SENIOR 6
SELF STUDY
WORK
ART P615/4
(Studio
Technology)
Paper 4 (Theory)

1. a) Define the term Dot.   *(2marks)*

   (b) Distinguish between a dot and line.   *(2marks)*

   (c) Give at least three uses of a line in art and design.   *(3marks)*

2. a) Explain the three properties of colour.   *(3marks)*

   (b) Make an illustration of a colour wheel and list examples of
complementary and cool   colours.   *(7marks)*

3. List down the properties of clay.   *(5marks)*

4. a) Define slashing as used in weaving.   *(2marks)*

   (b) Describe the process of making a coiled basket.   *(7marks)*

5. a) Distinguish between tesserae and interstices as used in mosaic.   *(4marks)*

   (b) Explain the step by step process of making a mosaic using glasses.   *(6marks)*

6. a) What is fabric decoration?   *(2marks)*

   (b)Describe the process of making organdy.   *(5marks)*

   (c) Outline the stages of stencil printing.   *(6marks)*

7. a) Differentiate between a marionette and a puppet.   *(4marks)*

   (b) How can you make a wooden marionette?   *(8marks)*

8. a) Distinguish between an ornament and jewelry.   *(4marks)*

   (b) Outline the materials from which ornaments can be made.   *(10marks)*

9. a) What is a dye bath?   *(2marks)*

   (b) Describe how colour tone can be achieved in a tie-dye article.   *(5marks)*

10. a) Write short notes on the following;

    i)   Alto relief   *(2marks)*

    ii)   Bas relief   *(2marks)*

iii)   Inverse relief   *(2marks)*

   (b). Describe the process of producing a sculpture using plaster material.   *(7marks)*
END

STUDIO TECHNOLOGY

1(a) A dot is an element of art and design which refers to a spot or point which
        shows a complete lack of movement in a dot.   1x2 (2mks)
(b) A dot is a mark spot or point with complete lack of movement where as
A line is a path made by a moving point on surfaces.   1x2 (2mks)

 (c) Given below are the uses of a line in art and design;
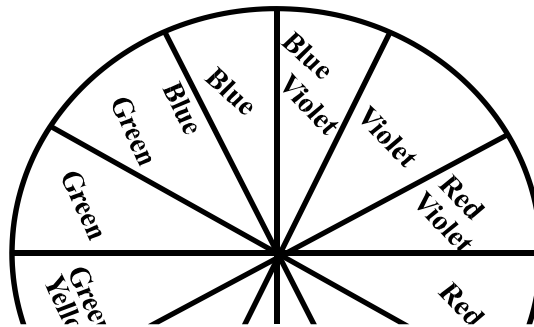   Lines are used to organise a composition or a concept.
   ❖ Lines connect two objects.
   ❖ Lines separate items or objects.
   ❖ Lines create movement.
   ❖ Lines create textures.
   ❖ Lines convey a mood and messages and emotions.
   ❖ Lines provide emphasis.
   ❖ Lines define shapes.
   ❖ Lines can be used to create contrast.
   ❖ Lines guide the viewer through the work of art.
   ❖ Line show directions and create stability in an art work.
                              3x1   (3mks)
2(a) Explained below are the properties of colour;
   ❖ Hue; is a primary property of colour which refers to another name for
      colour. For example; blue, yellow or orange.
   ❖ Value; is a secondary property of colour which refers to the degree of
      lightness or darkness of a colour. For example; pink and maroon, light
      blue or light green.
   ❖ Intensity; is the third property of colour which refers to the degree of
      purity of colour also called colour saturation. Examples are; blue + green
      = blue-green, red + orange = red-orange, yellow + black = dirty yellow or
      brown. 3x1(3mks)

2(b) <u>An illustration of a colour wheel showing cool and complementary colour</u>

Well labelled and coloured (3mks)
Cool colours are those which recede into the background and they include;
- ❖ Blues
- ❖ Green
- ❖ Purple   (2mks)

Complementary colours are those that lie opposite each other on a colour wheel such as
- ❖ Red and green are opposite.
- ❖ Blue and orange.
- ❖ Yellow and purple.   (2mks)

NB//Each primary colour complements a secondary.

3. Listed below are properties of clay;
- ❖ Clay is plastic (plasticity)
- ❖ Clay is porous (porosity)
- ❖ Clay is vitreous (verification)
- ❖ Clay shrinks (shrinkage)
- ❖ Clay changes colour (when fired)
- ❖ Surface decoration ability (its surface allows any decoration) 5x1 (5mks)

4(a) Slashing also known as sizing, here the yarn is unwound from the warp beam and a thin layer of starch is applied to the yarn's surface giving it strength to endure tensions during weaving.   1x2 (2mks)

(b) Described below is the process of making a coiled basket;
- ❖ Get tools and materials such as papyri, cane, containers water, needle and a craft knife.

- ❖ Soak the stitching strip to make it flexible.
- ❖ Cut about three feet long of stitching strings.
- ❖ Thread one of its ends through a needle and get 4 papyri strips.
- ❖ Lay a couple of inches of the stitching strips loose end a long side the end of the papyri strips.

  With one hand holding the short end of the string in place, use the other hand to wrap [the long stitching strips about 10- 15 times. Wrap the strings.

  Start bending the shape into a U shape and create a ring-like circle.
- ❖ Continue with this process of wrapping and start coiling process by bending the loose end of the wrapped papyri bundle around ensuring they are tightly laid a long side the foundation ring.
- ❖ Make the second round stitching, this time stitch around the bundle that makes the first round.
- ❖ Keep stitching making several coils to make the walls or sides of the basket.
- ❖ Once the desired diameter or size off the basket is achieved, begin to reduce the size of the coil to form the last rim.
- ❖ Use a figure 8 stitch to end your coil and trim off excess strings to complete your coiled basket.   Step by step process (7mks)

5(a)

Tesserae are cubes or shapes made from broken pieces of glasses, stones, tiles or Banana fibers used to construct a mosaic while

- ❖ Interstices are small gaps or spaces between the tesserae that create network in mosaic surface.   1x4   (4mks)

(b) Explained below is step by step process of making a mosaic article using glasses;

To make a glass mosaic article, develop a concept of your mosaic composition.

- ❖ Acquire the materials and tools such as coloured glasses, flat surface, glue, grout, safety glasses, and gloves pair of pliers, scissors and a spatula.
- ❖ Make a sketch on paper using coloured pencils to inspire and guide you.
- ❖ Break the glasses with a pair of pliers, harmer and sort them according to size and colour.
- ❖ Transfer your sketch onto the flat surface by tracing or re-sketching.
- ❖ Arrange the cubes or tesserae onto the surface before gluing them.

- ❖ Then apply glue and start constructing the tesserae one by one or part by part until the mosaic design is complete.
- ❖ Leave the mosaic to dry a bit and remove extra glasses and glue.
- ❖ Apply grout into the gaps (interstices) to unify and beatify your mosaic using a spatula.
- ❖ Allow the grout to dry and remove extra grout to apply varnish to make its surface more attractive. It can also be framed to further protect it and hence the step by step process of mosaic making using glasses.
(6mks)

6(a) Fabric decoration is a process of patterning an essentially plain cloth to make it more appealing or attractive. 　　　　　　　　　1x2 (2mks)

- ❖ Described below is the process of making organdie;
- ❖ Organdie is a silk screen (frame) used in printing. To make an organdie; Acquire the needed tools and materials such as silk cloth, timber, nails, and harmer and tuck nails.
Get seasoned wood or timber, dry and strong so that it will not warp under tension.
- ❖ Using nails and harmer, join the four pieces of timber to make a rectangular frame at right angles.
- ❖ Working on the smooth flat surface, cut an appropriate size of the mesh and spread it on top of the frame on one corner of the frame, fix the mesh using tuck nails.
- ❖ Turn the frame and the mesh upside down, carefully pull and stretch the loose part of the mesh tightly over the frame opposite the corner previously fixed.
- ❖ Fix the mesh at this corner using tuck nails.
- ❖ Stretch and fix the mesh on one of the two remaining corners of the frame.

