

Sikkim Public Service Commission

Main Written Examination for the post of

Programmer

Paper II : Main Paper

Time Allowed : 3 Hrs.

Maximum Marks : 300

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before answering the questions :-

1. **IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.**
2. Please note that it is the candidate's responsibility to fill in the Roll Number carefully and without any omission or discrepancy at the appropriate places in the **OMR ANSWER SHEET** for MCQ. Any omission/discrepancy will render the Answer Sheet liable for rejection.
3. **Use only Black Ball Point Pen to fill the OMR sheet**
4. Do not write anything else on the OMR Answer Sheet except the required information.
5. **This booklet contains MCQ type of questions in Section I, which has to be marked in the OMR sheet provided. Section II consists of Conventional questions and needs to be written in the Separate Answer Sheet provided.**
6. Before you proceed to mark in the Answer Sheet (OMR), you have to fill in some particulars in the Answer Sheet (OMR) as per given instructions.
7. After you have completed filling in all your responses on the OMR Sheet & writing section in a separate Answer Sheet, you should hand over the Answer Sheet & OMR Sheet to the Invigilator only. You are permitted to take away with you the Test Booklet.
8. **Marking Scheme**
THERE WILL BE NEGATIVE MARKING FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE OBJECTIVE TYPE QUESTION PAPERS.
 - (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, one-third of the marks assigned to that question will be deducted as penalty.
 - (ii) If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct and there will be same penalty as above to the question.
 - (iii) If a question is left blank. i.e., no answer is given by the candidate, there will be no penalty for that question.

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Section I

Multiple Choice Questions

[75x2=150]

- 1) Consider a situation where you don't have function to calculate power (pow()) function in C) and you need to calculate x^n where x can be any number and n is a positive integer. What can be the best possible time complexity of your power function?

A) $O(n)$
B) $O(n \log n)$
C) $O(\log \log n)$
D) $O(\log n)$

- 2) Consider the following four processes with arrival times (in milliseconds) and their length of CPU burst (in milliseconds) as shown below:

Process	P1	P2	P3	P4
Arrival time	0	1	3	4
CPU burst time	3	1	3	Z

These processes are run on a single processor using preemptive Shortest Remaining Time First scheduling algorithm. If the average waiting time of the processes is 1 millisecond, then the value of Z is _____.

A) 2
B) 3
C) 1
D) 4

- 3) Which of the following is not correct for virtual function in C++?

A) Must be declared in public section of class
B) Virtual function can be static
C) Virtual function should be accessed using pointers
D) Virtual function is defined in base class

- 4) A scheduling algorithm assigns priority proportional to the waiting time of a process. Every process starts with priority zero (the lowest priority). The scheduler re-evaluates the process priorities every T time units and decides the next process to schedule. Which one of the following is TRUE if the processes have no I/O operations and all arrive at time zero?

A) This algorithm is equivalent to the first-come-first-serve algorithm
B) This algorithm is equivalent to the round-robin algorithm
C) This algorithm is equivalent to the shortest-job-first algorithm
D) This algorithm is equivalent to the shortest-remaining-time-first algorithm

- 5) Which one of the following is the tightest upper bound that represents the time complexity of inserting an object into a binary search tree of n nodes?
- A) $O(1)$
 - B) $O(\log n)$
 - C) $O(n)$
 - D) $O(n \log n)$
- 6) What is the return value of $f(p, p)$ if the value of p is initialized to 5 before the call? Note that the first parameter is passed by reference, whereas the second parameter is passed by value.

```
int f( int &x, int c) {
    c = c - 1;
    if (c == 0) return 1;
    x = x + 1;
    return f(x, c) * x;
}
```

- A) 3024
 - B) 6561
 - C) 55440
 - D) 161051
- 7) Which of the following is essential concept related to Cloud?
- A) Reliability
 - B) Productivity
 - C) Abstraction
 - D) All of the mentioned
- 8) The most commonly used set of protocols uses _____ as the messaging format.
- A) XML
 - B) JSON
 - C) BSON
 - D) All of the mentioned
- 9) Which of the following is least important feature of cloud storage listed below?
- A) Multisite storage or replication
 - B) 24x7 technical support
 - C) Data versioning
 - D) All of the mentioned

