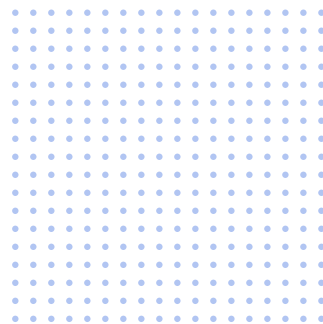




FOR JNU EE EXAM PREPARATION

JNU EE 2022 Question Paper · Ph.D Computational Biology and Bioinformatics - Track 3 Computer Science

EXAM

JNU EE

YEAR

2022

TYPE

Question Paper

SUBJECT

Ph.D Computational Biology and Bioinformatics - Track 3 Computer Science

Test Date : 10 Dec 2022**Test Slot : Slot 1****Subject : TRCC-Computational Biology & Bioinformatics Track -3 Computer Science****Sl. No.1****QBID:1132221**

The IA-32 system follows which of the following design?

1. CISC
2. IANA
3. SIMD
4. RISC

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17681]

2[Option ID=17682]

3[Option ID=17683]

4[Option ID=17684]

Sl. No.2**QBID:1132222**

Which of the following is the full form of CISC?

1. Complex Instruction sequential compilation
2. Complex Instruction set compiler
3. Complex Instruction set Computer
4. Complex Instruction sequential compiler

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17685]

2[Option ID=17686]

3[Option ID=17687]

4[Option ID=17688]

Sl. No.3**QBID:1132223**

The data is transferred over the RAMBUS as _____?

1. Blocks
2. Bits
3. Swing voltages
4. Packets

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17689]

2[Option ID=17690]

3[Option ID=17691]

4[Option ID=17692]

Sl. No.4

QBID:1132224

The bit used to signify that the cache location is updated is _____?

1. Flag bit
2. Reference bit
3. Updated bit
4. Dirty bit

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17693]

2[Option ID=17694]

3[Option ID=17695]

4[Option ID=17696]

Sl. No.5

QBID:1132225

While using the direct mapping technique in a 16 bit system, the higher order 5 bits are used for _____?

1. ID
2. Word
3. Tag
4. Block

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17697]

2[Option ID=17698]

3[Option ID=17699]
4[Option ID=17700]

Sl. No.6
QBID:1132226

Which of the register's of the processor is/are connected to memory Bus?

1. PC
2. MAR
3. IR
4. Both PC and MAR

- (1) 1
(2) 2
(3) 3
(4) 4

1[Option ID=17701]
2[Option ID=17702]
3[Option ID=17703]
4[Option ID=17704]

Sl. No.7
QBID:1132227

When a pop() operation is called on an empty stack, what is the condition called?

1. Syntax error
2. Overflow
3. Underflow
4. Garbage value

- (1) 1
(2) 2
(3) 3
(4) 4

1[Option ID=17705]
2[Option ID=17706]
3[Option ID=17707]
4[Option ID=17708]

Sl. No.8
QBID:1132228

Insertion and deletion from both ends are allowed in which of the following data structures?

1. Stack
2. Queue
3. Dequeue
4. Strings

- (1) 1
(2) 2

(3) 3

(4) 4

1[Option ID=17709]
 2[Option ID=17710]
 3[Option ID=17711]
 4[Option ID=17712]

Sl. No.9

QBID:1132229

What is the information that a Linked list's node must store?

1. The value of the current node
2. The address of the next node if it exists
3. Both 1 and 2
4. The value of the last node only

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17713]
 2[Option ID=17714]
 3[Option ID=17715]
 4[Option ID=17716]

Sl. No.10

QBID:1132230

The post order traversal of a Binary tree is represented by which of the following?

1. Left-> Root-> Right
2. Left-> Right-> Root
3. Right-> Root-> Left
4. Right-> Left-> Root

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17717]
 2[Option ID=17718]
 3[Option ID=17719]
 4[Option ID=17720]

Sl. No.11

QBID:1132231

An algorithm has 2 modules A1 and A2. If the order of A1 is $f(n)$ and A2 is $g(n)$, then the order of the algorithm is

1. Max ($f(n)$, $g(n)$)
2. Min ($f(n)$, $g(n)$)
3. $f(n) + g(n)$
4. $f(n) * g(n)$

- (1) 1
(2) 2
(3) 3
(4) 4

1[Option ID=17721]
2[Option ID=17722]
3[Option ID=17723]
4[Option ID=17724]

Sl. No.12

QBID:1132232

Big-O estimate of the factorial function, that is, $n!$ is given by

1. $O(n!)$
2. $O(n^n)$
3. $O(n+n!)$
4. $O(n^2)$

- (1) 1
(2) 2
(3) 3
(4) 4

1[Option ID=17725]
2[Option ID=17726]
3[Option ID=17727]
4[Option ID=17728]

Sl. No.13

QBID:1132233

Which of the followings cannot be designed by a Push down Automata?