- ❖ On the remaining side that is not yet fixed, pull and stretch the mesh until it is drum-tight and fix it as well.
- ❖ Carefully trim the excess mesh, fold and tuck the mesh at all the four corners and fix them with tuck nails. 　　　　　　　　　(5mks)
- ❖ Outlined below are the stages of stencil printing;

- ❖ Get the concept of what you want to print and develop this concept by sketching and re-sketching until you come up with a final motif or design.
- ❖ Get the needed tools and materials such as fabric, paste, cutters and a sponge.
- ❖ Make copies of your design on a clear photocopier.
- ❖ Using a masking tape or staple, attach a copy of your design on to the paper you intend to use as a stencil.
- ❖ Using a stencil cutting blade, cut your design carefully removing the positive parts from the design.
- ❖ To begin printing, place the fabric on a flat smooth surface.
- ❖ Position the stencil on top of the fabric and pick paste or ink with a sponge and begin to print.
- ❖ Printing over the stencil as if stamping covering the entire area cut on stencil.
- ❖ Using one hand to hold the fabric, carefully lift off the stencil to reveal your printed design.
- ❖ For repeats, place the stencil next to the print you have just made and print again until the whole fabric is printed on.
- ❖ Hang it to dry and iron it to fix the paste. Six major stages 6x1 (6mks).

7(a)
- ❖ A marionette is a form of a puppet whose movements are controlled from above using a string or wire while
- ❖ A puppet is a doll, figure or an object made whose movements are controlled by a person or manipulated by a person to give an impression of speaking or
  action/ movement.   1x4   (4mks)

(b) A wooden marionette can be produced as under;
  Get well seasoned wood, paper for sketching, cloth, cell tape, metal and leather for jointing and paint.
  Get the inspiration/ choose a character of your craft.
- ❖ Make sketches of the character to guide you.
- ❖ Cave sections of the figure such as the head, arms, legs and torso.
- ❖ Construct a full figure using sections of carved wood using wires and cell tape.
- ❖ Choose any type of jointing such as leather jointing and join the arms, torso, legs and the head.
- ❖ Once the figure is constructed, paint it to your sketch character.

- ❖ Costume or dress it to set the craft ready for stringing.
- ❖ Use strong strings and connect each string to a section of the figure such as head, shoulders, arms, legs from a cross bar or control bar.
- ❖ At this stage, a marionette is ready to be manipulated by a marioneteer using a control bar.   Step by step process 8x1   (8mks)

8(a)
- ❖ Ornaments are objects that enhance the appearance of a person or another object where as
- ❖ Jewelries are personal ornaments worn on human body.   1x4 (4mks).

(b) Outlined are materials from which ornaments can be made;

   Metals.
- ❖ Clay (ceramics)
- ❖ Wood
- ❖ Ivory
- ❖ Bamboo
- ❖ Glass
- ❖ Paper Mache
- ❖ Plastics
- ❖ Fabrics (cloth)

                                                        10x1 (10mks)

9(a) A dye bath is a mixture of dye, dye chemicals with hot/ cold water in a container.   1x2   (2mks)

9(b) Described below is the way how colour tone can be achieved in a tie-dye article;

   Choose the number of colours and type to be used.
- ❖ If three colours are to be used such as yellow, green and purple.
- ❖ Then pattern your fabric, planning for the three colours.
- ❖ Choose a method of tie and dye example given is a bucket method.
- ❖ Prepare your dyes from different containers basing on different colours selected.
- ❖ Resist the areas to be left in white by tightly tying these areas.
- ❖ Apply or dip your fabric in a lighter colour such as yellow first. Leave it to set and rinse in cold water and dry in a shade.

❖ Tie the areas that you want to remain in the existing colour (yellow) and then dip in another stronger colour (green) and repeat the process of rinsing and setting the dyes for another colour.

❖ Again resist those areas that you want to remain in green by tying and then dip it in dye bath of a purple colour (darkest colour)

❖ Un tie the fabric and when the dyeing process is complete, rinse the fabric and dry the fabric under a shade to prevent it from fading.

❖ Iron the fabric to fix the dyes to be permanent.

❖ Your fabric will have the following colours, white, yellow, yellow-green, light green, green purple and the darkest value of purple hence creating colour tones in a tie and dye fabric.   Step by step process 5x1 (5nmks)

10(a) Short notes about the following;

(i)   Alto relief is also known as high relief which is a form of relief sculpture in which images project far out from a flat background. Here the figure is almost freestanding.   (2mks)

(ii)   Bas relief is also called low relief which is a type of relief sculpture in which the image forms slightly project from a flat background. An example is the image on the coins which are made by contours/lines.

(iii)   Inverse relief which is intaglio or sunken relief, here the forms of sculpture are cut into or below the background. Here the background is higher than the
highest figure areas.   (2mks)

10(b) Described below is the process of producing a sculpture using plaster;

Plaster is a combination of cement, water sand and gravel.

❖ To make a sculpture in plaster, develop an idea or concept of your choice such as an animal.

❖ Acquire plaster materials and tools such as sand, water, cement, spade, and trowel and sand papers.

❖ Prepare wire strings, mesh, craft wires, iron bars and construct an armature or supporting structure according to your sketch.

❖ Prepare your plaster material using right proportions of cement, water and sand.
❖ Using a trowel, begin to add plaster to your armature. Start by applying a thin layer of plaster. Gradually apply more plaster to achieve the desired form of sculpture.
❖ Carefully work on special feathers such as the eyes, hands, nose, feet, muscles and other details according to your sketch.
❖ Allow your sculpture enough time to dry under an air tight bag.
❖ Finish your sculpture by painting if you wish and hence the process of producing a sculpture using plaster. Step by step[process 7x1   (7mks)

ACTIVITY 1
ART P615/4

1. a) Draw a suitable color wheel and on it indicate:

    i)   The primary colors   (3marks)
    ii) Secondary colors   (3marks)
    iii) Tertiary colors   (3marks)

    b) What is the difference between elements & principles of art?   (4marks)

2. Briefly describe the state of clay in the
      following stages:
 i) Plastic
 ii) Leather hard
 iii) Green ware iv) Bisque

3 (a)What is the importance of grog as used in clay work? (2marks)
 (b)List any 4 techniques of decorating a green ware in ceramics.

4(a) Explain the major difference between tie and dye, and batik.
 (b)List down any four tools and four materials used to make Batik.
5(a) Name any 2 sources of natural & 2 sources of synthetic fiber used in the weaving of fabrics.

    b) Using illustrations explain the following as used in weaving:
     i) Plain weave
     ii)   2x2 twill weave
     iii)   Frame loom

6 (a)Give any four ways of decorating a fabric.
  (b)Discuss three advantages of Stencil printing as opposed to block printing.

7 (a)Define the term appliqué.
  (b)List any four importance's of Applique.

8(a) Describe the three basic sculpture production techniques bellow.

(b)List down any four materials from which sculptures can be curved.

8(a)List any four importance's of texture on a sculpture.

(b)Describe any six functions of sculptures
10(a)Explain four ways in which studying art has been beneficial to you as a student.

(b)List down any two challenges you have encountered in the course of studying art.

End

ACTIVITY 2
ART P615/4

   (i)   Answer all questions
   (ii) Drawings and diagrams should be used where necessary.

   1.   (a) Differentiate between shape and voids   (2marks)
        (b) Discuss the principles of Art and Design.   (4marks)
   2.   (a) what is the difference between sculpture in round and relief sculpture.   (2marks)
      (b) Discuss the elements of sculptures.   (2marks)
   3. (a) What is Tie and Dye?   (2marks)
      (b) Explain the techniques of Tie and Dye.   (8marks)
   4. (a) Differentiate between Thronging and Punching.   (2marks)
        (b) Explain the techniques of decorating leather. (4marks)
   5(a) Explain the functions of the following tools used in Batik.
        (i) Tjunting tool   (1mark)   (ii) Brush (1mark)
      (iii) Wax   (1mark)
    6.Explain the importance of materials in Art and Design.   (10mark)

(a) Define Appliqué. (1mark)

(b) Outline the five materials and five tools while making quilting (5marks)

(c)Define weaving. (1mark)

7(a)Explain five techniques with clear illustrations of weaving. (5marks)

(b)Explain the process of making a weave using paper slated loom. (6marks)

8.(a) Give the difference between residual clay and sedimentary clay.