- 10) Conventional Artificial Intelligence is different from soft computing in the sense
- A) Conventional Artificial Intelligence deal with predicate logic where as soft computing deal with fuzzy logic
 - B) Conventional Artificial Intelligence methods are limited by symbols where as soft computing is based on empirical data
 - C) Both (A) and (B)
 - D) None of the above
- 11) Selecting the victim to be rollbacked to the previous state is determined by the minimum cost. The factors determining cost of rollback is
- A) How long the transaction has computed, and how much longer the transaction will compute before it completes its designated task.
 - B) How many data items the transaction has used
 - C) How many more data items the transaction needs for it to complete
 - D) All of the mentioned
- 12) Which join refers to join records from the right table that have no matching key in the left table are include in the result set:
- A) Left outer join
 - B) Right outer join
 - C) Full outer join
 - D) Half outer join
- 13) In case of entity integrity, the primary key may be
- A) Not Null
 - B) Null
 - C) Both Not Null and Null
 - D) Any value
- 14) Which of the following is correct
- A) A SQL query automatically eliminates duplicates
 - B) SQL permits attribute names to be repeated in the same relation
 - C) A SQL query will not work if there are no indexes on the relations
 - D) None of these
- 15) All cloud computing applications suffer from the inherent _____ that is intrinsic in their WAN connectivity.
- A) Propagation
 - B) Latency
 - C) Noise
 - D) All of the mentioned

- 16) Packet sniffers involve
- A) Active receiver
 - B) Passive receiver
 - C) Both of the mentioned
 - D) None of the mentioned
- 17) What is the frequency range of the IEEE 802.11b standard?
- A) 2.4Gbps
 - B) 5Gbps
 - C) 2.4GHz
 - D) 5GHz
- 18) In hierarchical routing for N router subnet, the optimal number of levels is
- A) $\log N$
 - B) $\log (N-1)$
 - C) $\ln N$
 - D) $\ln (N-1)$
- 19) Distance vector routing algorithm is implemented in internet as
- A) OSPF
 - B) RIP
 - C) ARP
 - D) APR
- 20) While booting the system the IP address is
- A) 1.1.1.1
 - B) 0.0.0.0
 - C) 1.1.0.0
 - D) 0.0.1.1
- 21) Voice privacy in GSM cellular telephone protocol is provided by
- A) A5/2 cipher
 - B) b5/4 cipher
 - C) b5/6 cipher
 - D) b5/8 cipher
- 22) Consider the following transaction involving two bank account x and y. read (x) ; $x := x - 50$; write (x) ; read (y); $y := y + 50$; write (y) The constraint that the sum of the accounts x and y should remain constant is that of
- A) Atomicity
 - B) Consistency
 - C) Isolation
 - D) Durability

23) Consider a hard disk with 16 recording surfaces (0-15) having 16384 cylinders (0 -16383) and each cylinder contains 64 sectors (0 – 63). Data storage capacity in each sector is 512 bytes. Data are organized cylinder-wise and the addressing format is <cylinder no., sector no.>. A file of size 42797 KB is stored in the disk and the starting disk location of the file is <1200, 9, 40>. What is the cylinder number of the last sector of the file, if it is stored in a contiguous manner?

- A) 1281
- B) 1282
- C) 1283
- D) 1284

24) A company needs to develop digital signal processing software for one of its newest inventions. The software is expected to have 40000 lines of code. The company needs to determine the effort in person-months needed to develop this software using the basic COCOMO model. The multiplicative factor for this model is given as 2.8 for the software development on embedded systems, while the exponentiation factor is given as 1.20. What is the estimated effort in person months?

- A) 234.25
- B) 932.50
- C) 287.80
- D) 122.40

25) Which of the following is NOT desired in a good Software Requirement Specifications (SRS) document?

- A) Functional Requirements
- B) Non Functional Requirements
- C) Goals of Implementation
- D) Algorithms for Software Implementation

26) What will be the cost of the minimum spanning tree (MST) of such a graph with n nodes?

- A) $(1/12) * (11n^2 - 5n)$
- B) $n^2 - n + 1$
- C) $6n - 11$
- D) $2n + 1$

27) Output of following Programme

```
#include <iostream>
using namespace std;
template <typename T>
T max(T x, T y)
{
    return (x > y)? x : y;
}
int main()
{
    cout << max(3, 7) << std::endl;
    cout << max(3.0, 7.0) << std::endl;
    cout << max(3, 7.0) << std::endl;
    return 0;
}
```

- A) 7
7.0
7.0
- B) Compiler Error in all cout statements as data type is not specified
- C) Compiler Error in last cout statement as call to max is ambiguous
- D) None of the above

28) Which of the following is true about interfaces in java?

