NATIONAL COUNCIL OF SCIENCE MUSEUMS
(Ministry of Culture Government of India)
APTITUDE TEST FOR CURATOR (Computer)

PART II

NAME: **Marks:70**

Form No: **Duration:3 hours**

PART A (OBJECTIVE)

Instructions to Candidates:

(a) Please read the questions thoroughly and answer carefully.
(b) Answer should be written only in the answer sheet given on the front page
(c) Each correct answer carries one mark.
(d) Do not detach the answer sheet from the Question paper
(e) Answer found most suitable should be " ✔ "marked in the appropriate column given in the answer sheet.

(30x1=30 Marks)

1. The brightness level of daylight
   A. Varies in an analogue way
   B. Must be represented as s 0 state at midnight
   C. Varies in a digital way
   D. Changes its logic state at noon each day

2. The code where all successive numbers differ from their preceding number by single bit is
   A. Binary code.
   B. BCD.
   C. Excess
   D. Gray

3. One Gigabyte is
   A. 1,024 bytes
   B. 1,073,741,824 bytes
   C. 1,048,576 bytes
   D. 1,048,676 bytes.

4. What does EBCDIC stand for?
   A. Extended Binary Coded Decimal Interchange Code
   B. Extended Binary Coded Digital Interchange Code
   C. Extended Binary Case Decimal Interchange Code
   D. Extended Bit Coded Decimal Interchange Code

5. Which type of computers uses the 8 bit code called EBCDIC?
   A. Mini Computers
   B. Micro Computers
   C. Maninframe Computers
   D. Super Computers

6. In expression x=5+3*8; What is the value assigned to the variable x ?
   A. 64
   B. 63
   C. 28
   D. 29

7. A relational database consists of a collection of
   A. Tables
   B. Fields
   C. Records
   D. Keys

8. Database _____ which is the logical design of the database, and the database _____ which is a snapshot of the data in the database at a given instant in time.
   A. Instance, Schema
   B. Relation, Schema
   C. Relation, Domain
   D. Schema, Instance

9. Department (dept name, building, budget) and Employee (employee_id, name, dept name, salary). Here the dept_name attribute appears in both the relations. Here using common attributes in relation schema is one way of relating _____ relations.
   A. Attributes of common
   B. Tuple of common
   C. Tuple of distinct
   D. Attributes of distinct

10. Which one of the following is a set of one or more attributes taken collectively to uniquely identify a record?
    A. Candidate key
    B. Sub key
    C. Super key
    D. Foreign key

11. Consider attributes ID, CITY and NAME. Which one of this can be considered as a super key?
    A. NAME
    B. ID
    C. CITY
    D. CITY, ID

12. Using which language can a user request information from a database?
    A. Query
    B. Relational
    C. Structural
    D. Compiler

13. Student(ID, name, dept name, tot_cred).In this query which attributes form the primary key?
    A. Name
    B. Dept
    C. Tot_cred
    D. ID

14. The_____ operation allows the combining of two relations by merging pairs of tuples, one from each relation, into a single tuple.
   A. Select
   B. Join
   C. Union
   D. Intersection

15. A _____ is a pictorial depiction of the schema of a database that shows the relations in the database, their attributes, and primary keys and foreign keys.
   A. Schema diagram
   B. Relational algebra
   C. Database diagram
   D. Schema flow

16. How structures and classes in C++ differ?
   A. In Structures, members are public by default whereas, in Classes, they are private by default
   B. In Structures, members are private by default whereas, in Classes, they are public by default
   C. Structures by default hide every member whereas classes do not
   D. Structures cannot have private members whereas classes can have

17. In C++ Wrapping data and its related functionality into a single entity is known as
   A. Abstraction
   B. Encapsulation
   C. Polymorphism
   D. Modularity

18. What does polymorphism in OOPs mean?
   A. Concept of allowing overiding of functions
   B. Concept of hiding data
   C. Concept of keeping things in differnt modules/files
   D. Concept of wrapping things into a single unit

19. Which of the following shows multiple inheritances?
   A. A->B->C
   B. A->B; A->C
   C. A,B->C
   D. B->A

20. Which of the following explains Polymorphism?
   A.
        int func(int, int);
        float func1(float, float);
   B.
        int func(int);
        int func(int);
   C.
        int func(float);
        float func(int, int, char);
   D.
        int func();
        int new_func();

21. In OOPs which concept allows you to reuse the written code?
    A. Encapsulation
    B. Abstraction
    C. Inheritance
    D. Polymorphism

22. In the following C++ code which of the following feature of OOPs is not used?
    class A
    {
       int i;
       public:
       void print(){cout<<"hello"<<i;}
    }

    class B: public A
    {
       int j;
       public:
       void assign(int a){j = a;}
    }
    A. Abstraction
    B. Encapsulation
    C. Inheritance
    D. Polymorphism

23. _____ computing refers to applications and services that run on a distributed network
    using virtualized resources.
    A. Distributed
    B. Cloud
    C. Soft
    D. Parallel

24. The huge number of devices connected to the Internet of Things has to communicate
    automatically, not via humans. What is this called?
    A. Skynet
    B. Bot 2 Bot
    C. Machine 2 Machine
    D. Intercloud

25. The number of elements in the Open IoT Architecture?
    A. 6 elements
    B. 8 elements
    C. 7 elements
    D. 3 elements

26. Internet of Things needs a lot of network connection. What is the proposed "white Space"
    radio standard called?
    A. Bluetooth
    B. WiMax
    C. Weightless
    D. Zigbee

27. Which of the following cloud concept is related to pooling and sharing of resources?
    A. Polymorphism
    B. Abstraction
    C. Virtualization
    D. None of the above

28. _____ is a community that is working together to establish an IoT architecture.
    A. Eclipse IoT
    B. Red Hat
    C. Intercloud
    D. Bot 2 Bot

29. _____ is a framework for performing remote procedure calls and data serialization.
    A. Drill
    B. BigTop
    C. **Avro**
    D. Chukwa

30. _____ can best be described as a programming model used to develop Hadoop-based applications that can process massive amounts of data.
    A. **MapReduce**
    B. Mahout
    C. Oozie
    D. All the above

Marks:40

Answer all three questions

_____

Question 1. Assume that there is an Art/Science Museum. You need to convert the Art/Science museum into a Smart Museum using digital technology. Write a concept paper on the same and list out the technologies to be adopted for the same. Your answer should include the following.

  i.   Definition of smart museum and how is it different from regular museum
  ii.   Digital technologies to be adopted in smart museum
  iii.   Experience of the visitor in Smart museum
  iv.   Schematic Layout of Smart Museum

(5x4=20 marks)

Question 2: Define encryption and decryption. Write a program in C which will input a message encrypt the message and print the encrypted message. The encrypted message is then decrypted and the original message is printed.

(10 marks)

Question 3: Write short notes any two of the following

        a. Artificial Intelligence and Machine learning
        b. Cyber Security
        c. Blockchain Technology

(2 x 5=10 marks)