(b) Explain the properties of Clay. (6marks)

9.a) Define the following terms as used in Art and design;

i) colour Chroma   (01mk) ii) pedestal (01mk)

iii) patch work   (01mk) iv) Brock printing
 (01mk)

v) Leaf printing   (01mk)   vi) Running stitches

vii) Back stitches   (01mk)

ACTIVITY 3
ART STUDIO TECHNOLOGY (THEORY)

1.   What is the difference between progression and regression rhythm movement. (2mks)

2.Access the importance of craft in your locality.
(a) What is the importance of learning how to make jewelry?

2.   State the differences between collage and assemblage. (2mks)

3. By using illustrations describe different uses of line in art and design.

5. (a) What is pottery? (2mks)

(b) Describe six ways of decorating ceramics work. (3mks)

7. Examine the uses of materials in studio technology. (4mks)

8. (a) Define the term appliqué. (2mks)

9. (b) Outline4 materials used in appliqué. (2mks)

10. Describe the processes of making a paper Mache (6mks)

11. List eight materials used in Photomontage. (2mks)

12. Describe the processes of preparing a wood for sculpture. (6mks)

ACTIVITY 4
ART STUDIO TECHNOLOGY (THEORY)

1) (a) Define the principle of Balance as applied in Art and craft *(02 marks)*
   (b) Give reasons for the importance of the above principle in art *(03 marks)*

2. Explain any three properties of colour. *(06 marks)*

3. (a) Define the term fabric decoration *(01mark)*
   (b) Explain any three methods of decorating a fabric. *(06 marks)*

4. Explain the following techniques used in tie and Dye.
   (a) Pleating *(03 marks)*
   (b) Crumpling *(03 marks)*
   (c). Circles *(03 marks)*
   (d) Running stitch *(03 marks)*

5. (a) Mention six local materials used in basketry *(03 marks)*
   (b) Differentiate between coiling and twinning *(04 marks)*
6. Mention any six materials that are used in the making of collage *(03 marks)*
7. Define the following terms in relation to clay:
   (a) Wedging *(03 marks)*
   (b) Slip *(03 marks)*
   (c). Bisque *(03 marks)*

    (d) Glaze *(03 marks)*

8. (a) Define marionette *(02 marks)*
   (b) Mention any four types of puppets *(04marks)*
   (c) Give any two materials and two tools used in producing puppets
                                                (02 marks)

9. Using a well labeled illustration, construct a single-point linear perspective

10. (a) What is a sketch? *(01 mark)*
    (b) Give the importance of sketching for any work of art *(03 marks)*

SUB ICT S850/1

Question 1

a) **Justify any *three* main reasons for using computers by government in your country.**
Solution:

i. It helps in national census (population counts) (01 mark)
ii. It facilitates the National Voting process. E.g; Presidential and members of parliament among others of a country. (01 mark)
iii. Faster and reliable means of communication among government workers. Eg; use of email address. WhatsApp's, and teleconferencing .(01 mark)
iv. Keeping records of public servants in different ministries and sectors.

  b) State any two types of computers in use today.
    Solution

i. Digital computers (01 mark)
ii. Analogue Computers (01 mark)
iii. Hybrid computers

Question 2

  a) State one use of the following computing devices.

i. Mainframe computer

Mainframe computers (colloquially referred to as "big iron") are computers used primarily by large organizations for critical applications, bulk data processing, such as census, industry and consumer statistics, enterprise resource planning, and transaction processing. (01 mark)

ii. Super Computer

Supercomputers play an important role in the field of computational science, and are used for a wide range of computationally intensive tasks in various fields, including quantum mechanics, weather forecasting, climate research, oil and gas exploration, molecular modelling .(01 mark)

iii. Microcomputer.

- *The microcomputer has replaced most basic paperwork, and has become a fixture for design and architecture firms, film studios and many other businesses .(01 mark)*

- *Microcomputers also play a critical role in the medical field. From small private clinics to large hospitals, microcomputers are employed to manage patient histories.*

b) Several factors must be considered when choosing a computer case. State any two factors.
Solution:
Select a case that matches the physical dimensions of the
i. *power supply and* (01 mark)
ii. *motherboard* (01 mark)

Question 3

a) **State any three benefits of Lab care and preventive maintenance of computer systems**

Solutions:
i. *Detects earlier problems that may cause system start-up errors, hanging applications and warm booting.*
ii. *Keeping the computer healthy and running smoothly by protecting it from viruses, malware, and spyware that can be difficult to remove and cause computer to run slowly.*
iii. *Helps to keep the computer clean from dirt, dust and debris.*
iv. *Helps to keep the computer in a good working condition that can work for a long time with new upgrades and updates which will make the computer work fast.*

a) **List any two factors to consider when preparing a computer laboratory.**

Solution
i. *Security of computers, programs and other resources*
ii. *Reliability of the power source*

iii.   The number of computers to be installed and the available floor space
iv.   The maximum number of users that the computer laboratory can accommodate

Question 4
Match the following file extension: .ai, .midi, .ram, .jpeg .swf, .mp3, .tiff, .bmp, with respective correct description.

(05 marks)

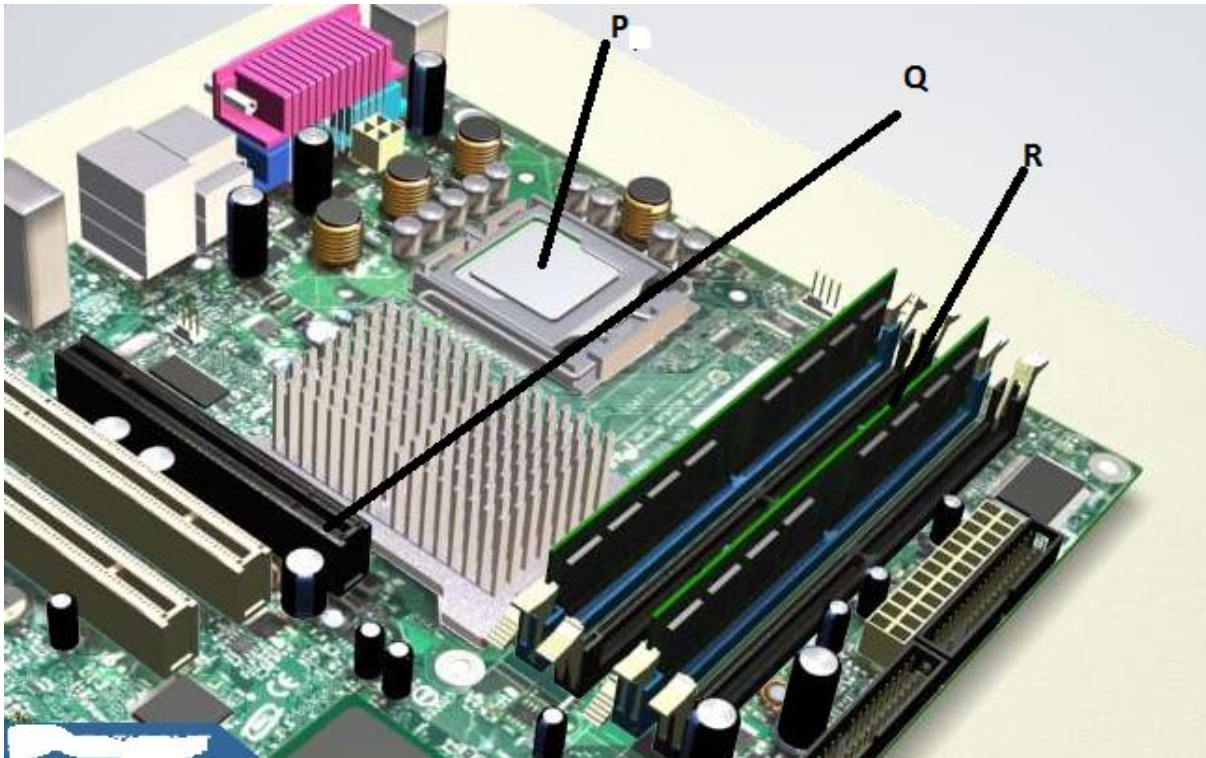| File Extension	Description
.ram	Used mainly for real-time streaming of audio and video it requires RealPlayer (Windows and Mac) software.
.mp3	Digital music, pod casts and audio books files
.ai	File extension that represent single-page vector-based drawings created using Adobe Illustrator.
.bmp	It is a standard Windows image format that is created using Microsoft's Paint or Paintbrush programs.
.jpeg	Digital cameras often save images in the file format.