- i. An interface can contain following type of members.
 -public, static, final fields (i.e., constants)
 -default and static methods with bodies
- ii. An instance of interface can be created.
- iii. A class can implement multiple interfaces.
- iv. Many classes can implement the same interface.

- A) i, iii and iv
- B) i, ii and iv
- C) ii, iii and iv
- D) i, ii, iii and iv

29) How to create a dynamic array of pointers (to integers) of size 10 using new in C++?

- A) `int *arr = new int *[10];`
- B) `int **arr = new int *[10];`
- C) `int *arr = new int [10];`
- D) Not Possible

30) What is the return type of malloc() or calloc()

- A) void *
- B) Pointer of allocated memory type
- C) void **
- D) int *

31) Which of the following is the property of composable component?

- A) Stateful
- B) Stateless
- C) Symmetric
- D) None

32) Consider the following C program.

```
#include<stdio.h>
struct node{
char x,y,z;
};
int main( ){
struct node p = {'1', 'b'+2, 'd'+2};
struct node *q = &p;
printf ("%c, %c", *((char*)q+1), *((char*)q+2));
return 0;
}
```

The output of this program is:

- A) 0,c
- B) d,f
- C) 'b+2', 'd+2'
- D) 'd', 'f'

33) Consider the following processor design characteristics.

- I. Register-to-register arithmetic operations only
- II. Fixed-length instruction format
- III. Hardwired control unit
- IV. Which of the characteristics above are used in the design of a RISC processor?

- A) I and II only
- B) II and III only
- C) I and III only
- D) I, II and III

- 34) One of the header fields in an IP datagram is the Time to Live (TTL) field. Which of the following statements best explains the need for this field?
- A) It can be used to prevent packet looping
 - B) It can be used to prioritize packets
 - C) It can be used to optimize throughput
 - D) It can be used to reduce delays
- 35) SQL allows tuples in relations, and correspondingly defines the multiplicity of tuples in the result of joins.
 Select * from R where a in (select S.a from S)
 Which one of the following queries always gives the same answer as the nested query shown below
- A) select R.* from R, S where R.a=S.a
 - B) select distinct R.* from R,S where R.a=S.a
 - C) select R.* from R,(select distinct a from S) as S1 where R.a=S1.a
 - D) select R.* from R,S where R.a=S.a and is unique R
- 36) Which one of the following is FALSE?
- A) User level threads are not scheduled by the kernel.
 - B) When a user level thread is blocked, all other threads of its process are blocked
 - C) Kernel level threads cannot share the code segment.
 - D) Context switching between user level threads is faster than context switching between kernel level threads.
- 37) A database of research articles in a journal uses the following schema.
 (VOLUME, NUMBER, STARTPAGE, ENDPAGE, TITLE, YEAR, PRICE)
 The primary key is (VOLUME, NUMBER, STARTPAGE, ENDPAGE) and the following functional dependencies exist in the schema.
 (VOLUME, NUMBER, STARTPAGE, ENDPAGE) -> TITLE
 (VOLUME, NUMBER) -> YEAR
 (VOLUME, NUMBER, STARTPAGE, ENDPAGE) -> PRICE
 The database is redesigned to use the following schemas.
 (VOLUME, NUMBER, STARTPAGE, ENDPAGE, TITLE, PRICE)
 (VOLUME, NUMBER, YEAR)
 Which is the weakest normal form that the new database satisfies, but the old one does not?
- A) 1NF
 - B) 2NF
 - C) 3NF
 - D) BCNF
- 38) Threads of a process share
- A) global variables but not heap
 - B) heap but not global variables
 - C) neither global variables nor heap
 - D) both heap and global variables

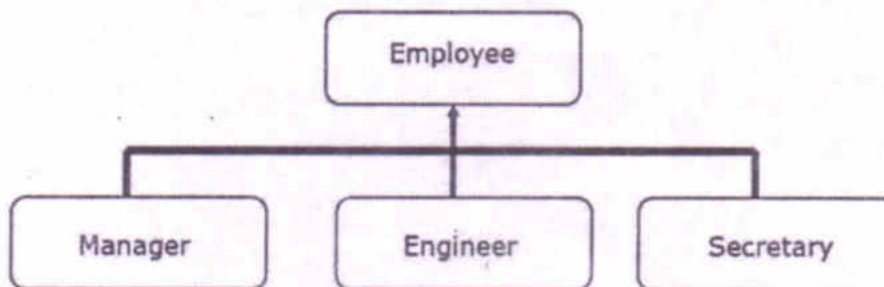
39) Given the following input (4322, 1334, 1471, 9679, 1989, 6171, 6173, 4199) and the hash function $x \bmod 10$, which of the following statements are true?

