Roll No: | | | | | | | | Answer Sheet No: _____

Sig. of Candidate: _____ Sig. of Invigilator: _____

Federal Board SSC-I Examination
Computer Science Model Paper Solution (Curriculum 2009)

SECTION – A

Time allowed: 20 minutes Marks: 12

Note: Section-A is compulsory and comprises two pages. All parts of this section are to be answered on the question paper itself. It should be completed in the first 20 minutes and handed over to the Centre Superintendent. Do not use lead pencil.

Q.1 Choose the correct option i.e. A / B / C / D. All parts carry equal marks.

(1) How many pairs of computers can communicate simultaneously on LAN?
A. 1 B. 3
C. 2 D. Multiple

(2) Which storage device has the fastest read/write access?
A. Compact Disk B. Floppy Disk
C. Digital Video Disk **D. Hard Disk**

(3) What feature would an author use while writing a document to add and external link to a website in MS-Word?
A. Online Link **B. Hyperlink**
C. Weblink D. Anchorlink

(4) Television broadcasting is an example of following transmission mode:
A. Simplex **B. Half-Duplex**
C. Full-Duplex D. Simple Duplex

(5) Rate of change of electrical signals per second is called:
A. Data rate **B. Baud rate**
C. Bandwidth D. Signal-to-Noise ratio

(6) Which of the following communication device is used to connect two different types of networks?
A. Router B. Bridge
C. Switch D. Gateway

(7) In which topology can a Node be easily added?
A. Ring topology **B. Bus topology**
C. Star topology D. Tree topology

(8) Which of the following is used in airline traffic control system?
A. Batch processing system B. Time sharing system
C. Multitasking system **D. Real time system**

(9) Cards used to connect additional devices to motherboard are attached via:

A. Expansion slot B. Connectors
C. Bays D. Links

(10) 'Multimodal Authentication' means:

A. Use of username and password
B. Use of two or more authentication methods
C. Use of access cards
D. Use of biometrics

(11) Which of the following use more cable?

A. Bus topology B. Star topology
C. Ring topology **D. Mesh topology**

(12) 'D6' with reference to a spreadsheet means:

A. Column D, Row 6 B. Column D6
C. Row D6 D. Row D, Column 6

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Computer Science Model Question Paper
(Curriculum 2009)

Time allowed: 2.40 hours Total Marks: 43

Note: Sections 'B' and 'C' comprise two pages and questions therein are to be answered on the separately provided Answer Book. Use supplementary answer sheet i.e., sheet B if required. Write your answers neatly and legibly.

SECTION – B (Marks 27)

Q.2 Attempt any **NINE** parts from the following. All parts carry equal marks. (9 × 3 = 27)

i. Write down two benefits and one drawback of laser printer.

Ans:

Benefit:

- Fast printing speed as it prints pages per minutes.
- Good quality printing / colored printing.

Drawback:

- Expensive and high running cost

ii. Write down the characteristics of third generation computer.

Ans:

- Third generation computers used IC chips due to which the speed and memory of computers increased.
- Computers consumed less electricity, became smaller, cheaper, and more reliable than second generation computers.
- Keyboard and monitor were used with the computer.

iii. With increasing memory sizes do you still think memory management is an important function of an operating system? Justify your answer.

Ans: Yes.

Reason: As day by day the *application software memory usage size increases with increasing features.* Also, with increasing usage of multitasking, more software's need to be opened at one time. So with increasing memory sizes still memory management is an important function of an operating system because.

iv. Write down the purpose of shareware and freeware software? Give an example of each.

Ans:

Shareware is distributed *free of cost for a limited period* usually one or two months. It is *trial version of software given to people to decide whether they would like to buy the full version* of the software. Some shareware is installed on new computers when they are sold.

Examples of shareware are antivirus software and computer games, etc.

Freeware is given *free of cost*, and it is *full version of software for an unlimited period of time*. It may have some restrictions such as allowed for personal or academic use only.

Examples of freeware are google chrome, Mozilla Firefox, VLC media player, etc.

v. Define any three-transmission impairment in communication mediums.

Ans:

Attenuation is the fall of signal strength with the distance as signal travels through the communication media

Amplification refers to strengthening of signal to solve the problem of attenuation in data transmission.

