30.22.1 Computer Studies Paper 1 (451/1)

1. (a) A device that takes raw data and converts it into computer processable form or hardware used to get data into a computer.   *(1 mark)*

    (b)
    ▪ Keyboard
    ▪ Mouse
    ▪ Joystick
    ▪ Pointing devices
    ▪ Keying devices   *(1 mark)*

2. (a) **CRT** :- A display unit built around the vacuum tube containing one or more electron guns whose electron beams rapidly sweep horizontally across the inside of the front surface of the tube which is coated with a material that glows when irradiated.

        LCD :- A type of display that uses a liquid compound having a polar molecular structure, sandwiched between two transparent electrodes. When an electric field is applied, the molecules align with the field forming a crystalline arrangement that polarizes the light passing through it. A polarized filter laminated over the electrodes locks polarized light. In this way, a grid of electrodes can selectively "turn on" a cell, or a pixel, containing the liquid crystal material turning it dark.   *(2 marks)*

    (b) **OCR** :- Type of scanning technology that reads special pre-printed characters and converts them into computer usable form, while **OMR** :-Scanning technology that reads pencil marks and converts them into computer usable form.   *(2 marks)*

3. (a) Software that is available free of charge.   *(1 mark)*

    (b)
    ▪ Downloaded from the internet.
    ▪ Donation from others.
    ▪ From a developer.   *(1 mark)*

4. A home page is the first (main) page on a website.   *(2 marks)*

5. (a) **CAB**:- A system of programs and workstations used in designing engineering, architectural and scientific models ranging from simple tools to building, aircraft, integrated circuits and molecules.   *(1 mark)*

    (b)
    ▪ The length of time taken to draw a design is reduced   .
    ▪ Easier to make changes or update the original design.
    ▪ Duplicates of the design are easy to produce, distribute to various interested parties.
    ▪ It is easy to view the end product before it is designed   *(3 marks)*

6. (i)   Maintain criminal databases.
    (ii)   Examine forensic evidence.
    (iii) Communicate with other relevant departments and agencies.
    (iv)   Provide electronic surveillance.
    (v)   Control traffic systems.
    (vi)   Provide assistance to officers through easy access to information.   *(3 marks)*

7. A computer system is able to operate on two or more packages at the same time through the use of multiprogramming OS which allow one or more programs to reside in the computer memory and being

processed or executed concurrently. *(2 marks)*

8.   (a)   *Hybrid computer* is one that has both analogue and digital features.   *(1 mark)*
       (b)   *Embedded computer* is one that is within some other device such as domestic appliances, petrol pumps etc.   A computer attached to another machine.   *(2 marks)*

9.
- Improving system efficiency /system upgrading.
- Adapting the system to its environment/New requirement.
- Correcting errors.   *(2 marks)*

10.   (a)
- Data creation on clerically prepared source documents.
- Data transmission.
- Data preparation, for example:- verification & transcription.
- Input validation.
- Sorting.   *(2 marks)*

       (b)   (i)   *Transaction file* :– used for feeding entries into the master file, that is, updating the master file after a transaction.
               (ii)   *Master file* :– contains the primary entries which do not require frequent changes or updates. Provides the records required by other types of files.   *(2 marks)*

11.   *Headache*
- Use of filters/antiglare.
- Proper lighting.
- Regular break.   *(1 mark)*

       Back & Neck Pain
- Proper/correct furniture for the computer.
- Correct position of the screen.
- Correct sitting posture.   *(1 mark)*
- Taking a break.

12.   (a)
- Use of anti-virus software.
- Update system frequently.
- Purchase software from authentic sources.
- Test the software before implementation.
- Test syntax/logic.
- Proper training.
- Proper enactment of laws.   *(2 marks)*

       (b)
- Data encryption.
- Password protection.
- Audit trail.
- Surveillance system.   *(2 marks)*

13.   (a)
- They are used to help with page layout.
- Holding text clearly.   *(1 mark)*

       (b)   *Outside Margin* is the white space around the edge of the printing on each page, while *Inside Margin* is the left margin and the outside margin is the right margin.
            (2 marks)

14   *Formatting a disk* is the process of preparing a disk or other storage medium for use, including setting up an empty file system, while *scanning a disk* is the process of checking and correcting bad blocks or disk errors

on any writable media, such as a hard disk, zip, floppy or super disk. Cracking for virus.
(2 marks)

15.