- i. 9679, 1989, 4199 hash to the same value
- ii. 1471, 6171 has to the same value
- iii. All elements hash to the same value
- iv. Each element hashes to a different value

- A) i only
- B) ii only
- C) i and ii
- D) iii or iv

40) It is desired to design an object-oriented employee record system for a company. Each employee has a name, unique id and salary. Employees belong to different categories and their salary is determined by their category. The functions get Name, getId and compute salary are required. Given the class hierarchy below, possible locations for these functions are:

- I. getId is implemented in the superclass
- II. getId is implemented in the subclass
- III. getName is an abstract function in the superclass
- IV. getName is implemented in the superclass
- V. getName is implemented in the subclass
- VI. getSalary is an abstract function in the superclass
- VII. getSalary is implemented in the superclass
- VIII. getSalary is implemented in the subclass



Choose the best design:

- A) (i), (iv), (vi), (viii)
- B) (i), (iv), (vii)
- C) (i), (iii), (v), (vi), (viii)
- D) (ii), (v), (viii)

41) Consider that 15 machines need to be connected in LAN using 8 port Ethernet switches. Assume that these switches do not have any separate uplink ports. The minimum number of switches needed is

- A) 3
- B) 4
- C) 7
- D) 9

42) Consider the following relation schema pertaining to a students database:

Students (rollno, name, address)

Enroll (rollno, courseno, coursenam)

Where the primary keys are shown underlined. The number of tuples in the student and Enroll tables is 120 and 8 respectively. What are the maximum and minimum number of tuples that can be present in (Student * Enroll), where '*' denotes natural join?

- A) 8,8
- B) 120,8
- C) 960,8
- D) 960,120

43) Consider the C program shown below.

```
#include <stdio.h>
#define print(x) printf("%d ", x)
int x;
void Q(int z) {
    z += x; print(z);
}
void P(int *y) {
    int x = *y+2;
    Q(x); *y = x-1;
    print(x);
}
main(void) {
    x = 5;
    P(&x)
    print(x);
}
```

The output of this program is

- A) 12 7 6
- B) 22 12 11
- C) 14 6 6
- D) 7 6 6

- 44) Traffic channels in forward transmission of telephony, carrying digitized voice from base station to mobile stations are Channels 8 to 31 and
- A) 32 to 40
 - B) 32 to 63
 - C) 32 to 60
 - D) 33 to 63
- 45) World's first cellular system was developed by
- A) Nippon Telephone and Telegraph (NTT)
 - B) Bellcore and Motorola
 - C) AT&T Bell Laboratories
 - D) Qualcomm
- 46) Carrier frequency of a TV remote control is in the range
- A) of Infra-red
 - B) < 100 MHz
 - C) < 1 GHz
 - D) < 2 GHz
- 47) 3G W-CDMA is also known as
- A) UMTS
 - B) DECT
 - C) DCS-1800
 - D) ETACS
- 48) In TD-SDMA, there is a frame of _____ milliseconds and the frame is divided into _____ time slots.
- A) 5,7
 - B) 7,5
 - C) 2,5
 - D) 5,2
- 49) In a dynamic channel assignment strategy,
- A) Voice channels are not permanently assigned
 - B) The serving base station requests for a channel from MSC
 - C) MSC allocates the channel according to the predetermined algorithm
 - D) All of the above
- 50) Dwell time is the time for
- A) A call within the cell
 - B) Hand off
 - C) Waiting for channel allocation
 - D) None of the above

