

# CET 2011

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Sr. No. :

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**Booklet Series Code : A**

**Important :** Please consult your Admit Card / Roll No. Slip before filling your Roll Number on the Test Booklet and Answer Sheet.

**Roll No.**

*In Figures*

*In Words*

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**O.M.R. Answer Sheet Serial No.**

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Signature of the Candidate : \_\_\_\_\_

**Subject : Computer Science**

**Time : 70 minutes**

**Number of Questions : 60**

**Maximum Marks : 120**

**DO NOT OPEN THE SEAL ON THE BOOKLET UNTIL ASKED TO DO SO**

### INSTRUCTIONS

1. Write your Roll No. on the Question Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
2. Enter the Subject and Series Code of Question Booklet on the OMR Answer Sheet. Darken the corresponding bubbles with **Black Ball Point / Black Gel pen**.
3. Do not make any identification mark on the Answer Sheet or Question Booklet.
4. To open the Question Booklet remove the paper seal (s) gently when asked to do so.
5. Please check that this Question Booklet contains **60** questions. In case of any discrepancy, inform the Assistant Superintendent within 10 minutes of the start of test.
6. Each question has four alternative answers (A, B, C, D) of which only one is correct. For each question, darken only one bubble (A or B or C or D), whichever you think is the correct answer, on the Answer Sheet with **Black Ball Point / Black Gel pen**.
7. If you do not want to answer a question, leave all the bubbles corresponding to that question blank in the Answer Sheet. No marks will be deducted in such cases.
8. Darken the bubbles in the OMR Answer Sheet according to the Serial No. of the questions given in the Question Booklet.
9. Negative marking will be adopted for evaluation i.e., 1/4th of the marks of the question will be deducted for each wrong answer. A wrong answer means incorrect answer or wrong filling of bubble.
10. For calculations, use of simple log tables is permitted. Borrowing of log tables and any other material is not allowed.
11. For rough work only the sheets marked "Rough Work" at the end of the Question Booklet be used.
12. The Answer Sheet is designed for **computer evaluation**. Therefore, if you do not follow the instructions given on the Answer Sheet, it may make evaluation by the computer difficult. **Any resultant loss to the candidate on the above account, i.e., not following the instructions completely, shall be of the candidate only.**
13. After the test, hand over the Question Booklet and the Answer Sheet to the Assistant Superintendent on duty.
14. In no case the Answer Sheet, the Question Booklet, or its part or any material copied/noted from this Booklet is to be taken out of the examination hall. Any candidate found doing so, would be expelled from the examination.
15. A candidate who creates disturbance of any kind or changes his/her seat or is found in possession of any paper possibly of any assistance or found giving or receiving assistance or found using any other unfair means during the examination will be expelled from the examination by the Centre Superintendent/Observer whose decision shall be final.
16. **Telecommunication equipment such as pager, cellular phone, wireless, scanner, etc., is not permitted inside the examination hall. Use of calculators is not allowed.**



1. **How many bytes are contained in one Gigabyte (GB) ?**  
(A)  $2^{12}$  (B)  $2^{18}$   
(C)  $2^{30}$  (D)  $2^{20}$
2. **If A is the number of address lines, how many memory locations can be there ?**  
(A)  $A^2$  (B)  $2^A$   
(C)  $2A$  (D)  $A$
3. **The name given to a collection of program instructions or data that are available on a storage medium is :**  
(A) File (B) Cluster  
(C) Folder (D) Buffer
4. **Compression tool is an example of :**  
(A) System software (B) Application software  
(C) Business software (D) Utility software
5. **Device driver is an example of :**  
(A) Utility software (B) System software  
(C) Compiler (D) Assembler
6. **The processing is faster with which of the following memories ?**  
(A) Primary memory (B) Cache memory  
(C) Secondary memory (D) Register memory
7. **The first thing that is performed when a computer is switched on is :**  
(A) Displaying the prompt (B) Prompting the user to press a key  
(C) Power on self test (D) Loading system files into primary memory
8. **The speed of a CD ROM drive is 52X. X is :**  
(A) 100 KB/s (B) 150 KB/s  
(C) 10 MB/s (D) 120 KB/s
9. **Which of the following is not an essential requirement for an algorithm ?**  
(A) Accepts input (B) Terminates in a finite amount of time  
(C) Performs unambiguous operations (D) Produces result

