

SILIGURI INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ECE

1st Internal Examination (CA2) – May 2021

PAPER NAME: **CMOS VLSI DESIGN**

PAPER CODE: **PE-EC603C**

FULL MARKS: 30

TIME: 1Hour

I. ANSWER ALL QUESTIONS

(5X1 = 5)

(1) LUT is used in

i) CPLD

ii) FPGA

iii) SPLD

iv) ASIC

(2) In a PLA which one is programmable?

i) AND plane

ii) OR plane

iii) Both AND & OR plane

iv) None

(3) FPGA is a

i) Full Custom ASIC

ii) Semi Custom ASIC

iii) Programmable ASIC

iv) Both (ii) & (iii)

(4) PAL and PLA are known as

i) CPLD

ii) SPLD

iii) FPLD

iv) GPLD

(5) Which one of the following is not considered as an ASIC?

i) IC for an electronic guitar

ii) Network Interface chip

iii) DRAM

iv) IC for Bluetooth application

Group A: ANSWER ANY ONE

(Based on CO1)

(1X5=5)

Q1. Draw Y - Chart and explain VLSI Design Flow.

Q2. Explain the gate array based VLSI system design.

Group B: ANSWER ANY ONE

(Based on CO2)

(1X5=5)

Q1. Discuss the layout design rules.

Q2. What is Stick Diagram? Draw the Stick Diagram of CMOS Inverter.

Group C: ANSWER ANY ONE

(Based on CO2)

(1X15=15)

Q1. Explain the Basic Steps of Fabrication Process.

Q2. Design a Full Adder Circuit using PAL.

Siliguri Institute of Technology
Department of ECE
1st Internal Exam – 2021 (Odd Semester)
February– 2021

Semester: 5th	Group: A & B
Paper Code: EC 501	Paper Name: Electromagnetic Waves
Full Marks: 30	Time: 1hour

Answer all questions:

Q1.(Aligned to CO1)

- i) $\vec{\nabla} \times \vec{E} = 0$ means the electric field \mathbf{E} is produced by the **5X2=10**
- a) Static Charge b) Moving Charge C) E.M induction d) Varying magnetic field
- ii) For Conservative field which of the following equations holds good?
- a) $\oint \vec{B}.ds = 0$ b) $\oint \vec{E}.dl = 0$ c) $\oint \vec{H}.dl = 0$ d) $\oint \vec{D}.ds = 0$
- iii) Point Charges $Q_1=1nC$ and $Q_2=2nC$ are at a distance apart. Which of the following statements are incorrect
- a) The force on Q_1 is repulsive
b) The force on Q_2 is the same in magnitude as that on Q_1
c) As the distance between them decreases, the force on Q_1 increases linearly
d) The force on Q_2 is along the line joining them
- iv) Displacement current can flow through
- a) Capacitor b) Inductor. C) resistor d) None of these
- v) Divergence of which quantity will be zero
- a) **E** b) **D** c) **H** d) **B**

Q2.(Aligned to CO2)

- i) What is loss tangent? Derive the expression for intrinsic impedance when the wave is propagating through lossy dielectric. **10**

OR

- ii) Prove that the electromagnetic power passing through free space is given by the expression $E \times H \text{ W / m}^2$

Q3. (Aligned to CO3)

10

- i) Derive the expression for: a) input impedance of a lossless transmission line. b) input impedance of a $\frac{\lambda}{4}$ transmission line.

OR

- ii) a) Derive the voltage and current equation of two wire transmission line. obtain the expression for Z_0 , α and β of a distortion less transmission line.

Data Structure and Algorithm (PCC-CS301)

*Required

1. Email *

2. University Roll Number *

3. Name of Student *

4. Department *

Mark only one oval.

CSE A

CSE B

IT

Group -A

20x1=20

5. 1. Stack A has the entries a, b, c (with a on top), Stack B is empty. An entry popped out of stack A is pushed into stack B. An entry popped out of stack B can only be printed. In this arrangement, which of the following permutations of a, b, c is not possible? *
- 1 point

Mark only one oval.

- b a c
- c a b
- c b a
- a b c

6. 2. Elements in an array are accessed _____ *
- 1 point

Mark only one oval.

- randomly
- sequentially
- exponentially
- logarithmically

7. 3. In a stack, if a user tries to remove an element from an empty stack it is called _____ *
- 1 point

Mark only one oval.

- Underflow
- Empty collection
- Overflow
- Garbage Collection

8. 4. Which of the following is not the application of stack? *

1 point

Mark only one oval.

- A parentheses balancing program
- Tracking of local variables at run time
- Compiler Syntax Analyzer
- Data Transfer between two asynchronous process

9. 5. Which data structure is used for implementing recursion? *

1 point

Mark only one oval.

