Computer ORGANISATION
Model Paper

SLIM-IT

1. A computer program includes a subroutine which is declared as an "external" subroutine. This means that the subroutine :
(a) is defined in the kernel of the operating system
(b) uses external devices
(c) is defined elsewhere
(d) resides on a different computer and will be downloaded dynamically at run-time

2. Which of the following subroutines is unlikely to be part of the kernel of an operating system?
(a) Process scheduling algorithm
(b) Sorting algorithm
(c) Page swapping algorithm
(d) Maintenance of the real time clock

3. A diamond-shaped box in a flow chart refers to :
(a) An assignment statement
(b) Printing of a file
(c) An if-then-else decision
(d) Data input from a device

4. Pseudocode refers to a program which :
(a) can be executed only using virtual memory
(b) can be executed without compilation and linking
(c) is written in a high-level language without following any syntax
(d) is written in an assembly language for a non-existent architecture

5. Which of the following is not an output of an assembler?
(a) Executable program
(b) Source listing with line numbers and errors
(c) A symbol table
(d) Object program containing machine opcodes

6. The computer architecture having stored program concept is :
(a) Harvard
(b) Von-Neumann
(c) Pascal
(d) None of the above

7. Ready-to-run machine language program is produced by :
(a) compiler
(b) loader
(c) assembler
(d) All of the above

8. In a compiler, the recognition of basic elements and creation of uniform symbols is carried out during :
(a) Lexical analysis

(b) Syntax analysis
(c) Interpretation
(d) Code generation

9. In a floppy disk, data are stored on :
(a) single spiral track like a phonograph record
(b) a single circular track containing multiple sectors
(c) multiple spiral tracks
(d) None of the above

10. When an interrupt occurs, the processor completes the current .... before jumping to the interrupt service sub-routine.
(a) microinstruction it is executing
(b) instruction it is executing
(c) current macro it is executing
(d) procedure call it is executing

11. Parenthesis are required to indicate the order of evaluation of arithmetic operations in :
(a) Prefix expressions
(b) Infix expressions
(c) Postfix expressions
(d) Both (a) and (c)

12. In an 16-bit two's complement representation, the value -3 is represented by :
(a) 8003 Hex
(b) FFFA Hex
(c) 8FF3 Hex
(d) FFFD Hex

13. Which of the following will be able to verify if a given string is a valid parenthesized arithmetic expression?
(a) A lexical analyzer
(b) A parser
(c) A postfix expression evaluator
(d) None of the above

14. The minimum number of flip-flops required to implement a 16-bit ring counter is :
(a) 4
(b) 8
(c) 16
(d) 65,536

15. Assuming that there are no branch instructions or data hazards, the number of cycles required to process 100 instructions through a 3-stage instruction pipeline is :
(a) 300
(b) 103
(c) 102
(d) 97

16. The value 38 Hex is stored in register B of an 8-bit computer. The computer executes an instruction to complement all the bits of register B. Assuming two's complement representation, the decimal value in register B after the execution of the instruction is:
(a) 57
(b) -57
(c) -56
(d) None of the above

17. Two 4-bit carry lookahead adders A1 and A2 are cascaded in order to form an 8-bit adder. The carry output from adder A1 is given as carry input to adder A2. When wiring the circuit, the carry output from A1 is accidentally connected to the ground signal. Which of the following situations reveals this fault?
(a) Addition of 44H and 22H
(b) Addition of F0H and FFH
(c) Addition of 0FH and 01H
(d) Addition of F4H and 22H