- 10. The operating system (OS) that allows the user to work on a C program as well as to print the document on a printer is an example of :**
- (A) Time sharing OS (B) Distributed OS  
(C) Multitasking OS (D) Real time OS
- 11. To check whether the program returns the desired output for given input is known as :**
- (A) Program Debugging (B) Program testing  
(C) Program analysis (D) Program design
- 12. The operating system that lacks built in security features is :**
- (A) Solaris (B) Linux  
(C) Unix (D) Windows
- 13. Which of the following is not the function of an operating system ?**
- (A) Program debugging (B) CPU scheduling  
(C) Memory management (D) Device management
- 14. Suppose a program is to be tested for different integer data provided by the user and has to stop when user inputs zero. Which control structure is recommended to be used in the program ?**
- (A) Switch (B) For-do  
(C) While (D) If-then-else
- 15. If  $x = 10$  and  $y = 0$ , the statement  $z = x/y$  results in :**
- (A) Logical error (B) Run-time error  
(C) Syntax error (D) Linking error
- 16. How many times “Hello” is printed using the following code ?**
- ```
for (i = 0; i <= 10; i++);  
{  
    printf(“Hello”);  
}
```
- (A) Two times (B) Zero times  
(C) 10 times (D) Once
- 17. The type of errors that causes a computer program to provide correct results to some data but incorrect results to some other data is known as :**
- (A) Syntax error (B) Run time error  
(C) Logic error (D) Linking error
- 18. The header file to use built in function tolower( ) in C++ is :**
- (A) stdlib.h (B) math.h  
(C) ctype.h (D) iostream.h

19. The header file to use built in function random ( ) in C++ is :
- (A) stdlib.h (B) string.h  
(C) ctype.h (D) iostream.h
20. The average successful search time for linear search on n items is :
- (A) n (B)  $(n + 1)/2$   
(C)  $n/2$  (D)  $(n - 1)/2$
21. Consider the following array declaration in C :
- `int A[4] [2] = {123, 55, 128, 33, 143, 288, 131, 78}`
- The element 288 is at location
- (A) row 2 and column 2 (B) column 3 and row 2  
(C) row 2 and column 1 (D) row 3 and column 2
22. If D is the address of first element A(1, 1), the address of the element A(i, j) of an m × n matrix stored in column major form is :
- (A)  $D + (j - 1) m$  (B)  $D + (i - 1) m$   
(C)  $D + (i - 1) n + j - 1$  (D)  $D + (j - 1) m + i - 1$
23. Suppose AA is linear array (5 : 60) and the base address is 500. The address of AA(20) is :
- (A) 70 (B) 515  
(C) 514 (D) 75
24. Which feature of Unix allows it to run on desktop computers, mini computers and mainframe computers ?
- (A) Portability (B) Reliability  
(C) Security (D) Reusability
25. If integer needs two bytes of storage, the maximum value of a signed integer is :
- (A)  $2^{16} - 1$  (B)  $2^{16}$   
(C)  $2^{15} - 1$  (D)  $2^{15}$
26. Suppose in a C++ program an include file that is necessary is not included. This results in :
- (A) Compilation error (B) Warning at run time  
(C) Warning at compile time (D) Linking error
27. The electronic pathway that links the chips in the computer is known as :
- (A) Integrated circuit (B) Bus  
(C) Cable (D) Wire

