# W-120

## Ph.D. Entrance Examination, 2024
### COMPUTER SCIENCE

*Maximum Marks : 50*

**Note : *Each question carrying 2 marks.***

**Q. 1.** Which of the following is a type of architecture used in the computers now a days ?

(a) Micro architecture

(b) Harvard architecture

(c) Van-Neumann architecture

(d) System design

**Q. 2.** Which one or more of the following CPU sheduling algorithms can potentially cause starvation ?

(a) First-in First-out

(b) Round Robin

(c) Priority Scheduling

(d) Shortest Job First

**Q. 3.** Which of the following can not be a variable name in C ?

(a) Volatile

(b) True

(c) Friend

(d) Export

**Q. 4.** Order of execution of destructors in a C++ program is :

(a) Top to bottom

(b) Bottom to top

(c) Uniform

(d) None of the above

**Q. 5.** Which of the following is a correct identifier in C++ ?

(a) VAR_1234

(b) $var_name

(c) 7VARNAME

(d) 7 var_name

**Q. 6.** What is the time complexity for searching a key or integer in Van Emde Boas data structure ?

(a) O (M 1)

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(b)  O (log M !)

(c)  O (log (log M))

(d)  O (M 2)

**Q. 7.** The preorder traversal sequence of a binary search tree is 30, 20, 10, 15, 25, 23, 39, 35, 42. Which one of the following is the postorder traversal sequence of the same tree ?

(a)  10, 20, 15, 23, 25, 35, 42, 39, 30

(b)  15, 10, 25, 23, 20, 42, 35, 39, 30

(c)  15, 20, 10, 23, 25, 42, 35, 39, 30

(d)  15, 10, 23, 25, 20, 35, 42, 39, 30

**Q. 8.** Which of the following is a valid heap ?

(a)  16 14 10 4 7 9 3 2 8 1

(b)  16 14 10 8 7 9 3 2 4 1

(c)  16 14 10 8 1 9 3 2 4 7

(d)  16 14 3 4 1 9 10 8 2 7

**Q. 9.** Which type of data structure is a ternary heap ?

(a)  Hash

(b)  Array

(c)  Priority Stack

(d)  Priority Queue

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**Q. 10.** If $L_1$ is a recursive language and $L_2$ and $L_3$ are languages that are recursively enumerable but not recursive, then which of the following statements is not necessarily true ?

(a)  $L_2 - L_1$ is recursively enumerable

(b)  $L_1 - L_3$ is recursively enumerable

(c)  $L_2 \cap L_1$ is recursively enumerable

(d)  $L_2 \cup L_1$ is recursively enumerable

**Q. 11.** It is less complex to prove the closure properties over regular languages using :

(a)  NFA

(b)  DFA

(c)  PDA

(d)  Can not be said

**Q. 12.** To access the services of the operating system, the interface is provided by the _____

(a)  Library

(b)  System calls

(c)  Assembly instructions

(d)  API

**Q. 13.** If a process fails, most operating system write write the error information to a _____

(a) New file

(b) Another running process

(c) Log file

(d) None of the above

**Q. 14.** The size of virtual memory is based on which of the following ?

(a) CPU

(b) RAM

(c) Address Bus

(d) Data Bus

**Q. 15.** In SQL the word 'natural' can be used with :

(a) Inner join

(b) Full outer join

(c) Right outer join

(d) None of the above

**Q. 16.** Which of the following is not a feature of DBMS ?

(a) Minimum duplication and redundancy of data

(b) High level security

(c) Single-user access only

(d) Support ACID property

**Q. 17.** Rectangles in ER diagram represents ?

(a) Tables

(b) Attributes

(c) Tuples

(d) Entity sets

**Q. 18.** Maximum children of a B-tree of order m is :

(a) $\frac{1}{2}m$

(b) m – 1

(c) m

(d) m + 1

**Q. 19.** Which of the following OSI reference model is also called end-to-end layer ?

(a) Network layer

(b) Data layer

(c) Session layer

(d) Transport layer

**Q. 20.** In the context of owner and weak entity sets in the ER (Entity-Relationship) data model, which one of the following statements is true ?

(a) Neither the weak entity set nor the owner entity set must have total participation in identifying the relationship

(b) Both the weak and owner entity sets must have total participation in the indentifying relationship.

(c) The owner entity set must have total participation in the identifying relationship.

(d) The weak entity set must have total participation in the identifying relationship.

**Q. 21.** Which of the following is not a TDMA standard of 2.5 G network ?

(a) GPRS

(b) GSM

(c) HSCSD

(d) EDGE

**Q. 22.** A parallel computing system consists of multiple processor that communicate with each other using a _____.

(a) Allocated memory

(b) Shared memory

(c) Network

(d) None of the above

**Q. 23.** Memory access in RISC architecture is limited to instructions :

(a) CALL and RET

(b) STA and LDA

(c) PUSH and POP

(d) MOV and JMP

**Q. 24.** Identify the term used to define the multidimensional model of the data warehouse :

(a) Data cube

(b) Tree

(c) Table

(d) Data structure

**Q. 25.** Which of the following is not a basic data mining task ?

(a) Spooling

(b) Prediction

(c) Classification

(d) Clustering

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