# UNIT – 1 (QUESTION BANK)

| | |
|---|---|
| 1 | Explain history of Printing. |
| 2 | What is Print? Explain. |
| 3 | What are the types of printing? Explain. |
| 4 | Explain Lithography. |
| 5 | Explain offset printing. |
| 6 | Explain about Printer. |
| 7 | What are the types of printer? Explain. |
| 8 | What are the types of Impact printer? |
| 9 | What is thermal printer? |

# UNIT – 1 (NOTES)

## 1.1 INTRODUCTION TO PRINT MEDIUM

### What Is Print Media?

Simply stated, print media is the printed version of telling the news, primarily through newspapers and magazines. Before the invention and widespread use of printing presses, printed materials had to be written by hand. It was a painstaking process that made mass distribution impossible. It was handwritten and posted in a public area much like today's posters or read from a scroll by a town crier. As early as 131 B.C., the ancient Roman government produced daily news sheets and informed the public in this way. Through the years, print media evolved to include entertainment, educational topics and more, instead of only conveying news.

## 1.2 A BRIEF HISTORY OF PRINTING

Around the year 932, Chinese printers adapted wood blocks, which had been used to print illustrations and small amounts of text, and started producing popular books more easily. Each page of text was one block that could be used repeatedly to make the books. About 100 years later, China's Bi Sheng invented movable type by carving individual

characters onto small blocks of clay. Each small block was hardened by fire to become a porcelain piece that could be used again and again. The pieces were glued to iron plates to make a page. Using each page hundreds or thousands of times, he could mass produce news quickly. When the printing was done, the pieces were removed from the plates to be used again to make other pages.

Bi Sheng's invention had limited success in China because the Chinese alphabet's characters are so large that they were difficult to put on movable type. His idea spread all over the world, however, and others adapted it using other materials such as wood, tin and copper. Still, the process was too cumbersome to mass produce a newspaper for the public.

**Printing Press Mass Produces Newspapers**

In 1440, Johannes Gutenberg introduced his invention of a movable type printing press with type that was much easier to change, making the mass production of news pages possible. The invention spread throughout Europe, and printing and distributing sheets of news became popular. The World Association of Newspapers considers the first newspaper to be The Relation, which was published in Germany in 1604. It was published regularly (weekly), disseminated to the public and covered a range of news, from politics to entertainment. The Oxford Gazette was the first English paper to be published, starting in 1665. It moved to London the next year and was renamed the London Gazette. It is still published today as the official publication of government news.

Although the early American colonies published news sheets, the first true newspaper was published in Boston in 1690. Called Publick Occurrences Both Foreign and Domestick, it ran into trouble for publishing political criticism. Its publisher, Benjamin Harris, was arrested and all copies were destroyed. While the American colonies were adamant about freedom of religion, freedom of the press was another matter. The first successful newspaper in America was the Boston News-Letter in 1702. Its publisher, John Campbell, was careful not to publish any criticisms of the government. When Ben Franklin's brother was arrested in 1722 for publishing news critical of the government.

**Too Pricey for the Public**

Ironically, the early mass-produced newspapers cost close to what most workers earned in a week, so only the wealthy could afford to buy them. Wealthy people were more likely to be literate at that time too. By the 1830s, though, publishers were able to print newspapers for about one cent per copy, making them truly available to the masses. By 1900, newspapers were very popular because more people were literate and papers were affordable. They included the features we recognize today, including attention-grabbing headlines, news, society pages, sports, comics and the occasional use of spot color in special instances.

**Four Main Types of Printmaking**

It's been said that a picture is worth a thousand words. Writers may beg to differ, but it can't be denied that pictures grab attention and enhance the written word, whether in a book, in a newspaper or on a billboard. Images have been used along with words since the early days of printmaking. There are four ways to make prints from an original piece of art: relief, intaglio, lithography and screen printing. Choosing which type to use depends on the effect the artist and printer want to achieve. Relief printmaking uses wood, plastic or metal that the artist cuts into, cutting away the portions that won't be printed. When ink is applied to the surface, it highlights the raised areas, much like a rubber stamp does when pressed into a stamp pad. Woodcut has been used for centuries due to the availability of smooth hardwoods. Linocut is a more recent 20th century version of woodcut that uses linoleum. Wood engraving uses wood with no grain showing to achieve fine detail, and plastic is often used instead of the wood.

Intaglio works in a nearly opposite way. Instead of creating raised areas, the artist etches grooves with an instrument or with acid. When ink is applied, it seeps into the grooves. The printing press pushes paper against the surface and ink in the grooved areas is printed. Different techniques can be used in intaglio to create soft lines, shading and detail.

Lithography uses a flat piece of material, such as limestone or aluminium. The artist applies a greasy medium, like grease crayons, or a more liquid grease solution to the areas to be

printed. After treating the surface with a chemical solution, the ink adheres to the greased areas. Screen printing, also called serigraphy, uses silk or another fine mesh material which is stretched tightly on a frame. Areas that aren't to be printed are blocked off with paper, glue or specially made stencils. Ink is applied and pressed through the fabric with wood to which a rubber blade has been attached. (Think of a squeegee pressed against a surface to push water away.) The screen process is repeated for each color used, blocking out areas that aren't to be printed in that color.