- Queue
- Stack
- Array
- List

10. 6. Consider the following operation performed on a stack of size 5. Push(1); Pop(); Push(2); Push(3); Pop(); Push(4); Pop(); Pop(); Push(5); After the completion of all operation, the number of elements present in stack are *

1 point

Mark only one oval.

- 1
- 2
- 3
- 4

11. 7. A queue follows _____ *

1 point

Mark only one oval.

- LIFO (Last In First Out) principle
- FIFO (First In First Out) principle
- Ordered array
- Linear tree

12. 8. Circular Queue is also known as _____ *

1 point

Mark only one oval.

- Ring Buffer
- Square Buffer
- Rectangle Buffer
- Curve Buffer

13. 9. A normal queue, if implemented using an array of size MAX_SIZE, gets full when? *

1 point

Mark only one oval.

- $\text{Rear} = \text{MAX_SIZE} - 1$
- $\text{Front} = (\text{rear} + 1) \bmod \text{MAX_SIZE}$
- $\text{Front} = \text{rear} + 1$
- $\text{Rear} = \text{front}$

14. 10. Linked list is considered as an example of _____ type of memory allocation. * 1 point

Mark only one oval.

- Dynamic
- Static
- Compile time
- Heap

15. 11. In Linked List implementation, a node carries information regarding _____ * 1 point

Mark only one oval.

- Data
- Link
- Data and Link
- Node

16. 12. Let queue be a circular array having size 10. Now front=10 and rear=10 indicates that the queue----- * 1 point

Mark only one oval.

- is empty
- is full
- Contains only one element
- None of these

17. 13. Inserting an item into the stack when stack is not full is called operation and deletion of item from the stack, when stack is not empty is calledoperation. *
- 1 point

Mark only one oval.

- pop, push
- push, pop
- insert, delete
- delete, insert

18. 14. What is the need for a circular queue? *
- 1 point

Mark only one oval.

- effective usage of memory
- easier computations
- to delete elements based on priority
- implement LIFO principle in queues

19. 15. Which of these is not an application of a linked list? *
- 1 point

Mark only one oval.

- To implement file systems
- For separate chaining in hash-tables
- To implement non-binary trees
- Random Access of elements

20. 16. Linked list data structure offers considerable saving in _____ * 1 point

Mark only one oval.

- Computational Time
- Space Utilization
- Space Utilization and Computational Time
- Speed Utilization

21. 17. Which of the following real world scenarios would you associate with a stack data structure? * 1 point

Mark only one oval.

- people standing in a line to be serviced at a counter
- offer services based on the priority of the customer
- piling up of chairs one above the other
- tatkal Ticket Booking in IRCTC

22. 18. What is the time complexity of pop() operation when the stack is implemented using an array? * 1 point

Mark only one oval.

- $O(1)$
- $O(n)$
- $O(\log n)$
- $O(n \log n)$

23. 19. In linked list implementation of a queue, where does a new element be inserted? * 1 point

Mark only one oval.

- At the head of link list
- At the centre position in the link list
- At the tail of the link list
- At any position in the linked list

24. 20. What does 'stack overflow' refer to? * 1 point

Mark only one oval.

- accessing item from an undefined stack
- adding items to a full stack
- removing items from an empty stack
- index out of bounds exception

Group-B

5x2=10

25. 21. A program P reads in 500 integers in the range [0..100] experimenting the scores of 500 students. It then prints the frequency of each score above 50. What would be the best way for P to store the frequencies? * 2 points

Mark only one oval.

- A. An array of 50 numbers
- B. An array of 100 numbers
- C. An array of 500 numbers
- D. A dynamically allocated array of 550 numbers

26. 22. The prefix expression for the infix expression: $a*(b+c)/e-f$ is *

2 points

Mark only one oval.

- /*a+bc-ef
- /*+abcef
- /*a+bcef
- None of these

27. 23. Here is an infix expression: $4 + 3*(6*3-12)$. Suppose that we are using the usual stack algorithm to convert the expression from infix to postfix notation. The maximum number of symbols that will appear on the stack AT ONE TIME during the conversion of this expression? *

2 points

Mark only one oval.

- 1
- 2
- 3
- 4

28. 24. What does the following function do for a given Linked List with first node as head? * 2 points

```
void fun1(struct node* head)
{
    if(head == NULL)
        return;
    fun1(head->next);
    printf("%d ", head->data);
}
```

Mark only one oval.

- Prints all nodes of linked lists
- Prints all nodes of linked list in reverse order
- Prints alternate nodes of Linked List
- Prints alternate nodes in reverse order

29. 25. Which of the following points is/are not true about Linked List data structure when it is compared with an array? * 2 points

Mark only one oval.

