



**I Semester M.Sc. (IT) Examination, December 2009/January 2010
FOUNDATION COURSE**

Time : 3 Hours

Max. Marks : 100

PART – A

Instruction : Answer **all** the questions. **Each** question carries **one** mark.

1. For (; ;)
 - a) means the test which is done using some expression is always true
 - b) is not valid
 - c) will loop forever
 - d) should be written as for ()
2. In addition of two signed numbers, represented in 2's complement form generates an overflow if
 - a) $A \cdot B = 0$
 - b) $A \oplus B = 0$
 - c) $A \oplus B = 1$
 - d) $A + B = 1$Where A is the carry in to the sign bit position and B is the carry out of the sign bit position.
3. Literals are
 - a) essentially constants directly used in an operand field
 - b) essentially variables directly used in an operand field
 - c) essentially constants directly used in an operator field
 - d) essentially constants directly used in a program
4. Those activities of an assembler which are concerned with the processing of a macro are termed as
 - a) Assembly time activities
 - b) Expansion time activities
 - c) Compiler time activities
 - d) Linker time activities

P.T.O.



5. Within a **switch** statement
 - a) **Continue** can be used but **Break** cannot be used
 - b) **Continue** cannot be used but **Break** can be used
 - c) Both **Continue** and **Break** can be used
 - d) Neither **Continue** nor **Break** can be used

6. Round Robin scheduling is used in
 - a) Disk scheduling
 - b) CPU scheduling
 - c) I/O scheduling
 - d) Multitasking

7. Banker's algorithm is used in
 - a) Threads
 - b) CPU scheduling
 - c) Deadlock avoidance
 - d) Paging

8. Compaction is a solution to
 - a) Dead locks
 - b) Fragmentation
 - c) Security problems
 - d) Concurrency problems

9. Fifth normal form is concerned with
 - a) Functional dependency
 - b) Multivalued dependency
 - c) Join dependency
 - d) Domain-Key

10. The C language terminator is
 - a) semicolon
 - b) colon
 - c) period
 - d) exclamation mark

11. What is true about the following C functions ?
 - a) Need not return any value
 - b) Should always return an integer
 - c) Should always return a float
 - d) Should always return more than one value



12. Main must be written as
- a) The first function in the program
 - b) Second function in the program
 - c) Last function in the program
 - d) Any where in the program
13. An analysis which determines the meaning of a statement once its grammatical structure becomes known is termed as
- a) Semantic analysis
 - b) Syntax analysis
 - c) Source text analysis
 - d) Lexical analysis
14. Loader is also known as
- a) Linkage editor
 - b) Loader editor
 - c) Compiler
 - d) Assembler
15. Error detection at data link level is achieved by
- a) Bit stuffing
 - b) CRC
 - c) Hamming code
 - d) Cross product
16. The operation which is not considered a basic operation of relational algebra is
- a) Join
 - b) Selection
 - c) Union
 - d) Cross product
17. What is the value of y in the following code ?
- ```
x = 7 ; y = 0;
if (x = 7)
y = y + 1
else
y = 6 ;
```
- a) 7
  - b) 0
  - c) 1
  - d) 6
18. Which of the following about the C comments is incorrect ?
- a) comments can go over multiple lines
  - b) comments can start any where in the line
  - c) a line can contain comments with out any language statements
  - d) comments can occur within comments



19. Write one statement equivalent of the following two statements

$x = \text{sqrt}(a)$  ;

return (x) ;

Choose from one of the alternatives

a) return (sqr (a)) ;

b) printf (“sqr (a)”);

c) return (a\*a\*a) ;

d) printf (“%d”, sqr (a) ) ;

20. Which of the following about automatic variables within a function is correct ?

a) Its type must be declared before using the variable

b) They are local

c) They are not initialized to zero

d) They are global

PART – B

Fill in the blanks with suitable answers. Each question carries **one** mark.

1. \_\_\_\_\_ denotes the set of rational numbers.