## 1.3 TYPES OF PRINTING

Offset printing uses lithography to print on flat surfaces, like paper and plastic. When color is used, printing presses have a separate unit for each color and typically apply black ink first, followed by the colors one at a time. When mass quantities are needed such as when printing newspapers, a large roll of paper may be used instead of individual sheets. Flexology can be used to print on other materials, like cellophane and plastic labels, but is also sometimes used for newspapers. This process has a rubber plate that is inked and applied to the printing surface. Rotogravure is a longstanding process that uses a cylinder instead of a flat plate. The image is engraved onto this cylinder and ink is applied. It's been used for both newspaper and magazine printing but is often substituted today by offset printing and flexology, depending on the purpose. Digital printing using inkjet or laser printers has replaced many other printing processes because of the availability of accurate and affordable printers that can print on many different materials.

**Competition from Electronic Media**

Newspapers faced competition with the introduction of electronic media, which includes radio, television, CDs, DVDs and the internet. Radio and television are often called broadcast media because they are broadcast for all to hear, rather than reading print media. Radio transmissions began in the early 1900s but didn't take off until NBC began in 1926 and CBS began in 1927. People were fascinated by the ability to hear the news instead of just reading it. Families gathered around their radio sets listening to the news of the day,

particularly during events such as elections, presidential speeches and news during World War II.

Television was introduced at the 1939 World's Fair. It was merely a curiosity at this point, though, since its cost was roughly one-third of the average U.S. household's annual income. Technological advances resulting from World War II made television affordable for the masses in the 1950s. Advertisers jumped at the chance to reach housewives through soap operas, aptly named because the dramas were sponsored by soap manufacturers.

By the 1960s, families gathered around their television sets as they had for radio decades earlier. Watching shows together became a nightly ritual. Television programming wasn't round-the-clock as it is today, but it started with a few programs at specific days and times. Cable channels expanded programming to all hours of the day.

**Computers Lead to the Internet**

By the 1980s, businesses sported desktop computers in their offices, and soon it became common to have one at home too. The World Wide Web was introduced to the public in 1991. When Google introduced its search engine in 1998, people suddenly had a way to get vast amounts of information easily. Generations of people who grew up with internet availability at their fingertips began to get their news and conduct their research online instead of in print, and the internet became a clear competitor to print media as a way to spread news and information. Print media, such as newspapers and magazines, responded by hosting online websites in addition to their print version, and some even closed their print medium to become a wholly online medium. Others ceased production and closed their doors completely.

The predicted demise of print media, however, hasn't happened. Many people use the internet but still like to hold a physical newspaper or magazine in their hands. It's familiar and reliable and not prone to glitches or outages. Physically turning the pages gives a feeling of satisfaction and control unmatched by any electronic medium. New print vehicles that cater to today's audiences continue to open. Many successful magazines have popped up as a result of popular TV programs, particularly food, home improvement and health shows. Instead of trying to compete with electronic media, successful print publishers look at what's popular in digital media and enhance it with print versions like

HGTV Magazine, Rachel Ray Every Day and Martha Stewart Living. Health publications like Prevention are still flourishing, as well as health niche publications like Shape and Runner's World.

**1.4 LETTERPRESS PRINTING**

Letterpress printing, also called Relief Printing, or Typographic Printing, in commercial printing, process by which many copies of an image are produced by repeated direct impression of an inked, raised surface against sheets or a continuous roll of paper. Letterpress is the oldest of the traditional printing techniques and remained the only important one from the time of Gutenberg, about 1450, until the development of lithography late in the 18th century and, especially, offset lithography early in the 20th. Originally the ink-bearing surface for printing a page of text was assembled from individual types by a typesetter or compositor, letter by letter and line by line. The first keyboard-actuated typesetting machines, the Linotype and the Monotype (*qq.v.*), were introduced in the 1890s. If only a small number of copies is to be made, printing can be done directly from the hand- or machine-set blocks of type assembled in forms, but for long press runs, duplicates—stereotypes or electrotyping (*qq.v.*)—are made to prevent wear and damage of the expensive types. Letterpress was originally carried out on platen presses, in which the paper is pressed against the flat, inked form by a flat platen; later, the platen was replaced by a roller in the flat-bed cylinder press; still later, the printing form was wrapped around one cylinder and the paper was passed between this cylinder and a second, creating a rotary press.

Several procedures have been developed for the production of line drawings or reproduction of photographs in the form of halftone pictures by letterpress. The most widely used method of preparing a printing plate for such matter is photoengraving. Letterpress can produce work of high quality at high speed, but it requires much time to adjust the press for varying thicknesses of type, engravings, and plates. Because of the time needed to make letterpress plates and to prepare the press, many newspapers have changed to offset printing. To combat this trend, letterpress printers have developed printing plates made from a photosensitive plastic sheet that can be mounted on metal.