- Arrays have better cache locality that can make them better in terms of performance
- It is easy to insert and delete elements in Linked List
- Random access is not allowed in a typical implementation of Linked Lists
- Access of elements in linked list takes less time than compared to arrays

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Questions

Responses

Settings

Section 1 of 3

Artificial Intelligence (PEC-IT501B)



Form description

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After section 1 Continue to next section ▾

Section 2 of 3

Group- A



Description (optional)

1. Which search method takes less memory?

Depth-First Search

Breadth-First search

Both (a) and (b)





Questions

Responses

Settings

- Maximization of a function value
- Both a) and b)
- None of these

3. Algorithm that gives optimal solution is

- Hill climbing
- BFS
- Blind Search
- A*

4. Hill climbing has potential problems like

- Lake
- Foothill trap
- Garden
- All of these



[Questions](#)[Responses](#)[Settings](#)

Contradiction

all of these

6. Knowledge consist of

Concepts and procedures

Facts and rules

Both (a) and (b)

None of these

7. Skolem function is used in

Unification algorithm

Natural deduction

Conversion of clausal form

None of these

8. Inheritable knowledge is best represented by

OR graph

AND graph



[Questions](#)[Responses](#)[Settings](#)

9. Resolution can be used for

- Question answering
- theorem proving
- Both (a) and (b)
- none of these

10. NLP stand for

- Natural linear processing
- Natural language Processing
- Natural language programming
- none of these

11. Meta rules are one type of

- Conflict resolution strategies
- recency
- Refraction
- production rules



[Questions](#)[Responses](#)[Settings](#)

- sound but not complete
- complete but not sound
- all of these

13. Semantic Networks is

- A way of representing knowledge
- Data Structure
- Data Type
- None of the mentioned

14. In A* approach evaluation function is

- Heuristic function
- Path cost from start node to current node
- Path cost from start node to current node + Heuristic cost
- Average of Path cost from start node to current node and Heuristic cost

15. Searching techniques are used for





Questions Responses Settings

All of these

16. Which search is equal to minimax search but eliminates the branches that can't influence

- Depth-first search
- Breadth-first search
- Alpha-beta pruning
- None of the mentioned

17. A _____ is used to demonstrate, on a purely syntactic basis, that one formula is a logical

- Deductive Systems
- Inductive Systems
- Search Based Systems
- All of these

18. What is the evaluation function in A* approach?

- Heuristic function
- Path cost from start node to current node





Questions

Responses

Settings

- Representational Verification
- Representational Adequacy
- Higher Order Logic
- Inferential Efficiency

20. Lifted inference rules require finding substitutions that make different logical expressions

- Existential Instantiation
- Universal Instantiation
- Unification
- Modus Ponon

After section 2 Continue to next section ▾

Section 3 of 3

Group- B (5 X 2=10)



Description (optional)





Questions Responses Settings

$\forall x: \text{dog}(y) \rightarrow \text{has tail}(x)$

$\forall x: \text{dog}(x) \rightarrow \text{has tail}(x)$

2.



a

b

c

d

3. Translate the following statement into FOL. "For every a, if a is a philosopher, then a is a

$\forall a \text{ philosopher}(a) \rightarrow \text{scholar}(a)$

$\exists a \text{ philosopher}(a) \text{ scholar}(a)$

All of the mentioned

None of the mentioned

4. The truth values of traditional set theory is _____ and that of fuzzy set is _____





Questions Responses Settings

Either 0 or 1, either 0 or 1

5.



a

b

c

d



SILIGURI INSTITUTE OF TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
1st INTERNAL EXAMINATION 2021
OBJECT ORIENTED PROGRAMMING [PCC-CS 503]

Time Allotted: 1Hour

Full Marks: 30

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Answer all questions

1. Answer any five.

5X1=5

i) Which of these statement is incorrect?

- a) Every class must contain a main() method.
- b) Applets do not require a main() method at all.
- c) There can be only one main() method in a program.
- d) main() method must be made public

ii) What is stored in the object obj in following lines of code?

box obj;

- a) Memory address of allocated memory of object.
- b) NULL
- c) Any arbitrary pointer
- d) Garbage

iii) String is defined in which package?

