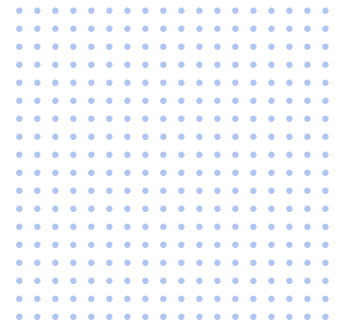




FOR JNU EE EXAM PREPARATION

JNU EE 2022

Question Paper · Ph.D

Computer Sciences

EXAM	YEAR	TYPE	SUBJECT
JNU EE	2022	Question Paper	Ph.D Computer Sciences



Test Date : 09 Dec 2022

Test Slot : slot 1

Subject : SCSH-Computer Sciences

Sl. No.1

QBID:8902051

A ----- is a linearly ordered sequence of memory cells.

1. Node
2. Link
3. Memory
4. NULL

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13401]

2[Option ID=13402]

3[Option ID=13403]

4[Option ID=13404]

Sl. No.2

QBID:8902052

A ----- attacks the problem of fragmentation by moving all the allocated blocks to one end of memory, thus combining all the holes.

1. Garbage Compaction
2. Garbage Collection
3. Buddy System
4. Queue

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13405]

2[Option ID=13406]

3[Option ID=13407]

4[Option ID=13408]

Sl. No.3

QBID:8902053

If P is a procedure containing a call statement to itself or a call statement to a second procedure that may eventually result in a call statement back to the original procedure P. Then P is called a ----- procedure.

1. Linear
2. Recursive
3. Open
4. Close

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13409]

2[Option ID=13410]

3[Option ID=13411]

4[Option ID=13412]

Sl. No.4

QBID:8902054

Which of the following is the best run time complexity to sort n integers in the range 0 to n^2-1 ?

1. $O(n)$
2. $O(n^2)$
3. $O(\log n)$
4. $O(n \log n)$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13413]

2[Option ID=13414]

3[Option ID=13415]

4[Option ID=13416]

Sl. No.5

QBID:8902055

N- queens problem can be solved easily by the following?

1. Dynamic Programming
2. Backtracking Method
3. Greedy Method
4. Divide and Conquer Method

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13417]

2[Option ID=13418]

3[Option ID=13419]
4[Option ID=13420]

Sl. No.6
QBID:8902056

A Bi-connected Graph certainly does not contain any-

1. Cycle
2. Path
3. Parallel Edge
4. Cut Vertex

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13421]
2[Option ID=13422]
3[Option ID=13423]
4[Option ID=13424]

Sl. No.7
QBID:8902057

Which one is correct statement about an object and a class?

1. Object is physical entity whereas class is logical entity
2. Object is stored in an array and class is stored in heap
3. Object takes less memory than class
4. There are different functions for deleting object and class.

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13425]
2[Option ID=13426]
3[Option ID=13427]
4[Option ID=13428]

Sl. No.8
QBID:8902058

In C programming language, $m \gg n$ is evaluated as:

1. $m \cdot 2^n$
2. $m/2^n$
3. $m \cdot n$
4. m/n

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13429]
2[Option ID=13430]
3[Option ID=13431]
4[Option ID=13432]

Sl. No.9**QBID:8902059**

How many bytes will be required to store 40 float numbers in Linked List implementation?

1. 200 bytes
2. 240 bytes
3. 420 bytes
4. 160 bytes

(1) 1**(2) 2****(3) 3****(4) 4****1[Option ID=13433]****2[Option ID=13434]****3[Option ID=13435]****4[Option ID=13436]****Sl. No.10****QBID:8902060**

Which of the following is **NOT** correct with respect to threads?

1. User level threads are visible to programmer.
2. In general, user level threads are faster to create than kernel level threads.
3. Kernel level threads are faster to manage than user level threads.
4. Kernel level threads are managed by operating system kernel.

(1) 1**(2) 2****(3) 3****(4) 4****1[Option ID=13437]****2[Option ID=13438]****3[Option ID=13439]****4[Option ID=13440]****Sl. No.11****QBID:8902061**

Which of the following is used for load balancing?