**1.5 LITHOGRAPHY**

Lithography refers to a lithograph print that is made from an image which has been applied to a flat surface. It is a method of printing based on the principle that oil and water do not mix. Printing is done from a stone (lithographic limestone) or a metal plate with a grained surface; using oil-based inks. The artist works on a separate stone or plate for each colour. Traditionally this flat surface was a specially prepared limestone, but today grained aluminium printing plates and the original stones are used. An image is drawn, painted or photographically applied the stone or plate using a greasy medium. The image will repel water and accept ink. The inks are oil based and should be lightfast. The plate is placed on a special press and is then rolled up with either leather or rubber rollers. Paper is then placed on the print and is run through the press by hand. Like many other printing processes, one colour at a time is printed. Usually, one colour is printed per day. So a print that is built up of ten colours would take the master printer ten days to print.

Lithography is a very versatile printing technique and artists can get the medium to suit the needs of their particular style. It can be subtle with many layers of washes or it can look like a pencil drawing with strong lines that pick up the texture of the drawing tool and the "tooth" of the plate. It can have large areas of flat colour or else areas can be "scratched" into. With a skilled master printer to guide the artist almost any effect is possible. The chemicals used in processing are relatively harmless and pose no threat to the artist.

And offset lithography?

Offset lithography, although evolving from the same chemical processes as hand done version, is a separate and distinctly different process. Offset printing is the technique used in industry for printing books, magazines etc. It needs complicated machinery and equipment and is only used by artists to do reproductions of their work. When buying prints one should be aware that dealers and artists often refer to prints as original lithographs when they are in fact reproductions of artwork that are printed in the same way that posters and magazines are printed. These prints are not hand printed and they usually involve none or very little collaboration between the printer and the artist. They are often printed with inferior inks on inferior paper and will not have much of an investment value. When buying prints from someone you do not know well, it is always a good idea to ask for a copy of the documentation

sheet. The documentation sheet will provide you with all the information that you will need to assure you of the integrity of the print that you are investing in. If the artist or seller is unable to provide a documentation sheet then it is probably not worth buying the print. To see what information should be supplied by documentation sheet please refer to an example of a documentation sheet.

**1.6 OFFSET PRINTING**

Offset printing, also called offset lithography, or litho-offset, in commercial printing, widely used printing technique in which the inked image on a printing plate is printed on a rubber cylinder and then transferred (*i.e.*, offset) to paper or other material. The rubber cylinder gives great flexibility, permitting printing on wood, cloth, metal, leather, and rough paper. An American printer, Ira W. Rubel, of Nutley, N.J., accidentally discovered the process in 1904 and soon built a press to exploit it. In offset printing the matter to be printed is neither raised above the surface of the printing plate (as in letterpress) nor sunk below it (as in intaglio, or gravure, printing). Instead, it is flush with the surface of the plate; thus offset is classified as a planographic method of printing. Offset printing, as a development of lithography (*q.v.*), is based on the principle that water and grease do not mix, so that a greasy ink can be deposited on grease-treated printing areas of the plate, while nonprinting areas, which hold water, reject the ink. The offset plate is usually of zinc or aluminum or a combination of metals, with the surface treated to render it porous and then coated with a photosensitive material. Exposure to an image hardens the coating on printing areas; the coating on nonprinting areas is washed away, leaving wetted metal that will reject ink. Modern offset printing is done on a press composed basically of three rotating cylinders: a plate cylinder, to which the metal plate is fastened; a blanket cylinder covered by a sheet of rubber; and an impression cylinder that presses the paper into contact with the blanket cylinder. The plate cylinder first comes in contact with a series of moistening rollers that deposit moisture in the granulations of the metal. A series of inking rollers then pass over the plate, and the ink is rejected by the water-holding areas and accepted by the greasy image. The inked image is transferred to the rubber blanket and is then offset to the paper travelling around the impression cylinder.

## 1.7 DIFFERENT PRINTING PROCESS

There are many different types of printing methods available and they're continuing to evolve. Each type is suited to a different need, meaning that businesses can choose a printing technique that best highlights their products or service. Printing is something that's been around since before 220AD. The oldest known printing technique is known as woodcut and involves carving an image onto a wooden surface. Printing has evolved a lot since then - instead of manual wood carving, you can choose from a wide range of technologically advanced methods. Here are seven of the most well-known and commonly used types:

**Offset Lithography**

Often used for:

- Rough-surfaced media e.g. wood, canvas and cloth
- Versatile method so can also be used for books, paper, stationery and more

These plates are then transferred (offset) onto rollers or rubber blankets before going onto the print media, which can be any type of paper you want. The print media doesn't come into contact with the metal plates, which extends the life of the plates. As well as this, the flexible material of the rollers or rubber blankets means offset lithography can be used on any media with rough surfaces. Offset lithography is great at producing consistently high quality images and can be used for small or high volume print jobs. It's also a versatile choice as it can print on any flat surface, regardless of whether it's smooth like paper or rough like canvas.