- (a) java.util
- (b) java.lang
- (c) java.awt
- (d) java.io

iv) The relation between classes can be represented by

- a) polymorphism
- b) method
- c) message
- d) inheritance.

v) Method overloading occurs only when

- a) the names and the type signature of two methods are not identical
- b) the names and the type signature of two methods are identical
- c) the names and the return types of two methods are identical
- d) only the names are identical.

vi) What is the output of this program?

```
class main_class {
    public static void main(String args[])
    {
        int x = 9;
        if (x == 9) {
            int x = 8;
            System.out.println(x);
        }
    }
}
```

- a) 9
- b) 8
- c) Compilation error
- d) Runtime error

2. Answer any two.

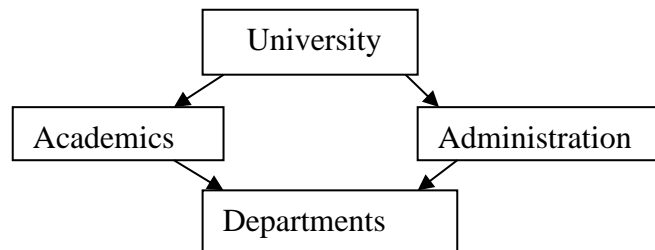
5X2=10

- i.
 - a) Compare Object oriented approach and Procedure oriented approach.
 - b) Why java is platform independent and garbage collected programming language?
 - c) Why main() is public, static and void?
- ii.
 - a) What is command line argument?
 - b) Compare default constructor and parameterized constructor.
 - c) Compare:
 - i) C, Java and C++.
 - ii) Local variable, instance variable and class variable.
- iii.
 - a) Compare class, abstract class and interface.
 - b) Write a program in java that will display area of square and rectangle by taking input from keyboard interactively. Use abstract class and abstract method to develop the program.

3. Answer any one.

15X1=15

- i.
 - a). Why multiple inheritance cannot be implemented directly in java?
 - b). Why all methods are public and abstract in an interface?
 - c). Explain Run time polymorphism by using an appropriate program.
- ii.
 - a). Compare method overloading and method overriding.
 - b). How can you prevent method overriding and creation of subclass form a class?
 - c). Write a program in java to establish following hierarchical relationship among the following fields. You can use variables and methods as per your requirement.



-----x-----

Object Oriented Programming 2nd Internal IT 5thSem 2021

IT 5th Sem

* Required

1. Email *

Untitled Section

2. Student Name *

3. Student Roll No *

Answer all the questions:(20X1=20)

Choose the correct option:

4. Using which of the following, multiple inheritance in Java can be implemented? *

1 point

Mark only one oval.

- Interfaces
- Multithreading
- Protected methods
- Private methods

5. All classes in Java are inherited from which class? *

1 point

Mark only one oval.

- java.lang.class
- java.class.inherited
- java.class.object
- java.lang.object

6. In order to restrict a variable of a class from inheriting to subclass, how variable should be declared? *

1 point

Mark only one oval.

- Protected
- Private
- Public
- Static

7. If super class and subclass have same variable name, which keyword should be used to use super class? *

1 point

Mark only one oval.

- super
- this
- upper
- classname

8. What would be the result if a class extends two interfaces and both have a method with same name and signature? * 1 point

Mark only one oval.

- Runtime error
- Compile time error
- Code runs successfully
- First called method is executed

9. What is true about protected constructor? * 1 point

Mark only one oval.

- Protected constructor can be called directly
- Protected constructor can only be called using super()
- Protected constructor can be used outside package
- protected constructor can be instantiated even if child is in a different package

10. What is true about constructor? * 1 point

Mark only one oval.

- It can contain return type
- It can take any number of parameters
- It can have any non access modifiers
- Constructor cannot throw an exception

11. What is the process of defining two or more methods within same class that have same name but different parameters declaration? * 1 point

Mark only one oval.

- method overloading
- method overriding
- method hiding
- none of the mentioned

12. Which of these can be overloaded? * 1 point

Mark only one oval.

- a. Methods
- b. Constructors
- b only not a
- a and b both

13. What is the process of defining a method in terms of itself, that is a method that calls itself? * 1 point

Mark only one oval.

- Polymorphism
- Abstraction
- Encapsulation
- Recursion

14. A java interface can contain ———— * 1 point

Mark only one oval.

- public static Final Variables only
- public Abstract methods
- Abstract methods(unimplemented) and implemented methods both
- public static Final Variables and abstract methods both

15. which of the following is true about methods in an interface in java? * 1 point

Mark only one oval.

- An interface can contain only abstract method.
- We can define a method in an interface
- Private and protected access modifiers can also be used to declare methods in interface
- None of these

16. What type of variable can be defined in an interface? * 1 point

Mark only one oval.

- public static
- private final
- public final
- static final

17. Which one is correct declaration for implementing two interfaces? Consider, Interface A and B. class C wants to implements both interfaces. *
- 1 point

Mark only one oval.

- class C implements A, B
- class C implements A, implements B
- class C implements A extends B
- None of the above

18. What concepts come under Polymorphism in java? *
- 1 point

Mark only one oval.