Question 5

a) If you don't instruct "tell" the computer to do otherwise, it will save you the following files in my document. State the specific fodder involved.

i.   Music files to the ……………Music………........folder   (01 mark)

ii.   Pictures to the …………………Pictures………….folder   (01 mark)

iii.   Videos to the ....*Videos*......................... folder.   (01 mark)

b) List any two steps you will take when creating a folder on the Desktop.

Solution:

i.   *Using a mouse or any pointing device, right-click on the any free space on the desktop. Various options will pop-up   (01 mark)*

ii.   *Chose option New and select Folder. Provide the folder with a name. 01 mark)*

Question 6

Study the following diagram of components in a computer system unit and answer the questions that follow:

a) Give the ICT name for the parts labelled:

i.   P..................Central Processing Unit (CPU)...(01 mark)

ii. Q...............Expansion Slot.(PCI, AGP, PCIe).......................................(01 mark)

iii. R........Random Access Memory...(01 mark)

b) Study and state the main function of parts labelled:

i.   P. *Is responsible in processing, manipulating of data to information.*(01 mark)

ii. R..*Is to enhance the capabilities and functionalities of a computer system.*

Question 7

You are given a task of assembling a computer system. Use the following procedure to arrange your five steps chronologically.

Consider the following steps: (01 mark @ = 05 marks)

i.   Connect the external cables to the ports on the back of the computer.

ii. Connect all internal cables to the appropriate computer components.

iii. Attach the power supply to the case.

iv. Install the RAM, CPU, Thermal compound and Heat sink on the motherboard and screw the motherboard on the system case.

v. Connect the adapter cards, internal drives such as HDD, CR-RW/DVD and FDD drives in external bays.

Question 8

a) Explain the following two types of memory

i. Volatile memory

   RAM is volatile memory, which means that its contents are lost when the computer is shut down. (02 marks)

ii. Non-Volatile Memory

   ROM is non-volatile memory, which means that its contents are not lost when the computer is shut down. (02 marks)

b) A USB port can connect up to 127 different peripherals together with a single connector. State where USB port type B are used:

   On Printer Interface, scanner, Digital camera, and photocopying machines.
   (Question 9

a) Give any two good reason for using the following today:

i. Dot Matrix Printer (02 marks)

   • The printer dot matrix printer can be used in multipart forms.

   • Uses less expensive ink than inkjet or laser printers.

   • Uses continuous feed paper.

   • Has carbon-copy printing ability.

ii. Ink jet printer (02 marks)

   • Initial low cost

   • High resolution

   • Quick to warm up

b) Why interactive whiteboards (Smart boards) are commonly used in Secondary and colleges and Universities today? (01 mark)

   • One of the main advantages of interactive whiteboards is that all work can be saved and stored with ease as everything is done through a computer.

- The interactive whiteboard supports most multi-media materials, such as images, texts, audio and video documents from various input devices, including desktops, laptops, DVD players, USB drives.

- With the right hardware, users can connect interactive whiteboards to IOS and Android smart devices with a single application. This results in a greater range of data sharing and interconnectivity.

- Just think of how much money you will save each year on dry erase markers or chalk if you still use a blackboard. By using our interactive whiteboards and LCD monitors you will dramatically cut down on classroom expenses while exponentially improving the learning environment within your classroom.

Question 10

a) Suggest any three reasons for having operating software in a computer system.

An operating system has three main functions: (1x3 = 3marks)

i. Manage the computer's resources, such as the central processing unit, memory, disk drives, and printers,

ii. Establish a user interface, and

iii. Execute and provide services for applications software.

Other functions of operating systems are:

- Managing Resources: Programs that manage the resources of a computer such as the printer, mouse, keyboard, memory and monitor.
- Providing User Interface: Graphical user interface (GUI) is something developers create to allow users to easily click something without having to understand how or why they clicked an icon. Each icon on a desktop represents code linking to the spot in which the icon represents. It makes it very easy for uneducated users.
- Running Applications, is the ability to run an application such as Word processor by locating it and loading it into the primary memory. Most operating systems can multitask by running many applications at once.
- Support for built-in Utility Programs: This is the program that find and fixes errors in the operating system.
- Control Computer Hardware: All programs that need computer hardware must go through the operating system which can be accessed through the BIOS (basic input output system) or the device drivers.

b) Which Windows hard drive partition is commonly referred to as the C: drive?
The First Primary Partition

Question 11

a) Outline any three industrial areas where relational database systems are applied today.

i. Production of academic transcripts,   (01 mark)

ii. Online shopping and supermarket record keeping and transactions (01 mark)

iii. Library Information system for keeping books   (01 mark)

b) State any two examples of Database Management System (DBMS) you know.

i. Microsoft Access.   (01 mark)

ii. Oracle, SQL, Firebird, Perl.   (01 mark)
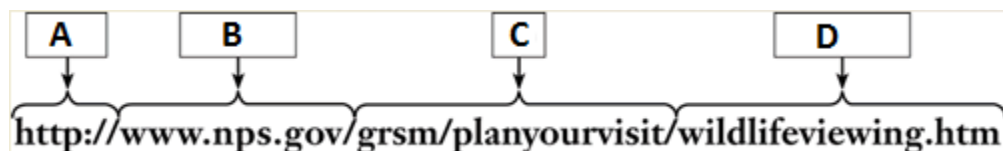
Question 12

a) With the knowledge of the Desktop Publishing software, Describe chronological five steps required when designing a calendar for year 2018.

Solution:
i. *Open Microsoft Publisher Application by finding it under Start Menu.*
ii. *Click on Calendars from the main window or the list on the left.*
iii. *Click on one of pre-designed templates that you like. It will appear at the top of the area on the right side of the page.*
iv. *Click on the set Calendar Dates button and choose the period of time that you would like your calendar to cover E.g. 1 month or 1 year.*
v. *Click on Create at the bottom to create your calendar.*

Question 13

Study the Uniform Resource Locator (URL) exhibited. Use it to answer the following questions:

http://www.nps.gov/grsm/planyourvisit/wildlifeviewing.htm

a) Name the parts of the URL labelled:

i. A...........................Protocol...(01 mark)

ii. B. ....Domain Name...(01 mark)

iii. C. ....Path.................... ....(01 mark)

iv. D. ....Web Page Name (File Name)..................................(01 mark)

b) If the Internet Protocol address of the server with this URL is 192.168.40.34/24 which protocol can be used to map the URL to IP address given?

Domain Name System (DNS) Protocol..   (01 mark)

Question 14

Match the following Internet protocols to appropriate descriptions: SMTP, POP, IMAP, FTP, DHCP, TFTP, and SNMP

i. ....FTP...used for interactive file transfer between systems.

ii. ....TFTP..............used for connectionless active file transfer.

iii. ....SMTP..............used for the transfer of mail messages and attachments.

iv. ....POP..........used by email clients to retrieve email from a remote server after which the copy of the email is deleted from the server.

v. ....IMAP.............used by email clients to retrieve email from a remote server after which the copy of the email is retained in the server.

