

ISRO Aptitude Paper April 2009

- 1) Special software to create a job queue is called
 - a) driver
 - b) spooler
 - c) interpreter
 - d) linkage editor

- 2) When a process is rolled back as a result of deadlock the difficulty arises is
 - a) Starvation
 - b) System throughput
 - c) low device utilization
 - d) cycle stealing

- 3) On receiving an interrupt from an I/O device the CPU
 - a) Halts for a predefined time.
 - b) Branches off the interrupt service routine after completion of the current instruction.
 - c) Branches off to the interrupt service routine immediately.
 - d) hands over the control of address bus and data bus to the interrupting service.

- 4) Which of the following is true of the auto increment addressing mode?
 1. It is useful in creating self-relocating code.
 - 2) If it is induced in an instruction set architecture, then an additional ALU is required for effective address calculation.
 - 3) The amount of increment depends on the size of the data item accessed.
 - a) 1 only.
 - b) 2 only
 - c) 3 only
 - d) 2 and 3 only

- 5) The primary purpose of an operating system is
 - a) To make the most efficient use of the computer hardware.
 - b) to allow people to use the computer.
 - c) To make the system programmers employed.
 - d) to make computers easy to use.

- 6) Consider the CPU-intensive processes which require 10, 20, 30 time units and arrive at time 0, 2, 6 respectively. How many context switches are needed if the operating system implements a shortest remaining time first scheduling algorithm? Do not count the context switches at the time 0 and end.
 - a) 1
 - b) 2
 - c) 3
 - d) 4

- 7) Consider a system having n resources of the same type. These resources are shared by 3 processes

A,B,C .These have peak demands of 3,4,6 respectively.For what value of n deadlock won't occur.

- a) 15
- b) 9
- c) 10
- d) 13

8) In which addressing mode the effective address of the operand is computed by adding a constant value to the content of the register?

- a) absolute mode.
- b) indirect mode
- c) immediate mode
- d) index mode

9)the process of organizing the memory into two banks to allow 16 bit and 8 bit data operation is called

- a) bank switching
- b) indexed mapping
- c) two way memory interleaving
- d) memory segmentation

10)a one dimensional array A has indices 1-75.Each element is a string and takes up three memory words. The array is stored in location 1120 decimal. The starting address of A[49] is

- a) 1267
- b) 1164
- c) 1264
- d) 1169

11) The microsystems stored in the control memory of a processor have a width of 26 bits. Each microinstruction is divided into three fields : a microoperation field of 13 bits, a next address field(X), and a MUX select field(Y). There are 8 status bits in the inputs of the MUX.How many bits are there in the X and Y fields and what is the size of the control memory in number of words?

- a) 10,3,1024
- b) 8,5,256
- c) 5,8,2048
- d) 10,3,512

12)The use of multiple register windows with overlap causes a reduction in the number of memory accesses for

- 1.function locals and parameters
2. register saves and restores.
3. instruction fetches.

- a) 1 only
- b) 2 only
- c) 3 only
- d) 1,2,and 3

13)Which of the following about relative addressing mode is false?

- a) it enables reduced instruction size.
- b) it allows indexing of array element with same instruction.
- c) it enables easy relocation of data.

d) it enables faster address calculation than absolute addressing.

14) Substitution of values for names (whose values are constants) is done in '

- a) local optimization
- b) loop optimization
- c) constant folding
- d) strength reduction

15) A root α of eq $f(x)=0$ can be computed to any degree of accuracy if a good initial approximation x_0 is chosen for which

- a) $f(x_0) > 0$
- b) $f(x_0)f'(x_0) > 0$
- c) $f(x_0)f'(x_0) < 0$
- d) $f'(x_0) > 0$

16) Consider the polynomial $p(x) = a_0 + a_1x + a_2x^2 + a_3x^3$. The minimum number of multiplications needed to evaluate p on an input x is

- a) 3
- b) 4
- c) 6
- d) 9

17) Activities which ensure that the software that has been built, is traceable to customer is covered as part of

- a) verification
- b) validation
- c) maintainance
- d) modeling

18) A testing method which is normally used as the acceptance test for a software system is

- a) regression testing
- b) integration testing
- c) unit testing
- d) system testing

19) A locked database file can be

- a) accessed by only one user
- b) modified by the users with the correct password.
- c) used to hide the sensitive information.
- d) updated by more than one user