- Method overloading
- Constructor overloading
- Method overriding
- All the above

19. Which polymorphism concept is applied to inheritance relationship in java programming? *
- 1 point

Mark only one oval.

- Method overloading
- Constructor overloading
- Method overriding
- None of the above

20. Which of these can be used to fully abstract a class from its implementation? *

1 point

Mark only one oval.

- Objects
- Packages
- Interfaces
- None of the Mentioned

21. Which of the following is the correct way of implementing an interface salary by class manager? *

1 point

Mark only one oval.

- class manager extends salary {}
- class manager implements salary {}
- class manager imports salary {}
- none of the above

22. Which feature comes under compile time polymorphism? *

1 point

Mark only one oval.

- Method overloading
- Constructor overloading
- Method overriding
- Method overloading and Constructor overloading

23. An _____ statement can be used to access the classes and interface of a different package from the current package. * 1 point

Mark only one oval.

- instanceof
- import
- extends
- implement

Answer all the questions:(5X2=10)

Choose the correct option:

24. Write the output of the given program: *

2 points

```
import java.util.Scanner;

public class SwapTwoNumbers {

    public static void main(String[] args) {

        int x, y, temp;
        System.out.println("Enter x and y");
        Scanner n = new Scanner(System.in);
        x = n.nextInt();
        y = n.nextInt();
        System.out.println("Before Swapping" + x + y);
        temp = x;
        x = y;
        y = temp;
        System.out.println("After Swapping" + x + y);

    }

}
```

Mark only one oval.

- Enter x and y 45 98 Before Swapping4598 After Swapping9845
- Enter x and y Exception in thread "main" java.util.NoSuchElementException
- Compile time error
- 00 00

25. Write the output of the given program: *

2 points

```
public class NumberInArray {
public static void main(String[] args)
{
    int arr[] = { 100,14, 46, 47, 94, 94, 52, 86, 36, 94, 89 };
    int x = 0;
    int y = 0;

    for (int i = 0; i < arr.length; i++)
    {
        if (arr[i] > x)
        {
            y= x;
            x = arr[i];
        }
        else if (arr[i] > y)
        {
            y = arr[i];
        }
    }
    System.out.println("\nThe first result" + y);
    System.out.println("\nThe second result " +x);
}
}
```

Mark only one oval.

- The first result100 The second result 14
- The first result94 The second result 100
- The first result100 The second result 94
- None of the above

26. Write the output of the given program: *

2 points

```
class Armstrong{
public static void main(String[] args) {
    int c=0,a,temp;
    int n=153;
    temp=n;
    while(n>0)
    {
        a=n%10;
        n=n/10;
        c=c+(a*a*a);
    }
    if(temp==c)
        System.out.println("armstrong number");
    else
        System.out.println("Not armstrong number");
    }
}
```

Mark only one oval.

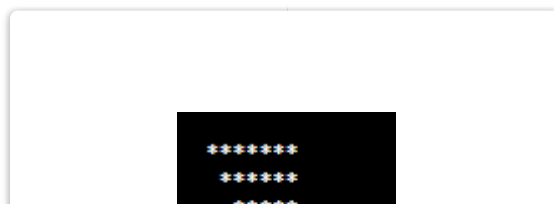
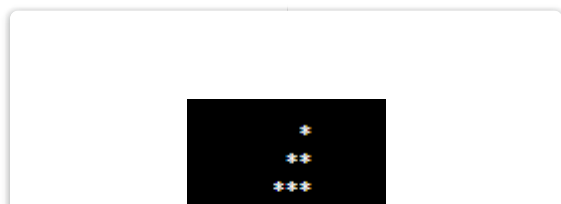
- Not armatrong number
- armatrong number
- Error
- None of these

27. Write the output of the given program: *

2 points

```
public class Pattern
{
public static void main(String[] args)
{
int rows=8;
for (int i= 0; i<= rows-1; i++)
{
for (int j=0; j<=i; j++)
{
System.out.print(" ");
}
for (int k=0; k<=rows-1-i; k++)
{
System.out.print("x" + " ");
}
System.out.println();
}
}
}
```

Mark only one oval.



28. Write the output of the given program: *

2 points

```

class Example1{
public static void main(String args[]){
 int i,fact=0; 
int number=5;
for(i=1;i<=number;i++){
fact=fact*i;
}
System.out.println("Factorial of "+number+" is: "+fact);
}
}

```

Mark only one oval.

- Factorial of 5 is: 120
- Factorial of 5 is: 0
- Factorial of 5 is: 100
- None of these

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Quiz1

PCC-CS501

***Required**

1. Email *

2. Student Name *

3. Student Roll No. *

4. 1. What is the output of lexical analyzer?