**Flexography**

Often used for:

- Packaging and labels
- Anything with continuous patterns e.g. wallpaper and gift wrap

Flexographic printing is the modern version of letterpress printing and is commonly used for printing on uneven surfaces. This style of printing uses quick-drying, semi-liquid inks and can be used for high volume jobs. Flexible photopolymer printing plates wrapped around rotating cylinders on a web press are used. These inked plates have a slightly raised image of the content on them and are rotated at high speeds to transfer the image onto the print media.

**Digital Printing**

Often used for:

- Posters and signage
- Labels, newsletters, menus and letters

Digital printing is a modern method that covers a variety of different techniques including inkjet printing and laser. In digital printing, images are sent directly to the printer using digital files such as PDFs. This eliminates the need for a printing plate, which is used in other types of printing such as lithography, and can save time and money (unless you're printing in larger numbers). Digital printing allows for quick turnaround and allows businesses to print on demand. It's also great for small run jobs - requests can be made for as little as one print. If you choose digital printing for the right job, it can make for a cost-effective method that still produces high quality prints similar to that of the other, bigger-scale options.

**Large Format**

Often used for:

- Large signage e.g. billboards, posters, vinyl banners
- Wallpaper and murals
- Floor graphics
- Laminating

As the name might suggest, large format printing exists to produce maximum print roll width. Perfect for traditional advertising mediums and businesses who are looking to make a huge impact on their customers, this printing method gifts you with a much bigger area to work on, as opposed to the other methods such as digital printing. Rather than printing onto individual sheets, large format printing uses rolls of prints that are fed incrementally to produce one large sheet. For large print media such as building wraps, billboards, banners and murals, large format printing is the best option. The other printing methods will not be able to produce as large a material. Most businesses choose large format media to produce flat items which can be hung on a wall, but they can also be folded or made to stand freely.

**Screen Printing**

Often used for:

- Printing logos and graphics onto clothes
- Fabric banners
- Posters

Screen printing is a printing technique where fine material or mesh is used to transfer an image onto another material. The mesh is stretched out so it creates a screen and ink is pressed against it in order to successfully print the image. Popularly used to print graphics onto clothes and other pieces of fabric, screen printing can also be used for paper and metal. There's a lot of setting up required with screen printing, so it's best used for printing repeat items in bulk. It's not very cost-effective for small number orders. But if you need a lot of the same image, it's a highly cost-effective method of printing.

**3D Printing**

Often used for:

- Promotion and marketing freebies
- Novelty items
- Display items
- Toy figurines

Since the 1980s, 3D printing has allowed us to print three-dimensional objects, which can be a great way to make an impact on your audience. The desired objects of various shapes and sizes are created using digital model data from 3D models or electronic sources such as an Additive Manufacturing file (AMF). Additive compound mixtures are then fused together to produce this 3D object. 3D printers have continued to get more and more sophisticated. Today, even items with interior moving parts can be printed. After the details have been worked out on a computer programme such as CAD, miniscule layers are printed on top of each other using a special plastic substance.

**LED UV**

Often used for:

- Newsletters, posters and leaflets
- Magazines, catalogues, brochures and prospectuses
- Stationery

LED UV printing is a method that's becoming increasingly popular among businesses due to its extremely high quality prints and quick turnaround times. It's a form of digital printing that uses UV (ultraviolet) lights to dry the ink as it's being printed. The drying process, also known as UV curing, is unique and sets it apart from the other printing methods because it's instantaneous and prevents the ink from sinking into the materials. The results? You no longer have to wait for the ink to dry, which saves time and the colours come out looking much sharper and clearer. LED UV is eco-friendly as it uses less power than traditional print machines and unlike many of the other methods, it's not limited to the type of stock (printing materials) or to certain print jobs. Its versatility means it's ideal for a wide range of projects including brochures, catalogues, prospectuses and posters. Because of its ability to instantly dry ink and produce bright, vivid colours, it can turn an ordinary product into a luxury, high quality product that is attention grabbing.

# UNIT – 2 (QUESTION BANK)

| | |
|---|---|
| 10 | Explain Visual Communication in Detail. |
| 11 | Explain elements of Visual Communication:<br>(a) Line<br>(b) Shape<br>(c) Texture<br>(d) Text<br>(e) Color |
| 12 | What are the types of shape? |
| 13 | What do you understand by Texture? |
| 14 | What are the types of texture? Explain. |
| 15 | Explain the principles of Visual communication. |

# UNIT – 2 (NOTES)

**ELEMENTS AND PRINCIPLES OF DESIGN AND VISUAL COMMUNICATION**

## 2.1 DESIGN ELEMENTS AND PRINCIPLES

In the game of soccer there are many components. But if players just go out onto the field and simply act out moves; kick, run, pass, throw in, cross the game will be a mess. What we need is a coach to coordinate the players' moves. We need some strategies. We need to know when to attack and when to defend. In this way the individual components of the game can be seen as the design elements and the strategies the design principles. When you Google design elements and principles you will find more than are on this list. There are many more. Likewise, if you do other VCE arts subjects like Art, Studio Arts or Product Design you will find different groups again. All of the elements and principles listed in books and other studies are right and all are valid. However, VCAA have created this group for Visual Communication Design. The identification and discussion of design elements and principles comes naturally in the analysis of communication design but with practise, you will find that they can be

applied equally as well to analyses of environmental and industrial design. Students must realise that they may be examined in their application of these concepts within all design fields.