- Work in hazardous environment.
- Robots don't get tired.
- The quality of work is consistent.
- They are faster.
- Less errors.
- Cost effective in the long run. *(2 marks)*

16. (a) (i) 5 *(2 marks)*
          (ii) 13 *(2 marks)*
          (iii) 0 *(3 marks)*
          (iv) 0 *(2 marks)*

     (b) Prints the position loc of a given element (ITEM) in a list called DATA.
          (2 marks)

     (c) 1. Set Date [N + 1] =ITEM
              Set loc=1
          2. Repeat step 3 while Data [LOC] $\neq$ ITEM
          3. Set loc = loc + 1
          4. If loc=N + 1 Then set loc=0
          5. Print loc
          6. Exit *(5 marks)*

17. (a)
- In binary one bit usually the most significant or leading bit is used to indicate either positive or negative, and store the unsigned binary representation of the magnitude in the remaining bits.
- Signed magnitude.
- Using the twos complement.
- Using the ones complement. *(2 marks)*

     (b)   0.315
             <u> x 2</u>
              6250   -   0
             <u> x 2</u>
              1.2500 -   1
             <u> x 2</u>
              0.5000   -   0
             <u> x 2</u>
              1.0000   -   1
                    $\Rightarrow 0.0101$
                    $\Rightarrow 0000.0101$ *(3 marks)*

     (c) $1+\dfrac{0}{2}+\dfrac{1}{4}+\dfrac{1}{8}+\dfrac{1}{16}=1\dfrac{7}{16}\ or\ 1.4375_{10}$ *(2 marks)*

     (d) (i)   14   =   111 0
               6   =   <u>011 0</u>
                       100 0 *(3 marks)*

          (ii) Complement of 6=100 1
                       111 0

$$\frac{+100 \ 1}{1011 \ \ 1}$$
$$+$$
$$\frac{\rightarrow 1}{1000}$$

(5 marks)

18.   (a)   ***Advantages***
- Logic used is simple/easy to install or configure.
- High speed of communication/transmission especially with optical fibre.
- Not easy to tap/hack.
- More secure. *(3 marks)*

Disadvantages
- High cost of maintenance.
- Susceptibility to vandalism.
- Susceptibility to EMI.
- Right of way. Requirement.
- Suffers high attenuation.
- Hard to set up in difficult terrain.
- Limited movement. *(3 marks)*

   (b)   (i)   ***Analog***: Continuously varying electromagnetic signal.

          (ii)   ***Digital***: Pulses of electricity. *(4 marks)*

   (c)
- Thin coaxial/Thinnet.
- Thick coaxial Thicknet. *(2 mark)*

   (d)   (i) Protocols are set of rules and procedures that govern communication between two different devices or people. *(1 mark)*

          (ii)
- TCP/IC
- TCP
- SMTP
- FTP
- IP
- ATP
- SPX
- HTTP
- Netbeui *(2 mark)*

19.   (a)
- The field values are the values assigned to the attributes, that is, actual names, classes.
- The field value for each student constitutes a record.
- The collection of all the student records is the file. *(3 marks)*

   (b)   Member Number. *(1 mark)*

   (c)   (i)   Text/Number/character. *(1 mark)*
          (ii) Text/Character/String/alphanumeric. *(1 mark)*

          (i)
- ***Table***:-from storing the data.
- ***Form***:-data entry, editing & viewing the record.
- ***Query***:-exetracting data based on some criteria.
- ***Reports***:-crceating summaries for data/outputs. *(4 marks)*

(ii)
- Forms
- Queries
- Reports *(3 marks)*

(e) (i) 55 *(1 mark)*
    (ii) 11 *(1 mark)*

20. (a) (i) Hierarchical Structure/Tree structure. *(1mark)*

    (ii) File 02 and 03 with be replicated in miscellaneous.
         File 01 in chemistry will replace or remove file 01 in miscellaneous. Some systems may abort. *(2 marks)*

    (iii) The process will be denied because the OS has file copied into the main memory. *(1 mark)*

