol table module within the Line Storage module but this would require a change to at least one other module.

(22) Which of the following positions ***is*** taken in the readings on modularisation?

A:

B:

C: If two programs contain references to the same array, they should probably be part of the same module.

(23) Which of the following is ***not*** one of the reasons to design programs that can be easily extended and contracted?

A:

B:

C:

D: We want to help hardware manufacturers to convince customers to buy newer, bigger and faster computers.

E:

(24) Building software as layers of virtual machines is a good idea because:

A:

B:

C: virtual machines are more convenient than real ones because they abstract from certain details.

(25) If we have two programs A and B, which of the following is ***not*** required if A is to be allowed to use B?

A:

B:

C:

D:

E: B should be more useful than A.

(26) In the major example in “Designing Software for Extension and Contraction”, OUTADSEL is a level above INAD because:

A:

B: OUTADSEL uses OUTAD and INAD uses nothing.

(27) A software structure can be termed hierarchical if and only if:

A:

B:

C: the software structure is represented by a directed graph that has no loops.

(28) The “gives work to” relation should be hierarchical because:

A:

B:

C:

D:

E: if there are no loops in the “gives work to” hierarchy, it is easier to determine whether or not a system may deadlock.

(29) Which of the following is ***not*** a good guideline for module design?

A:

B: Modules should consist of one program with one entrance and one exit.

(30) Which of the following statements is true?

A:

B:

C:

D: The module guide is intended to help a programmer to find out which modules will be affected by a proposed change.

(31) In the A-7 structure described in your notes:

A:

B:

C: the Software Decision Module hides the algorithms used in physical models.

(32) In the A-7 software, the Extended Computer Module would have to be changed if:

A: the computer was extended by adding a floating point co-processor.

(33) In the A-7 software, mode definition tables are secrets of the Shared Services Module because:

A: mode definitions affect more than one function driver.

(34) In the A-7 software, the Physical Model module:

A:

B: calculates altitude given the air pressure.

(35) In the A-7 software, if all of the HUD (Head Up Display) symbols were required to flash when the pilot should take some action such as “pulling up”:

A:

B: it would affect the HUD Function Driver Module.

(36) In the THE Multiprogramming System:

A:

B:

C: semaphores were used for mutual exclusion.

(37) When planning a review for a Device Interface Module (DIM) specification, *programming experts* should ***not*** be expected to know:

A: if the interface is based on assumptions that are valid for all possible replacement devices.

(38) In "The Mythical Man Month", Fred Brooks states that:

A: more projects have gone awry for lack of calendar time than all for other causes combined.

(39) In the early part of his book, Brooks suggests that you should plan to build a prototype and then discard it and start over. Later he concludes that this advice (given 20 years earlier) was wrong. The reason that he gives is:

A:

B:

C:

D:

E: none of the above.

(40) When well designed software projects run out of time, the best thing to do is:

A:

B:

C:

D:

E: Eliminate programs that are high in the uses hierarchy from the first release.

(41) The "ideal" software design process is one in which the design is derived from a clear statement of requirements. Which of the following is ***not*** one of the reasons for the fact that this process is seldom followed in real software developments?

A:

B:

C:

D:

E: None of the above.

(42) Which of the following would be a secret of a hardware hiding module designed to make it easier to replace terminals in a computer system with newer hardware.

A:

B:

C:

D: How to display an "8" at a given point on the screen.

E:

(43) Which of the following would Fred Brooks now agree with:

A: Conceptual integrity is *the* most important ingredient in system design.

(44) The interface specification of a module designed to store tree structured data should

A:

B:

C:

D:

E: not reveal how the links between data elements are stored by the module.

(45) Which of the following statements is a true statement about module structure?

A:

B: It is useful to have an alphabetical list of module names.

(46) In this question, if E is true, choose E. Which of the following modules should include code to calculate sine and cosine functions?

A:

B:

C:

D: the Software Decision modules.

(47) In this question, if D is true, choose D. A well-structured telephone system offers its operators a choice of messages in English and French. Because of foreign sales, they want to add Dutch. This will affect:

A:

B: the Function Driver Module.for the operator terminals.

(48) If we want to demonstrate that a program's reliability is probably at least 0.999, we need to:

A:

B: perform around 5000 randomly selected tests without encountering any failures.

C:

(49) In "The Mythical Man Month", Fred Brooks states that:

A:

B:

C: The "architect" should specify programs and then instruct the programmer about how to implement the specification.

(50) When he says "plan to throw one away" Brooks means that:

A:

B: you can learn a lot from building a prototype; you will then do things better.