- 28. Which one of the following types is illegal for a structure to contain as a member ?**
- (A) Integer (B) Character  
(C) Structure (D) Float
- 29. Which of the following data types can not be returned by functions ?**
- (A) Integer (B) Float  
(C) Char (D) Array
- 30. How many number of constructors a class can have ?**
- (A) No limit (B) Only one  
(C) Zero (D) Two
- 31. In C++, inheritance enables \_\_\_\_\_ which saves time in development, and encourage using previous proven and high-quality software.**
- (A) Structured programming (B) Software reusability  
(C) Encapsulation (D) Classes
- 32. Which C++ operator destroys a dynamically allocated object ?**
- (A) destruct (B) delete  
(C) deallocate (D) destroy
- 33. Exception handling in C++ allows a program to :**
- (A) terminate in a controlled manner  
(B) be more robust and fault-tolerant  
(C) continue executing as if no problem was encountered  
(D) all of the above
- 34. In C++, if a member variable is declared \_\_\_\_\_, all objects of that class have access to that variable.**
- (A) static (B) inline  
(C) default (D) dynamic
- 35. In C++, every object has access to its own address through the \_\_\_\_\_ pointer.**
- (A) dangling (B) this  
(C) array (D) stack
- 36. The name of an array in C++ is also a \_\_\_\_\_ to its first or base element.**
- (A) indicator (B) reference  
(C) enumerator (D) location

37. In C++, when deriving a class from a base class with protected inheritance, public members of the base class become \_\_\_\_\_ members of the derived class, and protected members of the base class become \_\_\_\_\_ members of the derived class.

- (A) Protected, protected (B) Protected, private  
(C) Protected, public (D) Public, public

38. Consider the following C++ function :

```
int gain(int a, int n)
{
    if (n == 1) return a;
    if (n % 2 == 0)
        return gain (a, n/2) * gain (a, n/2);
    else
        return gain (a, n/2) * gain (a, n/2) * a;
}
```

The value returned by the above function for the call gain(2, 7) is :

- (A) 8 (B) 16  
(C) 128 (D) 32

39. The \_\_\_\_\_ transfers the executable image of a C++ program from disk to memory.

- (A) Compiler (B) Linker  
(C) Loader (D) Debugger

40. Given that k is an integer array starting at location 2000, kPtr is a pointer to k, and each integer is stored in 4 bytes of memory, what location does kPtr + 3 point to ?

- (A) 2003 (B) 2006  
(C) 2012 (D) 2024

41. Computer Network Topology is :

- (A) The physical layout of a LAN (B) High capacity, high speed computer  
(C) To determine the best path to route data (D) The First Graphic Browser

42. The purpose of twisting the wires in twisted-pair circuits is to :

- (A) Increase physical strength for pulling (B) Increase usable bandwidth  
(C) Reduce crosstalk (D) Allow easier tracing

43. The binary equivalent of the decimal number 39.125 is :

- (A) 101001.101 (B) 100111.001  
(C) 101011.001 (D) 100011.111

44. The simplification of the sum of products Boolean expression :

$$xyz + x\bar{y}\bar{z} + \bar{x}yz + \bar{x}\bar{y}z$$

- (A) is independent of variable x  
(B) is independent of variable y  
(C) is independent of variable z  
(D) contains all the variables x, y, z

45. A NAND gate is OFF only when all its inputs are :

- (A) Off  
(B) Negative  
(C) High  
(D) Low

46. 'AS' clause is used in SQL for :

- (A) Selection operation  
(B) Rename operation  
(C) Join operation  
(D) Projection operation

47. A virtual relation composed of columns from one or more related relations is called a(n) :

- (A) Index  
(B) View  
(C) Relational map  
(D) Base table

48. Which of the following is false about a relation in the context of RDBMS ?

- (A) Each relation in a database should have a unique name  
(B) Intersection of each row and column is single valued  
(C) Primary key of a relation should be the first column  
(D) Each attribute within a relation has a unique name

49. A technique for designing a database for efficiency by organizing the database and paring it down to its simplest form is called :

- (A) Normalization  
(B) Systems analysis  
(C) Database design  
(D) Data accuracy

### Questions 50-51

Consider the following Lecturer relation with the given attributes and data types to answer questions from (32) to (33). Assume that the attributes are stated in the order that they were specified in the create table statement. Salary and allowance are monthly income for a lecturer.