- 51) Direct RF pulse system helps in calculating
- A) Impulse response in frequency domain
 - B) Impulse response in phase domain
 - C) Power delay of the channel
 - D) All of the above.
- 52) GIS deals with which kind of data
- A) Numeric data
 - B) Binary Data
 - C) Spatial Data
 - D) Complex Data
- 53) Key components of 'spatial data' quality include
- A) Positional accuracy
 - B) Lineage and completeness
 - C) Logical consistency
 - D) All of the above
- 54) A GIS package cannot be called full-fledged if the following capabilities are missing
- A) Data capture and preparation
 - B) Data analysis
 - C) Presentation of spatial data
 - D) All of the above
- 55) Which of the following statements are true about the 'temporal dimension'
- A) Time can be measured along a 'discrete' or 'continuous' scale
 - B) Time can be considered to be 'linear' extending from past to the present ('now'), & into the future
 - C) Time can be represented as 'absolute' or 'relative'
 - D) All of the above
- 56) Which of these methods are member of Remote class?
- A) checkIP()
 - B) addLocation()
 - C) AddServer()
 - D) None of the above
- 57) A process that is based on IPC mechanism which executes on different systems and can communicate with other processes using message based communication, is called
-
- A) Local Procedure Call
 - B) Inter Process Communication
 - C) Remote Procedure Call
 - D) Remote Machine Invocation

- 58) RPC provides a(an) _____ on the client side, a separate one for each remote procedure
- A) Stub
 - B) Identifier
 - C) Name
 - D) Process identifier
- 59) Message passing system allows processes to
- A) communicate with one another without resorting to shared data
 - B) communicate with one another by resorting to shared data
 - C) share data
 - D) name the recipient or sender of the message
- 60) In the token passing approach of distributed systems, processes are organized in a ring structure
- A) Logically
 - B) Physically
 - C) both (a) and (b)
 - D) none of the mentioned
- 61) Facebook tackles big data with _____ based on hadoop
- A) Project prism
 - B) Prism
 - C) Project data
 - D) Project bid
- 62) A monitor is a module that encapsulates
- A) shared data structures
 - B) procedures that operate on shared data structure
 - C) synchronization between concurrent procedure invocation
 - D) all of the mentioned
- 63) Which of these package is used for all the text related modifications?
- A) java.text
 - B) java.awt
 - C) java.lang.text
 - D) java.text.modify

64) What is the output of this program?

```
import java.lang.reflect.*;
class Additional_packages {
    public static void main(String args[]) {
        try {
            Class c = Class.forName("java.awt.Dimension");
            Constructor constructors[] = c.getConstructors();
            for (int i = 0; i < constructors.length; i++)
                System.out.println(constructors[i]);
        }
        catch (Exception e){
            System.out.print("Exception");
        }
    }
}
```

- A) Program prints all the constructors of 'java.awt.Dimension' package.
- B) Program prints all the possible constructors of class 'Class'
- C) Program prints "Exception"
- D) Runtime Error

65) If one thread opens a file with read privileges then

- A) other threads in the another process can also read from that file
- B) other threads in the same process can also read from that file
- C) any other thread cannot read from that file
- D) all of the mentioned

66) Thread synchronization is required because

- A) all threads of a process share the same address space
- B) all threads of a process share the same global variables
- C) all threads of a process can share the same files
- D) all of the mentioned

67) Which one of the following allows client to update their DNS entry as their IP address change?

- A) dynamic DNS
- B) mail transfer agent
- C) authoritative name server
- D) none of the mentioned

68) Which one of the following is not true?

- A) multiple hostnames may correspond to a single IP address
- B) a single hostname may correspond to many IP addresses
- C) a single hostname may correspond to a single IP address
- D) none of the mentioned

69) Four channels are multiplexed using TDM. If each channel sends 100 bytes/second and we multiplex 1 byte per channel, then the bit rate for the link is _____ bps.

- A) 400
- B) 800
- C) 1600
- D) 3200

70) What are the appropriate data structures for following algorithms?

- I. Breadth First Search
- II. Depth First Search
- III. Prim's Minimum Spanning Tree
- IV. Kruskal' Minimum Spanning Tree

- A) Stack
Queue
Priority Queue
Union Find
- B) Queue
Stack
Priority Queue
Union Find
- C) Stack
Queue
Union Find
Priority Queue
- D) Priority Queue
Queue
Stack
Union Find

- 71) Consider the following program written in pseudo-code. Assume that x and y are integers.

```
Count(x, y) {  
  if(y != 1) {  
    if(x != 1) {  
      print("*");  
      Count(x/2, y);  
    }  
    else {  
      y=y-1;  
      Count(1024, y);  
    }  
  }  
}
```

The number of times that the print statement is executed by the call Count(1024, 1024) is _____.