- A. Push Migration
- B. Pull Migration
- C. Pthread scheduling

Choose the correct answer from the options given below-

1. A Only
2. B Only
3. A and C Only
4. A and B Only

(1) 1**(2) 2****(3) 3****(4) 4**

- 1[Option ID=13441]
 2[Option ID=13442]
 3[Option ID=13443]
 4[Option ID=13444]

Sl. No.12
QBID:8902062

To decide, which kernel thread to schedule onto a CPU, the Kernel uses the following-

1. System-Contention Scope
2. Multithreading Queue
3. Priority Queue
4. Pthread

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

- 1[Option ID=13445]
 2[Option ID=13446]
 3[Option ID=13447]
 4[Option ID=13448]

Sl. No.13
QBID:8902063

A binary Semaphore is also known as -

1. Signal
2. Bounded waiting
3. Critical Section
4. Mutex lock

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

- 1[Option ID=13449]
 2[Option ID=13450]
 3[Option ID=13451]
 4[Option ID=13452]

Sl. No.14
QBID:8902064

There is Two Phase Locking Protocol where each transaction issue a lock and unlock request in phases namely

- A. Growing phase
- B. Shrinking phase
- C. Timestamp phase

Choose the correct answer from the options given below-

1. A and B Only
2. B and C Only
3. A and C Only
4. C Only

- (1) 1
 (2) 2

(3) 3

(4) 4

1[Option ID=13453]

2[Option ID=13454]

3[Option ID=13455]

4[Option ID=13456]

Sl. No.15**QBID:8902065**

Think about a virtual memory system that uses FIFO page replacement. For a given page access pattern, increasing the page frames in main memory will –

1. Always reduce the number of page faults.
2. Increasing the number of page faults is a constant.
3. Never affect the number of page faults.
4. Sometimes increases the number of page faults.

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13457]

2[Option ID=13458]

3[Option ID=13459]

4[Option ID=13460]

Sl. No.16**QBID:8902066**

When a process creates a new process, the following possibilities exist in terms of execution-

- A. The parent continues to execute concurrently with its children
- B. The parent waits until some or all of its children have terminated
- C. The child process has a new program loaded into it.

Choose the correct answer from the options given below-

1. A Only
2. B Only
3. A and B Only
4. B and C Only

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13461]

2[Option ID=13462]

3[Option ID=13463]

4[Option ID=13464]

Sl. No.17**QBID:8902067**

The logic which does not work only on True and False is called:

1. Predicate Logic
2. Fuzzy logic
3. Binary Logic
4. Propositional Logic

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13465]

2[Option ID=13466]

3[Option ID=13467]

4[Option ID=13468]

Sl. No.18

QBID:8902068

If P and Q are any two statements, then the statement $P \rightarrow Q$ is called-

1. Disjunction statement
2. Conjunction statement
3. Conditional Statement
4. Negation Statement

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13469]

2[Option ID=13470]

3[Option ID=13471]

4[Option ID=13472]

Sl. No.19

QBID:8902069

Which one is a **NOT** a type of Logic?

1. Informal logic
2. Symbolic Logic
3. Mathematical logic
4. Hamming Logic.

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13473]

2[Option ID=13474]

3[Option ID=13475]

4[Option ID=13476]

Sl. No.20

QBID:8902070

Which of the following is an Error Correction Code?

1. BCD Code
2. Hamming Code
3. Gray Code
4. Cyclic Code

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13477]

2[Option ID=13478]

3[Option ID=13479]

4[Option ID=13480]

Sl. No.21

QBID:8902071

If $(a^2 - b^2)$ is a prime number where a and $b \in \mathbb{N}$, then:

1. $a^2 - b^2 = 3$
2. $a^2 - b^2 = a - b$
3. $a^2 - b^2 = a + b$
4. $a^2 - b^2 = 5$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13481]

2[Option ID=13482]

3[Option ID=13483]

4[Option ID=13484]

Sl. No.22

QBID:8902072

The time complexity of computing the transitive closure of a binary relation, on a set of n elements, is:

1. $O(n)$
2. $O(\log n)$
3. $O(n^3)$
4. $O(n^2)$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13485]

2[Option ID=13486]

3[Option ID=13487]

4[Option ID=13488]

Sl. No.23
QBID:8902073

If a statement is true for all logical possibilities, then it is called:

1. Clause
2. Theorem
3. Tautology
4. Anatomy

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

1[Option ID=13489]
2[Option ID=13490]
3[Option ID=13491]
4[Option ID=13492]

Sl. No.24
QBID:8902074

Deterministic Finite Automata has a:

1. Finite set of states and a finite set of Input Symbols
2. Infinite set of states and a Finite set of Input Symbols
3. Finite set of states and infinite set of Input Symbols
4. Infinite set of states and Infinite set of Input Symbols

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

1[Option ID=13493]
2[Option ID=13494]
3[Option ID=13495]
4[Option ID=13496]

Sl. No.25
QBID:8902075

In Automata Theory, while dealing with recursively defined objects, we need:

1. Deductive Proofs
2. Inductive Proofs
3. Imperatives
4. Deductives

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

1[Option ID=13497]
2[Option ID=13498]

3[Option ID=13499]
4[Option ID=13500]

Sl. No.26
QBID:8902076

A regular language over an alphabet is one that can be obtained from:

- A. Union
- B. Concatenation
- C. Kleene

Choose the correct answer from the options given below-

- 1. A and B Only
- 2. B and C Only
- 3. A and C Only
- 4. A , B and C Only

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13501]
2[Option ID=13502]
3[Option ID=13503]
4[Option ID=13504]

Sl. No.27
QBID:8902077

DPAP in Automata Theory accepts

- 1. Formal Language
- 2. Context Sensitive Language
- 3. Deterministic Context Free Language
- 4. Natural Language

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13505]
2[Option ID=13506]
3[Option ID=13507]
4[Option ID=13508]

Sl. No.28
QBID:8902078

Which sentence can be generated by:

$S \rightarrow d \mid bA, A \rightarrow d \mid ccA$

- 1. bcccd
- 2. aabccd
- 3. ababccd
- 4. abbbd

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13509]

2[Option ID=13510]

3[Option ID=13511]

4[Option ID=13512]

Sl. No.29

QBID:8902079

Identify the language which is not context free:

1. $L = \{ww^R | w \in \{0,1\}^*\}$

2. $L = \{a^n b^n | n \geq 0\}$

3. $L = \{ww | w \in \{0,1\}^*\}$

4. $L = \{a^n b^m c^m d^m | n, m \geq 0\}$

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13513]

2[Option ID=13514]

3[Option ID=13515]

4[Option ID=13516]

Sl. No.30

QBID:8902080

In Chomsky Normal Form, Productions are of the form-

1. $A \rightarrow BC$ or $A \rightarrow a$

2. $A \rightarrow a\alpha$

3. $A \rightarrow ab$

4. $A \rightarrow \alpha a$

Where A, B, C are variables, a is a terminal and α is a string of zero or more variables.

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13517]

2[Option ID=13518]

3[Option ID=13519]

4[Option ID=13520]

Sl. No.31

QBID:8902081

Digital Logic is primarily concerned with the-

1. Hardware Layer
2. Software Layer
3. Compiler Layer
4. Application Layer

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13521]

2[Option ID=13522]

3[Option ID=13523]

4[Option ID=13524]

Sl. No.32

QBID:8902082

Hexadecimal equivalent of the following binary number 1110110101.110111 is-

1. 3D6.EC

2. 854.EC

3. 3B5.DC

4. 844.DC

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13525]

2[Option ID=13526]

3[Option ID=13527]

4[Option ID=13528]

Sl. No.33

QBID:8902083

Given below are two statements regarding Strobe Method of data transfer:

Statement I: The Source Unit that initiates the transfer has no-way of knowing whether the Destination Unit has actually received the data item.

Statement II: A Destination Unit that initiates the transfer has no way of knowing whether the Source Unit has actually placed the data on the bus.

In the light of the above statements, choose the most appropriate answer from the options given below.

1. Both Statement I and Statement II are correct
2. Both statement I and Statement II are incorrect
3. Statement I is correct but Statement II is incorrect
4. Statement I is incorrect but Statement II is correct

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13529]

2[Option ID=13530]

3[Option ID=13531]

4[Option ID=13532]

Sl. No.34**QBID:8902084**

Hamming distance between two successive codes in a cyclic code is-

1. 0

2. 1

3. 2

4. 3

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13533]

2[Option ID=13534]

3[Option ID=13535]

4[Option ID=13536]

Sl. No.35**QBID:8902085**

Programmable Logic Devices fall into the following categories:

A. Field Programmable Logic Array

B. Programmable Array Logic

C. Programmable Read Only Memory

Choose the most appropriate answer from the options given below-

1. A and B only

2. A and C only

3. B and C only

4. A, B and C

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13537]

2[Option ID=13538]

3[Option ID=13539]

4[Option ID=13540]

Sl. No.36**QBID:8902086**

Bi-stable memory elements used in sequential circuits to store binary information are called-

1. Adder
2. Multiplexer
3. Subtractor
4. Flip-flops

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13541]

2[Option ID=13542]

3[Option ID=13543]

4[Option ID=13544]

Sl. No.37

QBID:8902087

Which one is the characteristic of RISC ?

1. It has a large number of instructions
2. It has a large variety of addressing modes
3. It has a Fixed-length, easily decoded instruction format
4. It has some instructions that perform specialized tasks and are used infrequently

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13545]

2[Option ID=13546]

3[Option ID=13547]

4[Option ID=13548]

Sl. No.38

QBID:8902088

The DBMS must include concurrency control software-

1. To ensure several users to update the same data.
2. To ensure program-operation independence.
3. To ensure coordinating and monitoring its use.
4. To ensure integration with the view of other user groups.

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13549]

2[Option ID=13550]

3[Option ID=13551]

4[Option ID=13552]

Sl. No.39

QBID:8902089

Which one is **NOT** a part of Database System Utilities?