    (iv)
    - Easy to secure files by adding attributes.
    - Easy to access file/Loading of files.
    - Allows for grouping of similar files.
    - Allows file of the same name to be stored in different folder.
    - Easy to add directories. *(2 marks)*

(b)
- File size.
- Date modified.
- File type.
- File name.
- Author.
- Date created.
- Time. *(2 marks)*

(c)
- Opening of files/Reading.
- Closing of files.
- Writing of files/saving/storing/print to file.
- A copy commands.
- Backup facility.
- Delete commend/formatting.
- Command to log to different part of the media.
- Changing attributes.
- Renaming. *(3 marks)*

(d)
(i)
- Swapping of programs in and out of the memory.
- Keep track of what part of the memory is in use.
- Keep track of which process is in control of what part of memory.
- Enforce a policy on how the programs can access it.
- Creating of virtual memory. *(2 marks)*

(ii)
- It has control over their request and only grants one request access to avoid deadlocks.
- Monitor and study the status of 10 and report any fault detected.
- Reports of error.
- Controls movement of data/information in and out of the 1/0.
- Allows addition of 1/0 devices.

30.22.2 Computer Studies Paper 2 (451/2)

1. (a) (i) Creating the database
         - Correct filename.   *(1 mark)*
         - Save.   *(1 mark)*

         Creating tables, field name and mark field type.
         - Product.   *(4 marks)*
         - Supplier.   *(5 marks)*
         - Order.   *(7 marks)*

    (ii) Data entry
         - Product.   *(5 marks)*
         - Supplier.   *(3 marks)*
         - Order.   *(4 marks)*

    (b) (i) Relationship
         - Product – order (1 – m).   *(2 marks)*
         - Supplier – order (1 – m).   *(2 marks)*

    (ii) Picking correct fields   *(2 marks)*
         Setting the filter.
         - Selection of correct field.   *(2 marks)*
         - Criteria.   *(2 marks)*
         - Saving.   *(1 mark)*

    (c) Creating form
         - Correct title.   *(2 marks)*
         - Fields   *(2 marks)*
         - Layout (column or justified)   *(1 mark)*

    (d) Printing
         - Product.   *(1 mark)*
         - Suppliers.   *(1 mark)*
         - Orders.   *(1 mark)*
         - Query.   *(1 mark)*

2. (a) Data entry.   *(1 mark)*

    (b) (i) Title (correct title & insertion).   *(2 marks)*
         (ii) Column heading sales representative.   *(1 mark)*
               Mention of 4 weeks.   *(2 marks)*

    (c) (i)
         - Column label.   *(1 mark)*
         - Formula.   *(1 mark)*
         - Copying formula.   *(1 mark)*

    (ii)
         - Company's total sales for the month.   *(1 mark)*
         - Inserting total label.   *(1 mark)*

(d) (i) =1F(F4<=65,000, F4*0.05, 65,000*0.05 + (F4 – 65,000)*0.12)
          (2)   (1)   (1)   (2)

                                            (i)   *(8 marks)*

     =IF (F4>65,000, 65,000*0.05 + (F4-65,000)*0.12,F4*0.05)
          (2)   (1)   (2)   (1)

          Column label   (i)   *(1 mark)*
          Copy formula   (i)   *(1 mark)*

     (ii) Total commission.   *(1 mark)*

(e) (i) Decimal place.   *(½ mark)*
          1000 separator   .   *(½ mark)*

     (ii) Title
           ▪ Boiling.   *(1 mark)*
           ▪ Centering.   *(1 mark)*

     (iii) Double outline border.   *(2 marks)*

(f) Graph
           ▪ Title.   *(1 mark)*
           ▪ X-axis.   *(1 mark)*
           ▪ Y-axis.   *(1 mark)*
           ▪ Legend.   *(1 mark)*
           ▪ Bar graph (Data selection).   *(3 marks)*
           ▪ Insertion on new sheet.   *(1 mark)*
           ▪ Saving.   *(1 mark)*

(g) Sorting in ascending.   *(1 mark)*
     Saving.   *(1 mark)*

(h) Printing
           ▪ A: Faida 1.   *(1 mark)*
           ▪ A: Faida 2.   *(1 mark)*
           ▪ Chart.   *(1 mark)*