Cross talk occurs in guided media. As signal is transmitted through a wire undesired signals enter the path of the transmitted signal due to electromagnetic radiation. It is caused by putting several wires together in a single cable.

vi. Write down any three difficulties a company may face in running a business without having a computer network.

Ans:

- Not be able to share data and information.
- Not be able to share resources like printers, hard disk etc.
- Communication will be slower hence more time consuming.
- Licensed Software's cannot be shared across all company users which will increase company cost.

vii. Identify the most suitable software to prepare Result Sheet of students. Give reason also.

Ans: Spreadsheet **is** the most suitable software to prepare Result Sheet of students for example MS Excel.

Reason: Spreadsheet *provide us the facility of rows / columns and we can apply many formulas on the data which will automatically update the answer if any data is changed* so it is most suitable to prepare Result Sheet of students.

viii. List any three authentication methods along with their application in daily life.

Ans:

Biometrics is based on physical characteristics of individuals such as features of face, retina, voice, and fingerprint. It is used for financial transactions, electronic banking and personal data privacy. It cannot be borrowed, stolen, or forgotten.

Access cards are very similar in appearance to credit cards. These are used to open security gates, in parking areas, and a key for opening hotel rooms.

PIN is a confidential numeric password. These are used in debit and credit cards, for payment of bills in utility stores etc.

ix. Differentiate between synchronous and asynchronous transmission by giving an example of each.

Ans:

Asynchronous transmission	Synchronous transmission
The data is transmitted character by character and the time interval between each character transmitted is not same.	The data is transmitted block by block. A block may consist of many characters.
It is slow because of additional control bits transmitted with each character.	It is faster because it does not require start and stop bit.
The sender and receiver are not synchronized with each other e.g, Telephone Communications.	The sender and receiver are synchronized with each other e.g, Network Protocols.

x. How is the job of system analyst different from programmer?

Ans:

Programmer is a professional whose responsibilities include *designing, documenting, developing, testing, and also maintaining software* which includes modification of existing programs to meet new requirements or eliminate any bugs.

Systems analyst is a person who uses analysis and design techniques to solve business problems using information technology. Systems analysts may serve as change agents who identify the organizational improvements needed, design systems to implement those changes, and train and motivate others to use the systems.

xi. Write down three advantages of software piracy.

Ans:

- It allows people to test out software before they can purchase a license for that software.
- Using pirated software is cost-efficient and cheap.
- Pirated software is extremely easy to find; whether online, from stalls along the street or simply given by friends.
- It allows more people to use expensive software that they might not be able to afford.

xii. Between Linux and Macintosh, which Operating System would you prefer, give two reasons to support your answer.

Ans:

Between Linux and Macintosh, I would prefer Linux Operating System.

Reason:

- Linux OS is free.
- We can install it on computers with any configuration. No matter how powerful/old your system is, Linux will work.
- Mac is a secure platform, but probably not as secure as Linux.
- Linux provide more customization than Mac OS.

OR

Between Linux and Macintosh, I would prefer Macintosh Operating System.

Reason:

- Macintosh comes preloaded with most used applications.
- Macintosh is generally considered to be a more beautiful software.
- Macintosh has better connection support with mobile devices such as Apple iPhone, Apple Watch, Apple iPad etc.

xiii. List three types of computer attacks and how can they be prevented?

Ans:

Virus: is a program loaded onto a user's computer without the user's knowledge and performs malicious actions.

Prevention: Updated Antivirus must be installed in computer like *Avast* Antivirus.

Hacker: is a person who finds the weakness in computer systems to gain access.

Prevention: Firewalls must be installed.

Unauthorized Access: is when a person gains entry to a computer system without permission.

Prevention: Computer systems must be Password Protected.

SECTION – C (Marks 16)

Note: Attempt any **TWO** questions. (8 × 2 = 16)

Q.3 Discuss four types of Unguided transmission media along with its applications in daily life. (08)

Ans:

Unguided Media travel through open space and nothing guides them along any specific path. They do not use cables for data transmission. Following are some types of unguided media.