Question 15

a) Provide two differences between Extended Binary Coded Decimal Interchange Code (EBCDIC) and American Standard Code for Information Interchange (ASCII) code sets.

i. *EBCDIC uses 8 bits while ASCII uses 7 bits in character presentations. (01 mark)*

ii. *EBCDIC Used on Old IBM Mainframes while ASCII is used on any modem computer systems.*   (01 mark)

iii. No parity bit for error checking in EBCDIC while there is parity bit for error checking in ASCII

b) Explain the following two types of data transmission:

i. Parallel Transmission

In this all the bits of a *byte* are transmitted simultaneously on separate wires.
(01 mark)

Practicable if two devices are close to each other e.g. Computer to Printer, Communication within the Computer.

ii.   Serial Transmission.   (01 mark)

- Bits are transmitted one after the other.

- Usually the Least Significant Bit (LSB) has been transmitted first.

- Suitable for Transmission over Long distance

b) State one method for Timing control for receiving bits in data communication.

- Asynchronous Transmission

- Synchronous Transmission.   (01 mark)

Question 16

a) State any three advantages of peer –to –peer Network model (03 marks)

Solution:

i.   No need for specialist staff such as network technicians because each user sets their own permissions as to which files they are willing to share.

ii.   Much easier to set up than a client-server network - does not need specialist knowledge.

iii.   If one computer fails it will not disrupt any other part of the network. It just means that those files aren't available to other users at that time.

iv.   Less complexity.

v.   Can be used for simple tasks such as transferring files and print sharing.

vi.   Lower cost since network devices and dedicated servers may not be required.

b) State any two disadvantages of client-server Network model

Solution:

i.   A specialist network operating system is needed.   (01 mark)

ii.   The server is expensive to purchase.   (01 mark)

iii.   Specialist staff such as a network manager is needed.   (01 mark)

iv.   If any part of the network fails a lot of disruption can occur.

Question 17

a) Outline any three methods of controlling effects of computing devices on environments.

Solution:

i.   Use computers and devices that comply with the ENERGY STAR Program.

(01 mark)

ii. Do not leave the computer running overnight.   (01 mark)

iii. Use LCD monitors instead of CRT monitors.   (01 mark)

iv. Use paperless method to communicate.

v.   Recycle old computers, printers and other devices.

b) Suggest any two tips of preventing viruses and other malware from attacking computer system and Networks.

Solution:

i.   Never start computer with a removable media inserted in the drives or plug in the port. Unless the media is uninfected.   (01 mark)

ii. Scan all downloaded programs for virus and malware.   (01 mark)

iii. Install an antivirus program in all your computers. Update the software and virus signature file regularly.

iv. Never open an email attachment unless you are expecting it and it's from trusted source.

Question 18

a) In additional to using firewalls, suggest any three safeguards that can improve the security of wireless networks.

Solution

i.   A wireless Access Point should not broadcast an SSID.   (01 mark)

ii. Change the default SSID and administrative settings.   (01 mark)

iii. Configure a WAP so that only certain devices can access it.   (01 mark)

iv. Use WPA or WPA2 security Standards.

v.   Shutdown your access point if not in use. Turn it off when not in use.

vi.   Use security policy of an institution/organization.

b) Suggest any two Information Technology Code of Conduct a student must possess when using a computer system:

Solutions:

o Computer may not be used to harm other people.
o Employees may not interfere with other's computer work
o Employees may not meddle in others' computer files.
o Computers may not be used to steal.
o Employees may not copy or use software illegally.
o Employees may not use others' computer resources without authorization.
o Employees may not use others' intellectual property as their own.
o Employee should consider the impact of programs and systems they design.
o Employees always should use computers in a way that demonstrates consideration and respect to fellow humans.

Question 19
An organisation needs to open businesses such that RUTER 1 is located at Mbale town, ROUTER 2 at Jinja Town, ROUTER 3 at Kampala City and ROUTER 4 at Mbarara town for easy manageability. Study the network topology in Figure 1 and answer the following questions:
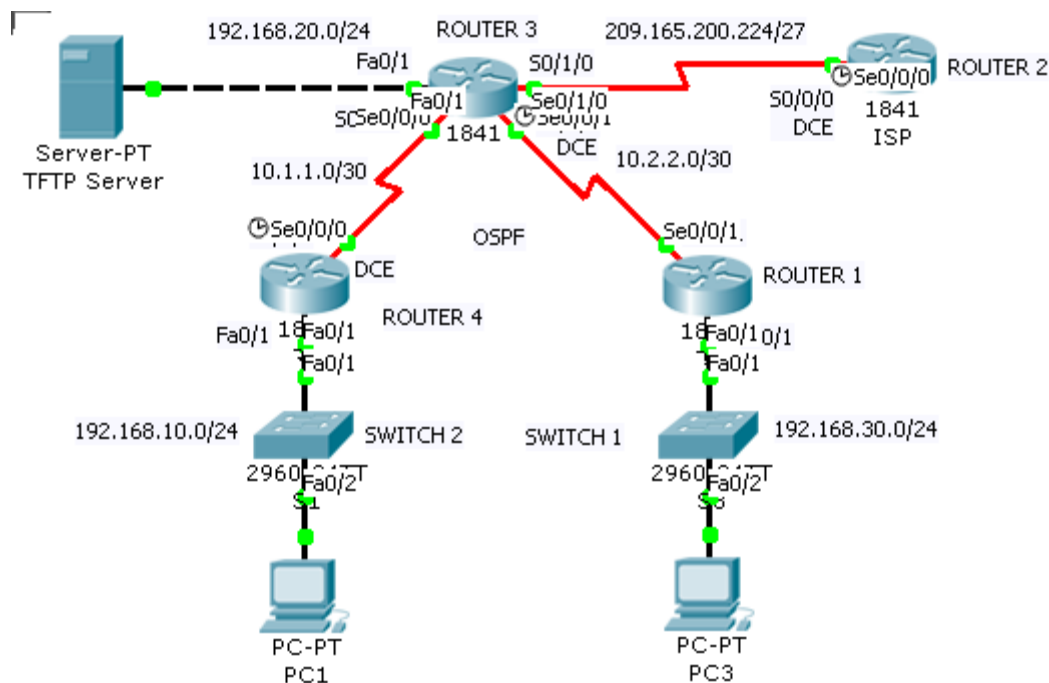

Fig.1

a) State the number(s) of Wide Area Network in this topology.

..................................Three (03)..(01 mark)

b) How many Local Area Network(s) is/are presented in the topology?

..................................Three (03).........................(01 mark)

c) How many network devices are in this topology?

........................Six (06).......................(01 mark)

d) How many end users devices are in this network?

........................Three (03) ....(01 mark)

e) What type of physical topology is exhibited in this network?

.............Star /Extended Star Topology.........................(01 mark)

Question 20

a) Explain the following Intellectual Property Rights.

i. Copyrights. Copyrights protect the expression of ideas. Artistic works are generally considered to be expressions of ideas – books, paintings, songs, movies, and computer programs are examples. Copyright will not protect the process through which a particular work was created or the use of information within it (instructions, etc.).   (02 marks)

ii. Patent: A patent is a right, granted by the government, to exclude others from making, using, or selling your invention. Patents protect inventions such as new processes, machines, or chemicals.   (02 marks)

b) State one benefit of Digital signature in an online business?

Solution:

i. Often used to ensure that an impostor is not participating in an Internet transaction.   (01 mark)

ii. Because it's so fast and easy to sign documents online, you're sure to see faster contract turnaround. (Get Paid Faster)

iii. Digital signature software makes it easy to track your documents in your online dashboard. And some software will even send signers a reminder email if they forget to sign.

END

SUBSIDIARY ICT 1

(a). State the difference between hardware and software.   (02 marks)

Hardware refers to the physical or tangible components of a computer.
Hardware also refers to the electromechanical components of the computer,
Whereas
Software refers to the series of instructions that tell the hardware how to
work.

(b). Define the term data.   (01 mark)

Data is a collection of raw and unprocessed facts, figures, and symbols
obtained relating to an activity in a given environment.