**On Using Design Elements and Principles in Production Exercises**

Students may be asked to demonstrate their understanding of design elements and principles by drawing a given shape or letter into a new composition. Other tasks ask students to design a visual communication using a set of criteria including design elements and principles. Students should be mindful that in demonstrating their understanding of design elements and principles in practical examples, they need to emphasis the selected element or principle. As far as possible they should ensure that their selection of element or principle is clearly focused on that element or principle. For example 'shape' should be shown as a solid figure, without the use of 'line'.

**ON CHOOSING THE BEST DESIGN ELEMENTS AND PRINCIPLES FOR ANALYSIS**

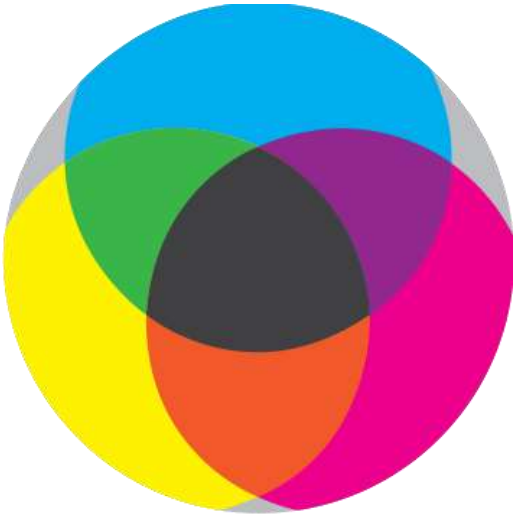
In written tasks requiring the analysis of design elements and principles, students should be aware that only elements and principles that clearly suit the example should be chosen for analysis. Time spent on careful selection of the best, most emphasized elements and principles is time spent well. Students then concentrate their discussion solely on the element or principle being analysed. When discussing the role of design elements and principles in design the use of a correct verb is important. Students should note that an element is usually 'used' to 'create' an effect and a principle is often 'created' by the manipulation of an element. For example: Different kinds of shapes (element) have been used to create contrast (principle).

**MODEL ANALYSIS**

Beneath each design element and principle you will find an example of analysis demonstrating how the language shown can be used to identify and describe the aesthetics and function it plays in a visual communication.

**Design elements are the components of visual communication:**

COLOUR



DESCRIPTION

Colour is different kinds of **light** visible to the eye. It is understood using two different models. **Additive** colour is created by three different lights in screens (RGB) adding together to create white. **Subtractive** colour is created by three + black (CMYK) inks or paints subtracting reflected light on paper to create black. Colour communicates **optically** and **emotionally.** We discuss colour in terms of colours relative to other colours and in terms of how it makes us feel.

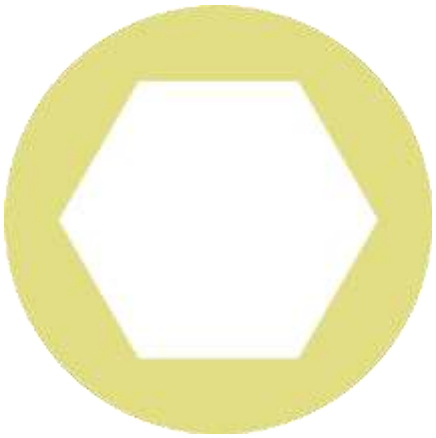
IDENTIFY

The **groups** combinations of colours belong to including; **primary, secondary, warm and cool colours, harmonious, complimentary** colours. Do not confuse the discussion of 'tone' here. Do not identify colours as light or dark when you mean warm and cool. (They may indeed, be light and dark, but this is a discussion of tone). The **function** of colour; to decorate, emphasises or categorise.

**MODEL ANALYSIS**

Colour has been used to create depth in the portrait. Yellow has been used on the areas of the face closest to the viewer and blues have been used in the background. This enhances the effect of form in the picture.

SHAPE



DESCRIPTION

Shape is a **two dimensional enclosure**. It can be made with lines or with a 'fill'. (Colour, shape or texture). A shape in VCD is usually filled. When asked to produce shape students should fill their shape to demonstrate their understanding of the difference between shape and line. Shape is a common component in logos and type. Shapes communicate **optically** and **emotionally.**

IDENTIFY

The **name** of shape. (Circle, square, abstract).

The **kind** of shape. Shapes exist in two main categories - **organic and geometric**. Organic = natural, random or flowing. Geometric = 'man made' or mathematical like a square, triangle or circle. The **edge** of the shape and it is hard edged or soft and blurred? The **function** of shape and is used to organise space, create an effect or as a symbol to assist with recognition.

**MODEL ANALYSIS**

A simple, rectilinear, geometric shape was chosen for the screen of an iPad. The corners are slightly rounded to lead our eyes move smoothly around the plane. The shape is repeated, at a bigger scale for the frame around the screen. The use of rectangles with rounded corners creates consistent brand recognition between all of the products in Apple's devices.