1. **Radio waves**

   Radio waves are electromagnetic waves that are propagated by antennas. Radio transmission consists of a transmitter and a receiver. A transmitter transmits a radio signals to a receiver which receives it. Radio waves are used to transmit music, conversation, pictures, and data. Data can be transmitted over long-distance using radio waves. These are invisible and undetectable to human beings.

   Following are some applications of radio waves:

- Radio and television broadcast.
- Radio controlled toys.
- Satellite communication.
- Wireless networks and wireless internet.

2. **Microwave**

   These signals travel through open space like radio waves. Microwaves provide much faster transmission rate than telephone lines or coxial cable. Microwave antennas are installed on high towers. The transmitting and the receiving sites must be within sight of one another. These are used for satellite communication and other long distance wireless communication.

3. **Infra-red**

   Infra-red waves are light energy that we cannot see. It travels through space at the speed of light. It is used for short distance communication. These are usually used in remote controls for television, DVD players and other similar devices. Infra-red wireless signals are disrupted by persons or objects in between the transmitter and receiver but it does not get interrupt by other radio signal. It is used in industrial, scientific, and medical appliances and night vision devices.

4. **Bluetooth**

   Bluetooth is a wireless communication technology that uses radio waves to connect portable electronic devices aver short distance. It eliminates the need of cable connection and provide fast and reliable transmission. They include devices like mouse, mobile phone, keyboard, tablet, wireless speaker, wireless headset, laptop, and personal computer. It can transmit text, voice, image, and videos.

(08)

Q.4 Explain the data communication lines (i.e., Dialup, DSL, ADSL, CDMA) in terms of transfer rate, cost, merits, and demerits. (02 + 02 + 02 + 02)

Ans.

Dial-up line

1. Maximum speed is 56 Kbps.
2. Easily available anywhere, no extra lines required.
3.Cheaper than other Internet services.
4. Internet connection is not permanently available.
5. Voice communication is not possible while using internet.

DSL

1. Speed is 256 Kbps.
2.Dsl connection is always available.
3. Costly than other types of Internet services.
4. Various monthly rates are charged depending on the speed.
5. Connection is available as soon as computer and DSL modem are turned on.

ISDN

1. Speed is 128 Kbps.
2. Costs more than Dial-up service.
3. Can simultaneously transmit both voice and data.
4. Allows multiple devices to share a single line.

CDMA

1. It is a wireless cellular communication technology.
2. Transmission speed can be up to a several Mbps.
3. Can provide service to many people at the same time.
4. Provides improved voice quality.

Q.5 Describe the following types of Operating Systems: (04 + 04)

a) Batch Processing Operating System
b) Time Sharing Operating System

Ans:

Batch Processing Operating System

In a batch processing system, jobs are grouped in batches and the computer executes them one by one. When the current job terminates, the computer automatically loads the next job and starts executing it.

Advantages:

- Batch processing operating system improved the use of computer system.
- Sharing of batch system for multiple users.
- The idle time of batch system is very less.

Disadvantages of batch processing systems

- It is difficult to debug batch systems.
- Batch systems are sometime costly.
- If some job takes too much time i.e. if error occurs in job then other jobs will wait for unknown time.

Application:

These are suitable for tasks where large amount of data has to be executed and processed on a regular basis. For example, in credit card billing system and in examination report card system.

Time Sharing Operating System

It is a feature of operating system in which multiple users can run different programs on a large-scale computer.

Advantages:

- It allows many users to have access to a single computer at the same time and share the computers time.
- In this system the central processing unit is switched rapidly between the programs so that all the user programs are executed simultaneously.

Disadvantages:

- The big disadvantages of time sharing systems is that it consumes much resources so it need special operating systems.
- Switching between tasks becomes sometimes sophisticated as there are lot of users and applications running which may hang up the system. So the time sharing systems should have high specifications of hardware.

Application

The operating system used in minicomputers and mainframe computers support timesharing. These are used in organizations such as airline, bank, hotel, university etc. Where user need access to the central computer at the same time. For example, hundreds of students access university mainframe computer at the same time and they run different programs in a timesharing system in interactive mode.

NOTE:

This is suggested (proposed) solution or answers to the questions given in SECTION-B and C. Students can write any valid alternate answers.