Or
 Data refers to unprocessed information

(c). Mention two devices that can be used to bring out information from the
computer to a computer user.   (02 marks)

i.   3D Printer
ii.   Braille embosser
iii.   Braille reader
iv.   COM (Computer Output Microfilm)
v.   Flat panel
vi.   GPS
vii.   Headphones
viii.   Monitor
ix.   Plotter
x.   Printer (dot matrix printer, inkjet printer,
        and laser printer).
xi.   Projector
xii.   Sound card
xiii.   Speakers
xiv.   SGD (Speech-generating device)
xv.   Video card

2. The table below shows specifications of a Laptop computer and a Desktop computer.

Computer Specifications	Laptop Computer	Desktop Computer
Processor	Intel (R)3.19 GHz	Intel(R) 3308 MHz
RAM	2GB	4000MB
Hard disk	320000MB	500GB
Monitor type	LCD	LCD
Mouse connection	Wireless mouse	Cable connection

a) Which of the two computers would you recommend for your school to buy? *(01 mark)*

Desktop computer

b) State two reasons to defend your answer in (a) *(02 marks)*

(i) i would recommend desktop computer because it has got a higher processor speed of Intel® 3308 MHz than a laptop

(ii) i would recommend desktop computer because it has got a bigger RAM size of 4000MB than a laptop computer.

c) Which is the least important of the computer specifications given in the table? *(01 mark)*

Monitor type

Or

Mouse connection

d) State one reason defending your answer in (c) *(01 marks)*

➢ A monitor does not determine how the computer is functioning and working.

➢ A mouse connection does not affect the operation of a computer, both mice are to control the pointer on the screen.

3 (a). Explain the term Information and Communication Technology.

ICT deals with the use of electronic computers and computer software including their applications to convert, store, protect, process, transmit, and retrieve information from anywhere at any time. OR

ICT is the combination of computer and communication technologies to process data into information. OR

ICTs are tools which can be used to create, manipulate, store and transmit and disseminate information in all forms including voice, text, graphics and video.

b) State three ways in which information technology has made transportation efficient.

(03 marks)

(i) A driver can apply for the tax disk online. If a vehicle is to be used on a public road it must display a tax disk to show that the Annual Vehicle Excise duty has been paid.

(ii) A Global Positioning System (or GPS) receiver uses a network of satellites orbiting the earth to find its location. Software in a receiver displays a route map and gives spoken instructions to the driver.

(iii) The Traffic Map website can be used to check traffic conditions before setting out on a journey.

 iv) Reduce emissions, caring for CO2 emissions.
v) Increase Security in preventing road accidents.
 vi Reduced traffic congestion
 vii Always connected, communication and Internet of things in the vehicle.
4. During a practical examination students were required to open a blank file and save it as.   D:\MOCKS2019\PRACTICAL_RESULTS\work.xlsx.

(a) State the name of the immediate subfolder in which students must save the file.

(01mark)

PRACTICAL_RESULTS
b) Write the root directory onto which the file must be saved.   *(02 marks)*

D:\

c) Suggest one example of a computer application the student can use to create the file.   (01mark)

Spread sheet application (ms excel, Lotus 1, 2, 3…., corel quattro pro etc)

d) State the name of the file represented by the above file path.   *(01 mark)*

   work.xlsx.

5 (a). State the difference between system devices and peripheral devices.

A system device is a device on a system board (circuitry board) such as keyboard controller, real time clock, IDE port, serial and parallel ports and PCI bridge which are integrated in supporting the chip set.
Whereas peripheral device is an external hardware component that is connected to the system unit through its ports to improve on the computer's functionalities.

(b). Define the term computer literacy.   (01 mark)
Computer literacy refers to having the knowledge and understanding of computers and their uses.
(c). Mention any two examples of specialised application programs. (02
  i.   Payroll package to compute salaries of employees,
 ii.   an inventory program to control stock of assets,
iii.   general ledger programs

6. Read the statement below and write the words TRUE or FALSE in the spaces provided.   *(05 marks)*

STATEMENT		TRUE/FALSE
(a)	Machine code is one of the low level computer languages.	TRUE
(b)	Linux is the only operating system used in your school.	FALSE
(c)	A plotter is an output device prints images on large print media.	TRUE
(d)	A student delivering a presentation would need an LCD projector and laptop.	TRUE
(e)	Screen savers can be categorized as desktop publishing software since they can be used for advertising purposes.	FALSE

7 (a). What is preventive maintenance?   (01 mark)

Preventive maintenance refers to performing proactive maintenance in order to prevent system problems.
(b). Write two tools used during computer repair in a computer laboratory.

                                                                    (02 marks)

  i.   Straight-head screwdriver, large and small.
 ii.   Phillips-head screwdriver, large and small.
iii.   Tweezers or part retriever.
iv.   Needle-nosed pliers.

v. Wire cutters.
vi. Chip extractor.
vii. Hex wrench set.
viii. Torx screwdriver.
ix. Antistatic mat.
x. Precision screwdriver set.
xi. Compressed air.
xii. Multimeter.
xiii. Extra parts (e.g., power cable, network cable, keyboard, and mouse).
xiv. Empty antistatic bags.
xv. Lint free cloth.
xvi. Low-wattage soldering iron, wick, and reel.
xvii. Wire cutter and stripper.
xviii. Tweezers or parts retriever.
xix. Post card.
xx. Temperature gun.
xxi. Heat gun.
xxii. Spudger.
Etc.

(c). Mention two reasons for servicing computers.   (02 marks)

i. Servicing Helps Safeguard Your Data: The data on the hard disk is more important
than the hardware that houses it. Taking steps to protect this data therefore makes sense.

ii. It Improves Performance: Some parts of your system will actually degrade in performance over time, and preventive maintenance will help to improve the speed of your system in that

iii. reduces costs by automating routine tasks, such as record-keeping,

iv. accounting and payroll. improve customer service or supplier relationships.

v. develop more effective communication within the business or with customers.

vi. increase business efficiency and staff productivity

8 (a). Define the term system configuration.   (01 mark)

Refers to the arrangement of each of its functional units, according to their nature, number and chief characteristics.

(b). In relation to booting a computer, state one function of the following:

(i). pressing F12 (01 mark)

It enables the user to access the boot menu of the operating system.

(ii). BIOS (01 mark)

its most important function is to load the operating system.

(c). State two reasons a user may restart a computer. (02 marks)
   i.   A computer lacking enough memory and thereby using up all the available memory for programs and data during a processing task.
  ii.   A program failing to run due to some missing files
 iii.   A device failing to function when attached to a computer system.
  iv.   When making a clean installation of operating system.
   v.   After installing new software.
  vi.   When making a clean (fresh) installation of operating system.

9 (a). What is a computer virus? (01 mark)

A computer virus is a program that attaches itself to a file, reproduces itself, and spreads to other files.

(b). State two ways computer viruses are transmitted. (02 marks)
   i.   Downloading infected Email attachments
  ii.   Shared files from infected computers (sources)
 iii.   Using infected Floppy disks
  iv.   Infected documents and infected word processors

(c). Mention how the following can control the spread of computer viruses:

(i). Antivirus program. (01 mark)

By attempting to identify, thwart and eliminate computer viruses and other malicious software (malware).

(ii). Use of passwords. (01 mark)

By preventing unauthorized users from accessing the computer system to download from internet and also use infected storage facilities.

10. (a) Madam Jembe, a database administrator Mucomo secondary school has been requested to generate students who are below 18 years in s.4 table with the following field names.

Write down the criteria that can be used in a query to generate the list. (02

Index no.	Surname name	Other name	Class	Date of birth	Age

marks)

<18

(b) Suggest a database object that can be used to view one record at a time. (01
A form

(c) Explain one factor to consider when choosing or designing a database. (01

Data Consistency
Nowadays, collecting data is not a big effort any more. But, keeping the data consistent becomes even more important as more sources feed into the database.
Data Security
For most companies, data availability is a key business success factor and should be guaranteed at all times. The ability to backup and restore the databases is essential and needs to be possible with your chosen DBMS.
Data Protection
Access protection and encryption should allow protection of personal data.
Multi Access and Integration
Setting up a DBMS, running it and extending it for future growth, requires enough flexibility to allow integration into the given IT infrastructure.
Usability
Different user groups will be working with the DBMS. There are the administrators, IT and Database admins, application integrators and data consumers.
Implementation and Service Costs
The modifiability and availability of support and documentation needs to be taken into consideration as part of the implementation and Total Cost of Ownership (TCO)

 (d). Give one example of this program used in your school.   (01 mark)

IBM DB2, Oracle, Microsoft Access and MySQL. Microsoft Visual FoxPro, Borland dBase, Lotus Approach, Corel Paradox, and Claris File Maker Pro.