- A) 10230
 - B) 10
 - C) 1023
 - D) 23010
- 72) Consider the following functions from positive integers to real numbers 10 , \sqrt{n} , n , $\log_2 n$, $100/n$. The CORRECT arrangement of the above functions in increasing order of asymptotic complexity is:
- A) $\log_2 n$, $100/n$, 10 , \sqrt{n} , n
 - B) $100/n$, 10 , $\log_2 n$, \sqrt{n} , n
 - C) 10 , $100/n$, \sqrt{n} , $\log_2 n$, n
 - D) $100/n$, $\log_2 n$, 10 , \sqrt{n} , n
- 73) Let T be a binary search tree with 15 nodes. The minimum and maximum possible heights of T are:
- Note: The height of a tree with a single node is 0.
- A) 4 and 15 respectively
 - B) 4 and 14 respectively
 - C) 3 and 15 respectively
 - D) 3 and 14 respectively

74) Point out the correct statement :

- A) Applications can use the Reporter to report progress
- B) The Hadoop MapReduce framework spawns one map task for each InputSplit generated by the InputFormat for the job
- C) The intermediate, sorted outputs are always stored in a simple (key-len, key, value-len, value) format
- D) All of the mentioned

75) _____ is the primary interface for a user to describe a Map Reduce job to the Hadoop framework for execution.

- A) Map Parameters
- B) JobConf
- C) MemoryConf
- D) None of the mentioned

Section II

Short Answer Question (ANY FIVE)

[5x15=75]

- 1) Define seek time and rotational latency. Assume that a disk drive has 200 cylinders, numbered 0 to 199. The drive is currently serving a request at cylinder 100. The queue of pending requests is 23, 89, 132, 42, 189. Calculate seek time for FCFS and SSTF disk scheduling algorithm.
- 2) Write Map Reduce steps for counting occurrences of specific numbers in the input text file(s). Also write the commands to compile and run the code.
- 3) Discuss and derive an equation for solving the 0/1 Knapsack problem using dynamic programming method.
- 4) Find optimal sequence of multiplication using dynamic programming of following matrices: A1[10x100], A2[100x5], A3[5x50] and A4[50x1]. List optimal number of multiplication and parenthesization of matrices.
- 5) What do you mean by congestion and overflow? Explain the slow-start component of the TCP congestion-control algorithm
- 6) Write a program to check whether the name given from command line is file or not? If it is a file then print the size of a file and if it is a directory then it should display the name of all files in it.
- 7) Develop JSP page to display student information with subjects for particular semester from database.
- 8) Write a program for chat application using TCP.

Long Answer Question (ANY THREE)

[3x25=75]

- 9) List out the operator which cannot be overloaded? Is = operator overloaded? if yes give example and write a program to Create two classes DM and DB which store the value of distances. DM Stores distances in meters and centimeters and DB in feet and inches. Write program that can read values for the class objects and add one object of DM with another object of DB. The object that stores the results may be a DM object or DB object, depending on the units in which the results are required. The display should be in the format of feet and inches or meters and centimeters" depending on the object on display. Create your own manipulator two display the result in tabular format.

- 10) Write a program to store five paragraphs in a given file. Now extract following information from file.

- Word starts with 's'
- Word starts with 'a' and ends with 'a'
- Email, mobile no
- Count all word that contain 'b'

After extracting following information count it and count total domain of email address and how many email address are there of same domain. Your file must satisfy above requirements.

- 11) How many types of security algorithms are used in GSM? Explain working of each security algorithms. Show call routing for following situation and write appropriate steps for the same.

Situation: User A and User B are residing in home network at City1. User B is moving to City2 due office work for few days. User A is calling to User B (Here User A is in City1 and User B in City2).

Draw call routing for this call from User A to User B.

12) Discuss about Hadoop library from Apache and Explain about OpenNebula, Sector/Sphere and OpenStack

13) Create following table with necessary constrains.

DENTIST (D3, DNAME, QUALI, ADDR)

PATIENT (P#, NAME, BDATE, PADDR, SEX)

TREATMENT (D#, T#, TDETAILS)

CHARGES (D#, T#, CHARGE)

APPOINTMENT (APP#, D#, P#T#, ADATE, DURATION, STATUS)

- I. Create a view which stores the details about the dentists and their charges.
- II. Disable the check constraint temporarily on APPOINTMENT table which allows only 'I' or 'C' in the STATUS column.
- III. Display details of all dentists who are charging less than rs.150 for any type of treatment.
- IV. Create a table PAT having the same structure as that of PATIENT but the data of only teenagers.
- V. Display the age of all male patients who are presently undergoing treatment.