LINE

DESCRIPTION

Line is a **continuous mark** on a surface. There are many useful adjectives that can be used to describe line. Line can be used to;

- **emphasise** something (an outline on a character, underline),
- to **divide** components in a composition (column line),
- to **create a figure** (lines in an observational sketch),
- to **create tone and texture** (cross hatching, shading),
- to create **form** (lines on an angle),
- To organise **space** (visible or hidden grid lines in a webpage).

IDENTIFY

The **purpose** of the line. Ask what is the line being used to do? The kind of line. Use **adjectives** to precisely describe the kind of line that has been used. Describe the kind of **media** that has been used to make the line. The characteristics of the line will vary between those made by computer, pen, pencil, brush, etc. Describe the **method** of making the line. Both the media and the method used influence the character of line and are used to **communicate specific intentions** of the designer.

DISCUSS

Line can be **geometric,** or **organic**. Line can be **ruled** or **freehand. Thick** or **thin**. **Straight or curved, solid, dotted, dashed, sensitive or flowing.** Line can be **visible** or **implied.** (As in a grid layout). The use of line can follow **conventions for technical drawing** (line work for 3rd Angle Orthogonal or Plans and Elevations). The **characteristics** of the line reflect the **purpose** of the visual communication.

**MODEL ANALYSIS**

The sketch of the old building was made freehand with a dip-pen. The drawing is made from organic lines of uneven strength and length. This haphazard and random approach to building up the drawing both with the hesitant outlines and grey cross-hatched shadows captured the decaying nature of the old building.

TONE



DESCRIPTION

Tone is a **variation** of intensity of colour. Tone is described with adjectives such as **light** and **dark**. The discussion of tone can include **value, percentage, tint or shade.** Tone refers to variation in **range** in a **monochromatic** field and can apply to any colour except white.

Tone can be used to **create or emphasise form** with **linear** or **radial gradients**. These terms are usually connected with digital artwork.

IDENTIFY

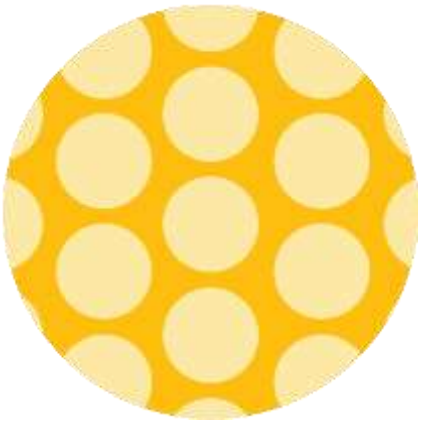
The **purpose** of the tone is to create or emphasise form. When we shade a drawing to make it look three dimensional we are using tone. How tone emphasises the direction and intensity of a light source.

**MODEL ANALYSIS**

A gentle, soft tone was used across the picture of the baby sleeping. Although the darker shades of grey were still quite light, there was a consistent variation between the highlights on the baby's forehead and the shadow underneath her chin. This consistent yet gradual

shading across the head implied a soft light coming from the window above and to the right of her head.

TEXTURE



DESCRIPTION

Texture refers to the **surface** of an object or an image. Texture can be **actual** or **implied**. **Actual texture** can be felt with our hands (checker-plate aluminium, rough oil paint), and **implied texture** looks like real texture, although it might be printed on gloss paper. Texture can be made from raised or lowered sections of a surface (relief, embossing, etching) or with pen, pencil, or points (cross hatching, dot rendering).

IDENTIFY

The **kind** of texture - actual or implied. What the **purpose** of the texture. Is it for function or visual appeal? **How the texture has been made** - materials, methods and/ or media. The presence of texture in visual communication is often associated with a more human or friendly feel to an image. Similarly a lack of texture creates a corporate, professional feel.

**MODEL ANALYSIS**

The cardboard beer package was printed with an old fashioned woodgrain texture like what would be seen on an old fence. This made it seem like an old packing case that might have been used to carry bottles in the past. This rustic effect very much suited the character of the strong craft beer.

FORM

DESCRIPTION

Form is a **three dimensional entity**. It is often made from shapes, lines or even colours. Form creates space and depth. The discussion of form includes actual form as it relates to objects in each design field, particularly industrial and environmental design. Form can also be created on a two dimensional space as in an illustration or photograph.

IDENTIFY

The **names** of forms. (Cube, sphere, tetrahedron, etc.) The **kind** of form using similar language as 'shape'. (Geometric, biomorphic, abstract). The **purpose** of the form and/ or the relationships with other design elements.

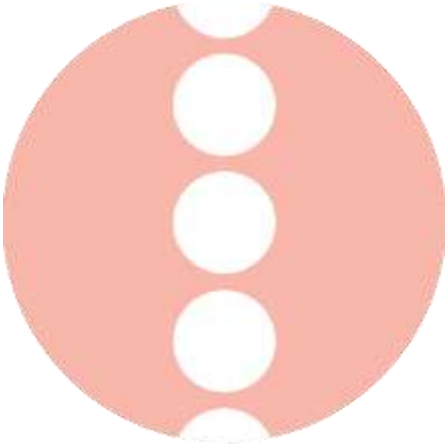
DISCUSS

Use adjectives as used for 'shape'. Additional adjectives include; **solid, slender, cylindrical, rectangular, conical.** The ways forms have been constructed and the materials that may have been used and the reasons for their use.