1 point

Mark only one oval.

- A set of RE
- Syntax Tree
- Set of Tokens
- String Character

5. 2.Which concept of grammar is used in the compiler?

1 point

Mark only one oval.

- Lexical analysis
- Parser
- Code generation
- Code optimization

6. 3. Which of the following are Lexemes?

1 point

Mark only one oval.

- Identifiers
- Constants
- Keywords
- All of the mentioned

7. 4. Parsing is categorized into how many types?

1 point

Mark only one oval.

- three types
- four types
- two types
- five types

8. 5. Which derivation is generated by the top-down parser?

1 point

Mark only one oval.

- Right-most derivation in reverse
- Left-most derivation in reverse
- Right-most derivation
- Left-most derivation

9. 6.The grammar $G: S \rightarrow SS \mid a \mid b$ is ambiguous. Check all and only the strings that have exactly two leftmost derivations in G .

1 point

Mark only one oval.

- bbb
- ab
- All of the mentioned
- None of the mentioned

10. 7.Output file of Lex is _____ the input file is Myfile.

1 point

Mark only one oval.

- Myfile.e
- Myfile.yy.c
- Myfile.lex
- Myfile.obj

11. 8. Which of the following parser is a top-down parser?

1 point

Mark only one oval.

- An LALR parser
- A LR parser
- Operator precedence parser
- Recursive descent parser

12. 9. From the following grammars, which describes the lexical syntax?

1 point

Mark only one oval.

- Lexical Grammar
- Context-free Grammar
- Syntactic Grammar
- Regular Grammar

13. 10. In Compiler lexical analyzer is used for?

1 point

Mark only one oval.

- removing comments
- removing whitespace
- breaking the syntaxes in the set of tokens
- All of the mentioned

14. 11. Which is considered as the sequence of characters in a token? 1 point

Mark only one oval.

- Mexeme
- Lexeme
- Texeme
- Pattern

15. 12. Which part of the compiler highly used the grammar concept? 1 point

Mark only one oval.

- Code optimization
- Code generation
- Parser
- Lexical Analysis

16. 13. Which of the following component is important for semantic analysis? 1 point

Mark only one oval.

- Yacc
- Lex
- Symbol Table
- Type Checking

17. 14. Which phase of the compiler is also known as Scanner?

1 point

Mark only one oval.

- Syntax Analysis
- Lexical Analysis
- Semantic Analysis
- Code generation

18. 15. Which phase of the compiler is also known as Parser?

1 point

Mark only one oval.

- Code Optimization
- Semantic Analysis
- Syntax Analysis
- Lexical Analysis

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Data Warehousing and Data Mining

PEC-IT602B

***Required**

1. Email *

2. Student Name *

3. Student Roll No. *

4. 1. _____ is a subject-oriented, integrated, time-variant, nonvolatile collection of data in support of management decisions.

1 point

Mark only one oval.

- Data Mining. .
- Data Warehousing
- Web Mining
- Text Mining

5. 2. The data Warehouse is_____.

1 point

Mark only one oval.

- read only.
- write only.
- read write only
- none.

6. 3. The important aspect of the data warehouse environment is that data found within the data warehouse

1 point

Mark only one oval.

- subject-oriented.
- time-variant.
- integrated.
- All of the above

7. 4. The data is stored, retrieved & updated in _____

1 point

Mark only one oval.

- Relational data.
- Operational data.
- Metadata.
- Informational data

8. 5. Data can be updated in _____ environment

1 point

Mark only one oval.

- data warehouse.
- data mining.
- operational.
- informational.

9. 6. In data mining, how many categories of functions are included?

1 point

Mark only one oval.

- 5
- 4
- 2
- 3

10. 7. The analysis performed to uncover the interesting statistical correlation between associated -attributes value pairs are known as the _____.

1 point

Mark only one oval.

- Mining of association
- Mining of correlation
- Mining of clusters
- All of the above

11. 8. The classification of the data mining system involves:

1 point

Mark only one oval.

- Database technology
- Information Science
- Machine learning
- All of the above

12. 9. Which of the following statement is true about the classification?

1 point

Mark only one oval.

- It is a measure of accuracy
- It is a subdivision of a set
- It is the task of assigning a classification
- None of the above

13. 10. The self-organizing maps can also be considered as the instance of _____ type of learning.

1 point

Mark only one oval.

- Supervised learning
- Unsupervised learning
- Missing data imputation
- Both A & C

14. 11. Which one of the clustering technique needs the merging approach? 1 point

Mark only one oval.

- Partitioned
- Naïve Bayes
- Hierarchical
- Both A and C

15. 12. Which of the following statements about hierarchal clustering is incorrect? 1 point

Mark only one oval.