1. $a^n b^n c^i$, where $n, i > 0$
2. $a^n c^i b^n$, where $n, i > 0$
3. $a^n b^n c^n$, where $n > 0$
4. $c^i a^n b^n$, where $n, i > 0$

- (1) 1
(2) 2
(3) 3
(4) 4

1[Option ID=17729]
2[Option ID=17730]

3[Option ID=17731]
4[Option ID=17732]

Sl. No.14
QBID:1132234

The smallest finite automata which accepts the language $\{ w \mid \text{length of } w \text{ is divisible by } n \}$ has

1. $n-1$ states
2. n states
3. $n+1$ states
4. $n+n$ states

- (1) 1
(2) 2
(3) 3
(4) 4

1[Option ID=17733]
2[Option ID=17734]
3[Option ID=17735]
4[Option ID=17736]

Sl. No.15
QBID:1132235

Which is true for the Mealy Machine?

1. Output depends on the present state.
2. Output depends on the present state and the past input.
3. Output depends upon the present input.
4. Output depends on the present state and the present input.

- (1) 1
(2) 2
(3) 3
(4) 4

1[Option ID=17737]
2[Option ID=17738]
3[Option ID=17739]
4[Option ID=17740]

Sl. No.16
QBID:1132236

The language generated by the grammar $S \rightarrow aSa \mid aAa$, $A \rightarrow b$ is

1. $a^n b^n$, $n > 0$
2. $a^n b a^n$, $n > 0$
3. $a^n b^n a^n$, $n > 0$
4. $a^n b a^m$, $n, m > 0$

- (1) 1
(2) 2
(3) 3

(4) 4

1[Option ID=17741]
 2[Option ID=17742]
 3[Option ID=17743]
 4[Option ID=17744]

Sl. No.17

QBID:1132237

Which of the following production is in Greibach Normal Form (GNF)? Here, NT= Non-terminal and T= Terminal.

1. (NT) $\rightarrow$ (Single T) (String of NT)
2. (NT) $\rightarrow$ (Single NT)(String of T)
3. (NT) $\rightarrow$ (String of Terminal and Non terminal)
4. (NT) $\rightarrow$ (String of NT)

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17745]
 2[Option ID=17746]
 3[Option ID=17747]
 4[Option ID=17748]

Sl. No.18

QBID:1132238

For the following CFG

$$S \rightarrow aX | \epsilon$$

$$X \rightarrow bX | a$$

Which of the following is true?

1. As X does not produce Null, Null can be removed.
2. Null production can be removed.
3. Null production cannot be removed.
4. Both 1 and 2.

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17749]
 2[Option ID=17750]
 3[Option ID=17751]
 4[Option ID=17752]

Sl. No.19

QBID:1132239

Which is a system program that integrates a program's individually complied modules into a form that can be executed?

1. Compiler
2. Assembler
3. Interpreter
4. Linking loader

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17753]

2[Option ID=17754]

3[Option ID=17755]

4[Option ID=17756]

Sl. No.20

QBID:1132240

The regular expression denote zero or more instances of x or y is ___?

1. (x + y)
2. (x + y)*
3. (x*+ y)
4. (xy)*

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17757]

2[Option ID=17758]

3[Option ID=17759]

4[Option ID=17760]

Sl. No.21

QBID:1132241

Which concept of FSA is used in the compiler?

1. Parser
2. Code generator
3. Lexical Analysis
4. Code Optimization

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17761]

2[Option ID=17762]
 3[Option ID=17763]
 4[Option ID=17764]

Sl. No.22
 QBID:1132242

If a set A has 'n' elements then the total number of subsets of A is?

1. N
2. N^2
3. 2^n
4. 2n

- (1) 1
 (2) 2
 (3) 3
 (4) 4

1[Option ID=17765]
 2[Option ID=17766]
 3[Option ID=17767]
 4[Option ID=17768]

Sl. No.23
 QBID:1132243

If A, B, C be three sets such that $A \cup B = A \cup C$ and $A \cap B = A \cap C$ then ?

1. $A=B$
2. $A=C$
3. $B=C$
4. $A=B=C$

- (1) 1
 (2) 2
 (3) 3
 (4) 4

1[Option ID=17769]
 2[Option ID=17770]
 3[Option ID=17771]
 4[Option ID=17772]

Sl. No.24
 QBID:1132244

Which of the following strings is not generated by the following grammar:

$S \rightarrow SaSbS \mid \epsilon$

1. aabb
2. abab
3. aababb
4. aaabbbb

- (1) 1
 (2) 2

(3) 3

(4) 4

1[Option ID=17773]

2[Option ID=17774]

3[Option ID=17775]

4[Option ID=17776]

Sl. No.25

QBID:1132245

_____ cannot be scheduled by the KERNEL.

1. Kernel level thread
2. User level thread
3. Process
4. None of the above

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17777]

2[Option ID=17778]

3[Option ID=17779]

4[Option ID=17780]

Sl. No.26

QBID:1132246

If the size of logical address space is 2 to the power of 'x' and a page size is 2 to the power of 'y' addressing unit, then the higher order _____ bit of a logical address designated the page number and the _____ low order bits designated the page offset.