**MODEL ANALYSIS**

The chair was made from two contrasting kinds of forms. The body of the chair was a beautiful soft biomorphic form reminiscent of a bent jelly bean. The designer contrasted the bulk of this form with four slender legs looking like those found on insects. A plastic sheet material like vinyl was chosen for the surface of the body of the chair as it would stretch to cover the foam that made the form, and a chrome steel was chosen for the legs as it was able to be bent into shape and was strong enough to retain its shape when supporting a person.

POINT



DESCRIPTION

A point is the smallest **mark** in a visual communication. It is usually a dot or circle in shape. Point can be used to create tone or texture in a rendering. Points can be strung together to create line. Point can be used to emphasis information.

IDENTIFY

The **purpose** of the point.

The **shape** of the point.

The visual **characteristics** of the point (methods or media).

DISCUSS

The visual characteristics of the point using similar adjectives for shape or line. The placement of the point, the colour of the point.

**MODEL ANALYSIS**

Large red dots are used on the map to show the intersection of train-lines that include a physical interchange for passengers. The size and colour of the point is such that it contrasts with the grey background to maintain clarity.

TYPE

DESCRIPTION

Type is writing in visual communications. It is a special design element in that it communicates through the **meaning** of words and through the **aesthetics** of the type forms themselves.

Type has a long history and through **associations with various** uses, **methods of manufacture** including wood and metal blocks, digital and hand generation and the **locations** from which type forms come. Type forms themselves are embedded with meaning. Type is **classified into certain groups** for communication, use and analysis. Type forms can be broken into **anatomical** parts. The construction of these parts forms the discussion of type forms. Designers who use type (typographers) make many stylistic and functional **adjustments** to the way the type appears on the visual communication.

IDENTIFY

The whole examination of type rests on our ability to **determine how a chosen type form communicates ideas to an audience.** One has to identify the precise **characteristics** of a type form as distinct from another. The **classification** of type forms. (**Serif, Sans serif, display, decorative**). The associations these classifications have in relation to the meanings of the words they are forming. (Contemporary, objective, authoritative, judgemental, European, American, retro, futuristic, military, digital, 3d, etc). The position a type resides in a **type family** is considered. Is it light, roman, bold, heavy or black, condensed, regular or extended?

The **function** and **use** of the type form. (Headline, subheading, body copy). The **method** used to form the type. The **aesthetic quality** and anatomy of the type form. (Ratio of stroke weights to each other, proportions of anatomical parts - ascenders, x-height, etc.)

The **adjustments** that have been made to the arranging of type - known as typesetting. (Case, alignment, colour, size, leading, tracking, kerning, etc).

DISCUSS

The **functional** and **aesthetic** qualities of type forms. Look for the ways **type forms and type setting conventions and processes are used to engage audiences.** How have shape, colour, weight been used to attract a particular age, gender or cultural group? A knowledge of all of the aspects of type shown here is essential for a detailed analysis of type.

**MODEL ANALYSIS**

They flyer uses a large heading for the name of the film 'The Hurt Locker'. In the upper half of the format are three lines of a modern, bold, sans serif capitalised type in a face like Helvetica Black. The type is force justified bringing the ends of each line to fill the space and is tightly tracked with very tight leading to make it appear as a block. Like an impenetrable wall. The almost solid positive form of the type, set against a black background is ideal for the technique of making it transparent revealing action from the film through the letters. Beneath this super strong title are several rows of reversed out (white) extremely condensed capitals in a light version of the same font. This light type counter balances the weight of the title.

**BALANCE DISCRIPTION OF DESIGN PRINCIPLES**

Balance in visual communication refers to the arrangement of components on **two sides** of a seen or implied **vertical axis.** There are two ways to balance a composition. **Symmetrical balance** is where the two sides of the composition are exactly the same (or very nearly the same) and they make a **mirror image of each other.** Symmetrical balance creates a static, stable composition and is suited to informative or instructional visual communications. **Asymmetrical balance** is where the two sides of a composition are balanced, yet are not mirrored. In order to achieve balance off centre different sized components are given more or less **visual weight**. Visual weight is increased of decreased by changing on or more of; tone, colour, size or proximity to the central axis. Visual communications employing asymmetrical balance create a more dynamic composition and are suited to purposes where audiences are encouraged to interact with the design. Balance in communication design may also refer to components set either side of the **horizontal** axis.

This will involve the broader study of **composition** and includes grid layout, random layout, radial balance, spiral balance, triangular composition. Balance in industrial and environmental design will involve the physical balance of a structure.

IDENTIFY

The kind of balance used in the visual communication. State if it is symmetrical balance or asymmetrical balance. Identify the parts on each side that make up the composition and state how they create the balance you have identified.