- The hierarchal clustering can primarily be used for the aim of exploration
- The hierarchal clustering should not be primarily used for the aim of exploration
- Both A and B
- None of the above

16. 13. Which one of the following statements about the K-means clustering is incorrect? 1 point

Mark only one oval.

- The goal of the k-means clustering is to partition (n) observation into (k) clusters
- K-means clustering can be defined as the method of quantization
- The nearest neighbor is the same as the K-means
- All of the above

17. 14. What are the functions of Data Mining?

1 point

Mark only one oval.

- Association and correctional analysis classification
- Prediction and characterization
- Cluster analysis and Evolution analysis
- All of the above

18. 15. Which of the following is an essential process in which the intelligent methods are applied to extract data patterns?

1 point

Mark only one oval.

- Warehousing
- Data Mining
- Text Mining
- Data Selection

19. 16. What is KDD in data mining?

1 point

Mark only one oval.

- Knowledge Discovery Database
- Knowledge Discovery Data
- Knowledge Data definition
- Knowledge data house

20. 17. Which of the following refers to the problem of finding abstracted patterns (or structures) in the unlabeled data? 1 point

Mark only one oval.

- Supervised learning
- Unsupervised learning
- Hybrid learning
- Reinforcement learning

21. 18. Which of the following can be considered as the correct process of Data Mining? 1 point

Mark only one oval.

- Infrastructure, Exploration, Analysis, Interpretation, Exploitation
- Exploration, Infrastructure, Analysis, Interpretation, Exploitation
- Exploration, Infrastructure, Interpretation, Analysis, Exploitation
- Exploration, Infrastructure, Analysis, Exploitation, Interpretation

22. 19. Euclidean distance measure is can also defined as _____ 1 point

Mark only one oval.

- The process of finding a solution for a problem simply by enumerating all possible solutions according to some predefined order and then testing them
- The distance between two points as calculated using the Pythagoras theorem
- A stage of the KDD process in which new data is added to the existing selection.
- All of the above

23. 20. Which of the following refers to the sequence of pattern that occurs frequently? 1 point

Mark only one oval.

- Frequent sub-sequence
- Frequent sub-structure
- Frequent sub-items
- All of the above

24. 21. In which step of Knowledge Discovery, multiple data sources are combined? 2 points

25. 22. DMQL stands for? 2 points

26. 23. The main idea of the algorithm is to maintain a frequent pattern tree of the data set. An extended prefix tree structure starting crucial and quantitative information about frequent sets 2 points

27. 24. Partition Algorithm executes in 2 points

28. 25. Name the process used to remove or reduce noise and the treatment of missing values 2 points

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Section 1 of 3

Artificial Intelligence (PEC-IT501B)



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Section 2 of 3

Group- A



Description (optional)

1. Which search method takes less memory?

- Depth-First Search
- Breadth-First search
- Both (a) and (b)





Questions

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- Maximization of a function value
- Both a) and b)
- None of these

3. Algorithm that gives optimal solution is

- Hill climbing
- BFS
- Blind Search
- A*

4. Hill climbing has potential problems like

- Lake
- Foothill trap
- Garden
- All of these





Questions Responses Settings

Contradiction

all of these

6. Knowledge consist of

Concepts and procedures

Facts and rules

Both (a) and (b)

None of these

7. Skolem function is used in

Unification algorithm

Natural deduction

Conversion of clausal form

None of these

8. Inheritable knowledge is best represented by

OR graph

AND graph



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9. Resolution can be used for

- Question answering
- theorem proving
- Both (a) and (b)
- none of these

10. NLP stand for

- Natural linear processing
- Natural language Processing
- Natural language programming
- none of these

11. Meta rules are one type of

- Conflict resolution strategies
- recency
- Refraction
- production rules





Questions Responses Settings

- sound but not complete
- complete but not sound
- all of these

13. Semantic Networks is

- A way of representing knowledge
- Data Structure
- Data Type
- None of the mentioned

14. In A* approach evaluation function is

- Heuristic function
- Path cost from start node to current node
- Path cost from start node to current node + Heuristic cost
- Average of Path cost from start node to current node and Heuristic cost

15. Searching techniques are used for





Questions Responses Settings

All of these

16. Which search is equal to minimax search but eliminates the branches that can't influence

- Depth-first search
- Breadth-first search
- Alpha-beta pruning
- None of the mentioned

17. A _____ is used to demonstrate, on a purely syntactic basis, that one formula is a logical

- Deductive Systems
- Inductive Systems
- Search Based Systems
- All of these

18. What is the evaluation function in A* approach?

- Heuristic function
- Path cost from start node to current node





Questions

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- Representational Verification
- Representational Adequacy
- Higher Order Logic
- Inferential Efficiency