11 (a). What is integrated software?   (01 mark)

Integrated software combines application programs such as word processing, spreadsheet, and database into a single, easy-to-use package.

(b). Give the difference between shareware and freeware.   (01 mark)

Shareware, is copyrighted software that is distributed free for a trial period, and payment is required for using the software beyond that trial period whereas

Freeware is copyrighted software provided at no cost to users.

(c). Write short notes on the following:

(i). software piracy.   (01 mark)
Software piracy refers to the unauthorized and illegal duplication of copyrighted software.

(ii). Software bug.   (01 mark)
A *software bug* is an error, *flaw*, failure or *fault* in a computer program or system that causes it to produce an incorrect or unexpected result, or to behave in unintended ways.

(iii). Programming language   (01 mark)

A programming language is a formal constructed language designed to communicate instructions to a machine, particularly a computer.

Programming languages can be used to create programs to control the behavior of a machine or to express algorithms.

12 (a). State two advantages of using e-commerce in business.   (02 marks)

   i.   It eliminates geographical limitations to carry out business,
   ii.   Helps in gaining new customers with search engine visibility,
   iii. lower costs for maintenance and rent, and higher capacity for goods and deliveries.
   iv.   Transactions can occur instantly and globally, thus saving time for participants on both ends.
   v.   Transactions can occur 24 hours per day.
   vi.   Businesses have access to millions of people with Internet connections.
   vii. Businesses have the ability to gather customer information, analyze it, and react if appropriate.

viii. Information can be changed and be available quickly.
ix. Customers can compare prices easily.
x. Feedback can be immediate in case of an inquiry or purchase of goods and services.
xi. Manufacturers can buy and sell directly, avoiding the cost of the middleman.
xii. Distribution costs for information is reduced or eliminated.

(b). Mention one example of web browser.   (01 mark)

■ Microsoft Internet explorer
☐ Mosaic
☐ Conqueror,
☐ Netscape
☐ Opera
☐ Firefox
☐ Google chrome
☐ Safari
☐ SeaMonkey
☐ K-Meleon
☐ Galeon
☐ Camino
☐ Netscape Navigator

(c). what is a:
(i). Weblog?   (01 mark)

These are websites that give an opportunity to people to comment and post their opinions and discussions/views about different issues. Blogs (or Web Logs) can be categorized as online journals or editorials that give regular people the power to tell the world what is on their mind.

(ii). Search tool?   (01 mark)

This is a Utility available on the Internet to help in finding information among the documents on the Web.

13 (a). Define the term computer communication.   (01 mark)

Computer (Data) communications describes a process in which two or more computers or devices transfer data, instructions and information between themselves.

(b). Mention any two tools of computer communication.   (02 marks)
  i.   computers,
  ii.   mobile phones,
  iii.   internet,
  iv.   E-mail,
  v.   Skype,
  vi.   News groups,
  vii.   and instant messaging,
  viii. manual drums,
  ix.   bells and messengers. Etc

(c). Give two advantages of telecommuting to an institution like a school.
  i.   Improved Employee Productivity:
     It helps leaners who telecommute (and their teachers) to be more effective at home than when they work out of the office at the school.

  ii.   Schedule Flexibility: Telecommuters are more productive when they can schedule their actual work time especially during their most effective periods and around the other demands in their lives.
        Some individuals prefer working in the morning; others are more productive at night.

  iii. Increased Time Available for Work: Teachers contend that it takes productive time out of the work day to wind down from, and mentally prepare for, the stress associated with commuting to and from school. This is time that is available and productive to them when they work at home.
  iv.   Overhead Reductions: Institutions with sophisticated and well-planned telecommuting programs have found a number of ways to reduce the space and furnishing requirements for students.

v. Improved Teacher Retention and Attraction: Teachers who have experienced the benefits of telecommuting programs tend to prefer these work arrangements and seek out similar opportunities.

vi. Program Continuity: Telecommuting also serves as a mechanism to avoid or minimize external impacts on projects and programs. Telecommuters are less likely to use sick days for their own minor illnesses. Rather than take sick time and be unproductive for the entire day, telecommuters often find that the opportunity to work at home allows projects to proceed.

14 (a). Write the following acronyms in full:

(i). DSTV   (01 mark)

Digital Satellite Television

(ii). ISP   (01 mark)

Internet Service Provider

(iii). TCP/IP   (01 mark)

Transmission Control Protocol / Internet Protocol

(b). Mention any two factors you will consider before establishing a network.   (02 marks)

i. Number of users to access the network
ii. The cost of installing the network
iii. The type of the transmission medium to be used.
iv. The security of the network.
v. The size of the area to be networked.

15 (a). Define wireless transmission medium.   (02 marks)

Transmission medium can also be referred to the many types of cables and other media that carry the signal from the sender to the receiver.

Or

A channel through which data, information and messages are transferred form the sending device to the receiving device.

(b). Mention one danger of using wireless communication in an organisation.
                                                                           (02 marks)

i. wireless communication is more prone to security threats.
ii. wireless communication signals are subject to a wide variety of interference for example heavy rains and thunderstorms, as well as complex propagation effects that are beyond the control of the network administrator.

iii. wireless communication networks (typically 1-54 Mbps) is far slower than even the slowest common wired networks (100Mbps up to several Gbps).

(c). Why are majority of organisations still using cable networks?   (01 mark)
i. Cable networks cannot easily be broken into by intruders.
ii. Cable networks cannot be interfered with by the natural disasters.
iii. Cable networks have a higher degree of connectivity.

16 (a). Distinguish between Peer-to-peer and Client/Server network models (02

In peer-to-peer (*P2P*) *networking*, a group of computers are linked together with equal permissions and responsibilities for processing data.

Both remote processes are at the same level and exchange data using some shared

resource.

Whereas

Client/Server network is one in which one centralized, powerful computer (called the server) is a hub to which many less powerful personal computers or workstations (called clients) are connected. The clients run programs and access data that are stored on the server.

(b) Explain two limitations of using Bluetooth technology as a method of data transmission.   (02 Marks)

- Most Bluetooth devices, especially those that run on battery power, are Class 2 Bluetooth devices. Class 2 devices have a range of about 10 meters, or around 30 feet hence limited distance. The range limitations are meant to avoid the quick depletion of the battery.
- It can be hacked into.
- If installed on a cellphone it is prone to receiving cell phone viruses.
- It only allows short range communication between devices.
- It can only connect two devices at once.
- It can lose connection in certain conditions.

(b) Give one reason why a Modem is required in a data communication system.

A modem translates digital signals into ordinary telephone signals (and vice versa) so that data can be carried over ordinary telephone lines.

17 (a). State any two applications of artificial intelligence today in computing.
Games Playing: programming computers to play games such as chess and checkers

□ Expert Systems: programming computers to make decisions in real-life situations (for example, some

expert systems help doctors diagnose diseases based on symptoms)

□ Natural Language: programming computers to understand natural human languages.

□ Neural Networks: Systems that simulate intelligence by attempting to reproduce the types of physical

connections that occur in animal brains.

□ Robotics: programming computers to see and hear and react to other sensory stimuli.

□ Voice Recognition is the field of computer science that deals with designing computer systems that can recognize spoken words.

(b). Mention one branch of digital forensics.   (01 mark)
  i.   Network forensics
  ii.   Forensic data analysis
  iii. Database forensics
  iv.   Mobile device forensics
  v.   Computer forensics

(c). (i). What is cloud computing?   (01 mark)

the practice of using a network of remote servers hosted on the Internet to store, manage, and process data, rather than a local server or a personal computer.

(ii). Give one advantage of cloud computing.   (01 mark)

Cost Savings
Perhaps, the most significant cloud computing benefit is in terms of IT cost savings. Businesses, no matter what their type or size, exist to earn money while keeping capital and operational expenses to a minimum.