1. x, y
2. y, x
3. x-y, x
4. x-y, y

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17781]

2[Option ID=17782]

3[Option ID=17783]

4[Option ID=17784]

Sl. No.27

QBID:1132247

When the valid-invalid bit is set to valid, it means that the associated page is _____?

1. In the translation lookaside buffer.
2. Contain data in it.
3. In the process's logical address space.
4. The system's physical address space.

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17785]

2[Option ID=17786]

3[Option ID=17787]

4[Option ID=17788]

Sl. No.28

QBID:1132248

Which algorithm chooses the page that has not been used for the longest period of time whenever the page required to be replaced?

1. First in first out algorithm
2. Additional reference bit algorithm
3. Least recently used algorithm
4. Counting based page replacement algorithm

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17789]

2[Option ID=17790]

3[Option ID=17791]

4[Option ID=17792]

Sl. No.29

QBID:1132249

In a system that does not support SWAPPING?

1. The compiler normally binds symbolic addresses (variable) to relocatable address.
2. The compiler normally binds symbolic address to physical address.
3. The loader binds relocatable address to physical address.
4. Binding of symbolic address to physical address normally takes place during execution.

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17793]

2[Option ID=17794]

3[Option ID=17795]

4[Option ID=17796]

Sl. No.30

QBID:1132250

The employee salary should not be greater than Rs. 2,000. This is

1. Integrity Constraint
2. Referential Constraint
3. Over-defined Constraint
4. Domain Constraint

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17797]

2[Option ID=17798]

3[Option ID=17799]

4[Option ID=17800]

Sl. No.31

QBID:1132251

The set of permitted values for each attribute is called its

1. Attribute set
2. Attribute range
3. Domain
4. Group

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17801]

2[Option ID=17802]

3[Option ID=17803]

4[Option ID=17804]

Sl. No.32

QBID:1132252

Consider the following action in a database

Transaction.....

Commit;

Rollback;

What does Rollback do here?

1. Clears all transactions
2. Undoes the transactions before commit
3. No action
4. Redoes the transactions before commit

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17805]

2[Option ID=17806]

3[Option ID=17807]

4[Option ID=17808]

Sl. No.33

QBID:1132253

Which of the following concurrency control protocols ensure both conflict serializability and freedom from deadlock?

- I. 2-phase locking
- II. Time-stamp ordering

1. I only
2. II only
3. Both I and II
4. Neither I nor II

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17809]

2[Option ID=17810]

3[Option ID=17811]

4[Option ID=17812]

Sl. No.34

QBID:1132254

When a transaction has completed all its operations and is waiting for Commit or Rollback action, the state of transaction is

1. Commit and Rollback
2. Half commit
3. Ready commit
4. Partially commit

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17813]

2[Option ID=17814]

3[Option ID=17815]

4[Option ID=17816]

Sl. No.35

QBID:1132255

Consider the Join of a relation A with a relation B. If A has m tuples and B has n tuples, then the maximum and minimum sizes of the join respectively are

1. mn and 0
2. mn and m
3. $(m + n)$ and $(m - n)$
4. mn and $m + n$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17817]

2[Option ID=17818]

3[Option ID=17819]

4[Option ID=17820]

Sl. No.36

QBID:1132256

What is the port number of POP?

1. 43
2. 80
3. 97
4. 110

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=17821]
 2[Option ID=17822]
 3[Option ID=17823]
 4[Option ID=17824]

Sl. No.37

QBID:1132257

Which of the following uses an 8B/6T scheme for encoding?

1. 100 Base-TX
2. 100 Base-FX
3. 100 Base-T4
4. 100 Base-T1

- (1) 1
 (2) 2
 (3) 3
 (4) 4

1[Option ID=17825]
 2[Option ID=17826]
 3[Option ID=17827]
 4[Option ID=17828]

Sl. No.38

QBID:1132258

A 100 km long cable runs at the T1 data rate. The propagation speed in the cable is half the speed of light. How many bits are there in the cable?

1. 572
2. 672
3. 772
4. 873

- (1) 1
 (2) 2
 (3) 3
 (4) 4

1[Option ID=17829]
 2[Option ID=17830]
 3[Option ID=17831]
 4[Option ID=17832]

Sl. No.39

QBID:1132259

Which of the following digit are known as the area code of the Network Used Address (NUA).

1. 1-4
2. 5-7
3. 8-12
4. 13-14

- (1) 1
(2) 2
(3) 3
(4) 4

1[Option ID=17833]
2[Option ID=17834]
3[Option ID=17835]
4[Option ID=17836]

Sl. No.40
QBID:1132260

Calculate the maximum efficiency of Pure ALOHA at $G=0.5$?

1. 1.89%
2. 16%
3. 18.4%
4. 18.99%

- (1) 1
(2) 2
(3) 3
(4) 4

1[Option ID=17837]
2[Option ID=17838]
3[Option ID=17839]
4[Option ID=17840]