Lecturer (EmpNo CHAR(03), Name VARCHAR(50), Salary REAL, Allowance REAL, Category VARCHAR(25), DateJoined DATE)

50. Which of the following SQL statements display the name and annual income for each lecturer ?

- (A) SELECT Name, (Salary + Allowance) \* 12 FROM Lecturer;  
(B) SELECT Name, "Annual Income" FROM Lecturer WHERE "Annual Income" = Salary \* 12 + Allowance;  
(C) SELECT Name, "Annual Income" FROM Lecturer GROUP BY Name HAVING "Annual Income" = Salary \* 12 + Allowance;  
(D) SELECT Name, Salary + Allowance as Annual Income FROM Lecturer;



51. Which of the following SQL statements would display all Lecturers' names and hired dates in chronological order with the person on staff with the longest service, listed first ?
- (A) SELECT Name, DateJoined FROM Lecturer ORDER BY Name, DateJoined;  
 (B) SELECT Name, DateJoined FROM Lecturer ORDER BY Name, DateJoined ASC  
 (C) SELECT Name, DateJoined FROM Lecturer ORDER BY Date Joined DESC;  
 (D) SELECT Name, DateJoined FROM Lecturer ORDER BY DateJoined ASC;
52. Hacking refers to :
- (A) sending junk mail  
 (B) developing viruses and worms  
 (C) illegal access and abuse of computer resources  
 (D) bugs in computer software
53. What is the difference between a *linked list* and an *array* ?
- (A) a linked list can grow or shrink dynamically, an array has fixed capacity  
 (B) access to an item in an array is direct, whereas a linked list must be followed through links  
 (C) an array is stored in memory in consecutive locations, a linked list is not  
 (D) All of the above
54. A queue is an example of a \_\_\_\_\_ data structure, whereas a stack is an example of a \_\_\_\_\_ data structure.
- (A) Last-In-First-Out .... First-In-First-Out      (B) First-In-First-Out .... Last-In-First-Out  
 (C) Last-In-Last-Out .... First-In-First-Out      (D) Last-In-First-Out .... First-In-Last-Out
55. Suppose we have an array implementation of the stack class, with ten items in the stack stored at data [0] through data [9]. The CAPACITY of the array is 42. Where does the *push* method place the new entry in the array ?
- (A) data [0]      (B) data [1]  
 (C) data [9]      (D) data [10]
56. The maximum number of searches for a particular record among 8192 records in a file using Binary Search method will be :
- (A) 13      (B) 12  
 (C) 10      (D) 15

**57. The value of the arithmetic expression P : 51, 16, 8, /, 4, 5, +, \*, – written in post-fix notation and using a stack will be :**

- (A) 11 (B) 22  
(C) 33 (D) 44

**58. Which of the following declarations can be used to construct a linked list data structure ?**

- (A) Struct node {  
    int element;  
    node \* next;};
- (B) Struct node {  
    int element;  
    node next;};
- (C) Struct node {  
    int element;  
    \*node next;};
- (D) Struct node {  
    int element;  
    int \*next;};

**59. The idea of the World Wide Web was started by :**

- (A) Bill Gates of Microsoft Corporation (B) A.M. Turing, a noted US Computer Scientist  
(C) The WWW Consortium (W3C) (D) Time Berners-Lee of CERN in Europe

**60. “Even if part of its infrastructure was destroyed, data could flow through the remaining networks.” This statement best describes the basis of :**

- (A) The World Wide Web (B) An Internet relay chat  
(C) The HTTP protocol (D) The Internet

## **ROUGH WORK**

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