Reliability
With a managed service platform, cloud computing is much more reliable and consistent than in-house IT infrastructure.

Manageability
Cloud computing provides enhanced and simplified IT management and maintenance capabilities through central administration of resources, vendor managed infrastructure and SLA backed agreements.
Almost Unlimited Storage

Storing information in the cloud gives you almost unlimited storage capacity.

Backup and Recovery

Since all your data is stored in the cloud, backing it up and restoring the same is relatively much easier than storing the same on a physical device.

18. Data and information is always under constant threat from people who may want to access it without permission, such people usually have bad intention to commit crimes.

(a) As an ICT leaner define the term Social engineering.   (02 marks)

In a social engineering attack; the attacker compromises the network or system through Social interaction with a person, through an e-mail message or phone. Various tricks can be used by the individual to revealing information about the security of company.

(b) Show three ways how unauthorized access to data and information in an organization can take place.
(03 marks)

   i.   Through hacking activities
  ii.   Through cracking activities
 iii.   Through backdoor attacks
  iv.   Through sniffing etc
19. (a) Describe the term emerging technologies   (02 marks)

An emerging technology is a field of technology that broaches new territory in some significant way, with new technological developments.

 (b) List three technologies and innovations in the area of health.(03 marks)
   i.   Diagnosis technologies include stethoscopes, hypodermic needles, blood pressure cuffs, MRI scanners, heart monitors and EKG machines.
  ii.   Treatment technologies include stitches, scalpels, Band-Aids, casts, ECMO machines, ventilators, and drugs.
 iii.   A certified, efficient EHR system.
  iv.   Surgical and service line technologies.
   v.   Smartphones, tablets and applications.
  vi.   Hybrid operating rooms.
 vii.   Ultrasound imaging devices.
viii.   Infection detecting technologies.
  ix.   Healthcare staffing management technology.

20.(a). Outline two duties carried out by:

(i). Data centre support specialist. (02 marks)

He is to Install, maintain, monitor, analyze, and troubleshoot data center equipment and software in support of data center operations.

(ii). Network Architect. (02 marks)

➤ A computer *network architect* is someone who designs and builds data communication networks.

➤ A network architect is responsible for creating, maintaining and modifying an IP network's hardware, software and virtualized components.

➤ He must also be able to translate a network's technological requirements into solutions that benefit a given business.

➤ etc

(b). Mention one way you can care for a school network. (01 mark)

1. Providing enough and stable power to the network devices.
2. Ensuring constant surveillance on the network structure.
3. Use stronger encryption.
4. Use a secure WPA password.
5. Check for rogue Wi-Fi access points.
6. Provide a separate network for guests.
7. Hide your network name. ...
8. Use a firewall. ...
9. Enable MAC authentication for your users. ...
10. Use a VPN.

End

ACTIVITY
UGANDA ADVANCED CERTIFICATE OF EDUCATION
INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT)

1. (a). Distinguishing between **editing** and **formatting**. (02 marks)
   (b). Give **two** qualities of a good information. (02 marks)
   (c). State **one** reason to suggest why ICT is considered important. (01 mark)
2. (a). Give **two** indicators of a computer that requires a complete troubleshooting process. (02 marks)
   (b). State **one** way you can care for a computer at home. (01 mark)
   (c). Why are the following items not allowed in a computer laboratory?
   (i). **Eats and drinks**. (01 mark)
   (ii). **Sharp objects**. (01 mark)
3. (a). Give **two** uses of a file extension. (02 marks)

(b). State **two** symptoms of a file that is corrupted.

(c). State **one** observation you note after saving the same file using a different file extension in relation to size. (01 mark)

4. (a). State **two** crimes carried out where a computer is used as a tool. (02

(b). Give **two** practices a computer user should ensure to regulate possible health challenges. (02 marks)

(c). Define the term **virtual reality**. (01 mark)

5. (a). State **two** advantages of using an off-the-shelf software. (02 marks)

(b). What is a **software suite**? (01 mark)

(c). Outline **two** functions of the *End User Licence Agreement*. (02 marks)

6. (a). Give **two** services provided by an ISP. (02 marks)

(b). Describe how each of the following are used in line with Internet use.

(i). **Gopher**. (01 mark)

(ii). **E-Library**. (01 mark)

(c). State **one** way the Internet has improved entertainment today. (01 mark)

7. (a). What are **peripheral devices**? (01 mark)

(b). State **two** factors to consider before buying a peripheral device. (02

(c). Give **two** forms that computer output may take. (02 marks)

8. (a). Classify each item using the table below:

DHCP, **CAT6E**, **microwave**, **IMAP**, **bluetooth**, **fibre optical**

Wireless Networks	Cable Networks	Protocols
(01 mark)	(01 mark)	(01 mark)

(b). State **two** practical uses of satellite communication today. (02 marks)

9. (a). State **two** social negative implications of using a computer today.(02

(b). Identify any **two** causes of low computer literacy in Uganda. (02 marks)

(c). Suggest **one** way real - time data processing method can be useful to an organisation. (01 mark)

10. Fill in the spaces below using one of the terms below: (05 mark)

Operating system, **utility programs**, **programming language**, **application programs**, **firmware**, **drivers**.

(a). ………………………… are used to install computer hardware components.

(b). Using the …………………. a computer can maintain good housekeeping routine like disk checking.

(c). ……………………….. is both hardware and software built in a computer at the time of manufacture.

(d). ……………………….. provides a foundation for installing user programs.

(e). C^{++} is an example of a …………………………………

11. (a). Explain the meaning of the following components in the e-mail software.

 (i). **Draft**.   (01 mark)

 (ii). **Attachment**.   (01 mark)

 (b). My e-mail address is **mockexams2017@jjeb.ac.ug**. Identify the following parts:

 (i). **E-mail separator**.   (01 mark)

 (ii). **First Top level domain name**.   (01 mark)

12. Study the following hardware components and answer the questions below.

| Figure A | Figure B | Figure C |

 (a). Identify component labelled **Figure A**.   (01 mark)

 (b). Give **two** advantages of using **Figure C.**   (02 marks)

 (c). State **two** factors to consider before buying figure labelled (b). (02 marks)

13. (a). Give **two** features found in an electronic word processor. (02 marks)

 (b). State **two** uses of the following as applied in a desktop publishing software.

 (i). **Guide lines**.   (01 mark)

 (ii). **Grouping**.   (01 mark)

 (c). State **one** activity that can be carried out using a slide master. (01 mark)

14. (a). State **two** duties of a database manager for a small enterprise. (02 marks)

 (b). Suggest **two** possible employment opportunities that are available to a SUBICT student in your community.   (02 marks)

 (c). Give **one** advantage of using cyber storage locations. (01 mark)

15. (a). Define a **computer file**.   (01 mark)

 (b). Convert 3.2 GB into MBs.   (03 marks)

 (c). State **one** storage media that can be bought to store the file size in (b) above.   (02 marks)

16. (a). Define a **network protocol**.   (01 mark)

 (b). State **two** possible uses of the TCP/IP address. (02 marks)

 (c). Outline **two** factors to consider before categorising network ranges. (02

17. Write **TRUE** or **FALSE** against each of the following statements. (05 marks)

	Statement	T / F
i.	Wiki sites can be updated and modified.	
ii.	SMTP is responsible for keeping a log of sent mails.	
iii.	Hyperlinks help a user to move to another pages in one website.	
iv.	Internet is a network of networks.	
v.	E-commerce enables one to buy and sell goods.	

18. (a). Outline **two** forms of software piracy. (02 marks)
   (b). Distinguish between **software updating** and **software upgrading**.
   (c). Give **one** feature of good computer software. (01 mark)

19. (a). State **two** advantages of using impact printers. (02 marks)

   (b). Identify any **two** parts that make up the CPU. (02 marks)
   (c). Give **one** form computer output may take. (01 mark)

20. (a). State any **two** statistical functions used in a spreadsheet program. (02
   (b). State **one** component of a good graph. (01 mark)
   (c). State the difference between a **primary key** and a **foreign key**. (02