20. Lifted inference rules require finding substitutions that make different logical expressions

- Existential Instantiation
- Universal Instantiation
- Unification
- Modus Ponon

After section 2 Continue to next section ▾

Section 3 of 3

Group- B (5 X 2=10)



Description (optional)





Questions Responses Settings

$\forall x: \text{dog}(y) \rightarrow \text{has tail}(x)$

$\forall x: \text{dog}(x) \rightarrow \text{has tail}(x)$

2.



a

b

c

d

3. Translate the following statement into FOL. "For every a, if a is a philosopher, then a is a

$\forall a \text{ philosopher}(a) \rightarrow \text{scholar}(a)$

$\exists a \text{ philosopher}(a) \text{ scholar}(a)$

All of the mentioned

None of the mentioned

4. The truth values of traditional set theory is _____ and that of fuzzy set is _____





Questions

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Either 0 or 1, either 0 or 1

5.



a

b

c

d





2ND Internal Test of Data Warehousing

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Total points: 30

2ND Internal Test of Data Warehousing and Data Mining [PEC-IT602B]

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Section 2 of 3

Group- A



Description (optional)

1. What is true about data mining?

- A. Data Mining is defined as the procedure of extracting information from huge sets of data
- B. Data mining also involves other processes such as Data Cleaning, Data Integration, Data Transf...
- C. Data mining is the procedure of mining knowledge from data.
- D. All of the above



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B. 3

C. 4

D. 5

3. The mapping or classification of a class with some predefined group or class is known as?

A. Data Characterization

B. Data Discrimination

C. Data Set

D. Data Sub Structure

4. The analysis performed to uncover interesting statistical correlations between associated-attribute-value pairs is called?

A. Mining of Association

B. Mining of Clusters

C. Mining of Correlations

D. None of the above

5. _____ may be defined as the data objects that do not comply with the general behavior or model of the data available.



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D. Classification

6. "Efficiency and scalability of data mining algorithms" issues comes under?

- A. Mining Methodology and User Interaction Issues
- B. Performance Issues
- C. Diverse Data Types Issues
- D. None of the above

7. To integrate heterogeneous databases, how many approaches are there in Data

- A. 2
- B. 3
- C. 4
- D. 5

8. Which of the following is correct advantage of Update-Driven Approach in Data

- A. This approach provides high performance.
- B. The data can be copied, processed, integrated, annotated, summarized and restructured in the s...



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9. What is the use of data cleaning?

- A. to remove the noisy data
- B. correct the inconsistencies in data
- C. transformations to correct the wrong data.
- D. All of the above

10. Data Mining System Classification consists of?

- A. Database Technology
- B. Machine Learning
- C. Information Science
- D. All of the above

11. Frequent set properties are:

- a. Downward closure property
- b. Upward closure property
- c. A & B
- d. None of these



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B. Upward closure property

C. A and b

13. Tree pruning methods address this problem of _____?

a. Overfitting the branches

b. Overfitting the data

c. a and b both

d. None of the above

14. Periodic maintenance of a data mart means

a. Loading

b. Refreshing

c. Purging

d. All are true

15. The Fp-tree Growth algorithm was proposed by

Aggrawal



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16. Firms that are engaged in sentiment mining are analyzing data collected from

- (A). experiments.
- (B). social media sites.
- (C). focus groups.
- (d) observations.

17. The learning which is used for inferring a model from labeled training data is called?

- (A). Unsupervised learning
- (B). Reinforcement learning
- (C). Supervised learning
- (d). All of these

18. Which of the following forms of data mining assigns records to one of a predefined set of

- (A). Classification
- (B). Clustering
- (C). Both A and B
- (D). None



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- b) A measure of the accuracy
- c) The task of assigning a classification
- d) All of these

20. The mapping or classification of a class with some predefined group or class is known as?

- A. Data Characterization
- B. Data Discrimination
- C. Data Set
- D. Data Sub Structure

After section 2 [Continue to next section](#)

Section 3 of 3

Group- B



Description (optional)

1. A priori algorithm operates in _____ method



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 d. Both a & b

2. A bi-directional search takes advantage of _____ process

 a. Bottom-up process b. Top-down process c. None d. Both a & b

3. MCFS stand for

 a. Maximum Frequent Candidate Set b. Minimal Frequent Candidate Set c. None of above d. None of these

4. DIC algorithm stands for___

 a. Dynamic itemset counting algorithm b. Dynamic itself counting algorithm c. Dynamic itemset countless algorithm



Questions

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- a. Dashed circle
- b. Dashed box
- c. Solid Box
- d. Solid circle