2. If A is a matrix such that  $A = A^T$  then A is called \_\_\_\_\_ matrix.

3. The solution of the equation  $Y = x^3 - 3x^2 + 3x - 1$  is \_\_\_\_\_

4. If  $A = \begin{pmatrix} 1 & 0 & 1 \\ 2 & 1 & 0 \\ 3 & 0 & 1 \end{pmatrix}$ , then  $A^3$  is \_\_\_\_\_

5. Area of a circle is given by \_\_\_\_\_

6. A null set contains \_\_\_\_\_ elements.

7. If A and B are two sets and  $f : A \rightarrow B$  is a function such that  $f(A) = B$ , then f is \_\_\_\_\_

8. If A is a set consisting of N elements then power set of A contains \_\_\_\_\_ elements.

9. The slope intercept form of a line is \_\_\_\_\_



10. If  $A = \{ 2, 3, 4, 5\}$ ,  $B = \{ 1, 2, 5, 6\}$  then  $A \cap B$  is \_\_\_\_\_
11. Objects in a set are called \_\_\_\_\_
12. \_\_\_\_\_ denotes a set of natural numbers.
13.  $D = F(P, A)$  is a \_\_\_\_\_ function.
14. Area of a triangle is given by \_\_\_\_\_
15. When the area of a square is doubled then side increases by \_\_\_\_\_
16. Given  $y = a^x$ ,  $a$  is a constant,  $dy / dx =$  \_\_\_\_\_
17.  $\sqrt{-1}$  is called \_\_\_\_\_ number.
18.  $\int \tan x dx =$  \_\_\_\_\_
19. Matrix multiplication does not satisfy \_\_\_\_\_ property.
20. If  $A$  and  $B$  are matrices then  $(A + B)^2$  is \_\_\_\_\_
21.  $(563)_8 = ( \quad )_{10}$
22. 1's complement of 10001 is \_\_\_\_\_
23. In an Half adder, given 2 bits  $X$  and  $Y$ , sum  $S =$  \_\_\_\_\_
24. EPROM stands for \_\_\_\_\_
25. Output of EXOR gate is one, if both the inputs are \_\_\_\_\_
26.  $(11011)_2 - (10101)_2 = ( \quad )_2$
27. 2's complement of 1010 is \_\_\_\_\_
28.  $(10011)_2 = ( \quad )_{\text{gray}}$
29. LSB carries \_\_\_\_\_ weight.
30.  $x = x$  is \_\_\_\_\_ law.



31. A byte contains \_\_\_\_\_ bits.
32.  $(1100110)_2 = ( \quad )_{10}$
33.  $(45)_{10} = ( \quad )_2$
34.  $(CAFE)_{16} = ( \quad )_{10}$
35. Output of EXOR gate is one, if both the inputs are \_\_\_\_\_
36. \_\_\_\_\_ gate is called inverter.
37. In a SR flipflop,  $S = 1$  and  $R = 0$ , the flipflop goes to \_\_\_\_\_ state.
38. In an Half subtractor, given two bits A and B, borrow  $B =$  \_\_\_\_\_
39. In combinational logic circuits, output depends on \_\_\_\_\_ inputs.
40. A full subtractor is a \_\_\_\_\_ circuit.
41. The output of Nand gate is complement of \_\_\_\_\_ gate.
42. The logic circuits whose output at any instant of time are dependent on not only present inputs but also on past inputs are called \_\_\_\_\_ circuits.
43. Group of flip flops used to store particular group of 0's and 1's are called \_\_\_\_\_
44. Mapping many inputs to one output is done by a \_\_\_\_\_
45. A flip flop has pair of \_\_\_\_\_ outputs.
46. Backup storage is provided by \_\_\_\_\_ memory.
47. A logic circuit that accepts one input distributes it over several outputs is a \_\_\_\_\_
48. \_\_\_\_\_ is a logic circuit used to add three bits.
49. Excess-3 code of 354 is \_\_\_\_\_
50. A translator which translates High Level Language program to Machine Level Language program is \_\_\_\_\_



51. stdio.h has predefined \_\_\_\_\_ functions.
52. Low level language consists of \_\_\_\_\_ numbers.
53. Data type format for floating point number is \_\_\_\_\_
54. The looping statements in C are \_\_\_\_\_
55. \_\_\_\_\_ is an example for application software.
56. A function called by itself is called \_\_\_\_\_ function.
57. Pictorial representation of a program is called \_\_\_\_\_
58. \_\_\_\_\_ is an example of high level language.
59. Data is organized in to logical groups called \_\_\_\_\_ to enable data management.
60. \_\_\_\_\_ is an application of stacks.
61. Mouse is a \_\_\_\_\_ device.
62. Step by step depiction of the solution of a problem is called \_\_\_\_\_
63. The full form of RAM is \_\_\_\_\_
64. Scanner is essentially a \_\_\_\_\_ device.
65. The term computer is derived from \_\_\_\_\_
66. \_\_\_\_\_ is an example for secondary memory.
67. Any one operation on stack is \_\_\_\_\_
68. FIFO stands for \_\_\_\_\_
69. \_\_\_\_\_ tree has exactly two or zero children.
70. Symbol table contains \_\_\_\_\_



71. A flip flop where the slave copies master is called \_\_\_\_\_
72. Detecting and correcting errors in a program is called \_\_\_\_\_
73. Syntax errors are detected during \_\_\_\_\_ process.
74. \_\_\_\_\_ statement is avoided in structured programming.
75. A truth table for n inputs has \_\_\_\_\_ combinations.
76. DDL stands for \_\_\_\_\_
77. C is called \_\_\_\_\_ language.
78. Bitwise AND operator in C is \_\_\_\_\_
79. The ? : operator in C is called \_\_\_\_\_
80. The node at the top of the tree is called \_\_\_\_\_.

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