1. Back-up
2. Database storage re-organization
3. Concurrency control
4. Performance monitoring

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13553]

2[Option ID=13554]

3[Option ID=13555]

4[Option ID=13556]

Sl. No.40

QBID:8902090

Two relations, in Relational Algebra, having the same degree n and if domain $(A_i) = \text{domain}(B_i)$ for $1 \leq i \leq n$ is known as-

1. Join Compatible
2. Division Compatible
3. Union Compatible
4. Cartesian Product Compatible

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13557]

2[Option ID=13558]

3[Option ID=13559]

4[Option ID=13560]

Sl. No.41

QBID:8902091

Generation of Spurious Tuples may occur in:

- A. Natural join
- B. Equi join
- C. Outer join

Choose the correct answer from the options given below-

1. A Only
2. B Only
3. A and C Only
4. A and B Only

(1) 1

(2) 2

(3) 3

(4) 4

- 1[Option ID=13561]
 2[Option ID=13562]
 3[Option ID=13563]
 4[Option ID=13564]

Sl. No.42
 QBID:8902092

When are two schedules considered equivalent?

1. If they produce the same final state of the database
2. If two schedules are serial schedules
3. If number of read and write operations are equal
4. If they only have read operations

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

- 1[Option ID=13565]
 2[Option ID=13566]
 3[Option ID=13567]
 4[Option ID=13568]

Sl. No.43
 QBID:8902093

Given below are two statements:

- Statement 1:** The query parser will typically generate a standard initial query tree corresponding to an SQL query without doing any optimization.
- Statement 2:** A canonical query tree represents a relational algebra expression that is very inefficient if executed directly.

In the light of the above statements, choose the most appropriate answer from the options given below

1. Both Statement I and Statement II are correct
2. Both statement I and Statement II are incorrect
3. Statement I is correct but Statement II is incorrect
4. Statement I is incorrect but Statement II is correct

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

- 1[Option ID=13569]
 2[Option ID=13570]
 3[Option ID=13571]
 4[Option ID=13572]

Sl. No.44
 QBID:8902094

A packet whose destination is outside the local TCP/IP network segment is sent to _____?

1. DNS Server
2. File Server
3. Default Gateway
4. DHCP Server

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13573]

2[Option ID=13574]

3[Option ID=13575]

4[Option ID=13576]

Sl. No.45

QBID:8902095

The power of a signal is 10 mw and the power of the noise is $1\mu\text{w}$; what are the values of SNR and SNR_{dB} ?

1. 100; 4
2. 10,000; 40
3. 1000; 400
4. 10,0000; 400

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13577]

2[Option ID=13578]

3[Option ID=13579]

4[Option ID=13580]

Sl. No.46

QBID:8902096

What percentage (%) of the IPv4, Internet protocol address space do all class 'C' addresses consume?

1. 25%
2. 37.5%
3. 12.5%
4. 50%

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13581]

2[Option ID=13582]

3[Option ID=13583]

4[Option ID=13584]

Sl. No.47**QBID:8902097**

The data unit in the TCP/IP application layer is called a -

1. Segment
2. Datagram
3. Message
4. Frame

(1) 1**(2) 2****(3) 3****(4) 4****1[Option ID=13585]****2[Option ID=13586]****3[Option ID=13587]****4[Option ID=13588]****Sl. No.48****QBID:8902098**

Which of the following is an example of a client server model-

- a. FTP
- b. TELNET
- c. DNS

Choose the correct answer from the options given below-

1. A and B Only
2. B and C Only
3. C and A Only
4. A, B and C Only

(1) 1**(2) 2****(3) 3****(4) 4****1[Option ID=13589]****2[Option ID=13590]****3[Option ID=13591]****4[Option ID=13592]****Sl. No.49****QBID:8902099**

Identify the correct sequence in which the following packets are transmitted on the network by a host when a browser requests a webpage from a remote server, assuming that the host has just been restarted.

1. TCP SYN, DNS query, HTTP GET request
2. DNS query, HTTP GET request, TCP SYN
3. HTTP GET request, DNS query, TCP SYN
4. DNS query, TCP SYN, HTTP GET request

(1) 1**(2) 2**

(3) 3

(4) 4

1[Option ID=13593]

2[Option ID=13594]

3[Option ID=13595]

4[Option ID=13596]

Sl. No.50

QBID:8902100

Which of the following devices takes data from one network device and forwards it to the destination node based on MAC address?

1. Modem

2. Hub

3. Switch

4. Gateway

(1) 1

(2) 2

(3) 3

(4) 4

1[Option ID=13597]

2[Option ID=13598]

3[Option ID=13599]

4[Option ID=13600]