**DISCUSSION**

When describing balance, one is required to explain **how the balance has been created**. This usually involves discussion of relevant design elements. The kind of balance present in the visual communication is related to its **purpose.** The analysis explains how the balance, identified and explained contributes to the communication of ideas to that end.

**MODEL ANALYSIS**

The icon for symmetrical balance (at left) uses symmetrical balance. If one was to draw a vertical line down the centre of the circular field one would see that both halves of the 'A' are the same. Therefore, it is a mirrored symmetrical composition. However, the icon for asymmetrical balance (also left) uses asymmetrical balance. The two sides, on a vertical axis are not the same. Filling most of the right half is a large 'A' shape coloured in a mid-green contrasting sufficiently with the yellow ground to read. This is balanced by a small dark blue square sitting to the far left of the composition. Although the square is much smaller than the letter, it has an increased visual weight through it being both further from the centre and in a much darker tone than the 'A'.

Proportion refers to the ratio of the dimensions of a component. Two components may be similar in shape, however the length and height of each are different. They are said to be of different proportions. One needs to be careful not to confuse proportion with scale. Proportion is not overall size, it refers to the ratio of height, width and/ or depth to each other. Different (presentation) formats also are of different proportions. They have different heights and widths. Some easy to relate to formats are;

- Landscape,
- portrait,
- Square,
- Wide screen (16x9)
- TV (4x3)

A similar design will have to be adjusted to suit each of the above formats as they have different proportions. Proportion may also refer to how much of a kind of content. Think about the proportion of image to text on this page compared with the proportions of image to text on my artwork page.

**IDENTIFY**

The relative height, width, length, depth of two or more components of a visual communication. Identify the format used in the visual communication. Compare it with others if required.

**DISCUSS**

Proportions of components referring to their heights, widths, etc. relative to each other. You may use adjectives such as tall, thin, squat, wide, condensed, extended. How the size, quantity of the components of a visual communication have been modified to suit formats of different proportions. The proportion of types of content to each other and this may relate to the discussion of balance and hierarchy.

**MODEL ANALYSIS**

In the icon (at left) there are two capital 'A's. They are from the same type face. However, the proportions have been adjusted so that the left 'A' is tall and thin and the right, short and fat. The two characters are of different proportions.

**HARMONY AND PATTERN**

**DISCRIPTION**

The term pattern refers to the repetition of one or more visual unit (shape, image, etc). In our study there are two kinds of pattern. **Repetition,** where the same kind of visual unit repeats and **alternation,** where different units repeat in a rhythm. Pattern can create **shade, texture** or **decorate.** Patterns usually have **historical and cultural** origins and are a fantastic way to embed intercultural understanding into our course. Pattern making has been a meaningful and cathartic human undertaking for centuries.

**IDENTIFY**

If the pattern in repetition or alternation. The kinds of visual components that make up the pattern using design elements and/ or principles.

The **rhythm** and/or **density** of the pattern units to the ground.

The historical, national, cultural heratige of the pattern if any.

**DISCUSS**

The purpose, use or function of a pattern. The exact make up of the pattern using design elements and/ or principles. The kind of rhythm the pattern is producing. The overall aesthetic effect of the pattern.

**MODEL ANALYSIS**

'Tartan' cloth is a pattern made from woven thread. It is an alternating pattern formed by parallel horizontal and perpendicular lines of light and dark coloured thread that seem to overlap and create layers above and below each other. In addition other parallel lines with a much wider rhythm create squares of the base colour which form a kind of background. Tartan has a rich history as families from different regions in Scotland were known by their unique tartan design.

**EMERGENCE OF GRAPHIC DESIGN AND VISUAL COMMUNICATION**

There are many different definitions for it. *Primarily associated with two-dimensional images, it includes: art, signs, photography, typography, drawing, graphic design, illustration, color and electronic resources. Recent research in the field has focused on web design and graphic oriented usability. Graphic designers use methods of visual communication in their*

*professional practice.* Visual Communication expresses emotion, feelings, ideas, information and thoughts with a combination of words and pictures, art, typography, photography, symbols, movies and/ or sounds. I believe that the term communication needs to be extended a little bit further. Nonverbal communication goes far beyond body gestures and writing. Communication is also expressed through pictures, images and symbols and the combination of all these. The result is called Visual Communication.

**The History**

The history of visual communication dates back to a time where writing was not yet invented. It dates back to a time where history was persevered in paintings found on **rocks and in caves** dating back more than 40.000 years ago. Fast forwarding to usage of **ideograms** up to the invention of the **alphabet**. It is safe to say that visual communication has always been a part of our existence. The invention of the alphabet was a beautiful time, because books were being published and beautiful **illuminated scriptures** were presented as a piece of art. We can fast forward a bit more in time and we would reach the **avant-garde, modernist** and finally **the computer** era. Visual communication had changed drastically in the era of **avant-garde, modernism** and **postmodernism.** In the beginning before most people were able to read or write, every part of life was based on God. God was the center of all things and people were very faithful and loyal to their religion. In the modernism era, people became more concern with them and were placing humans being above God and it was all about improving and the reshaping the environment. In the Postmodernism era, people lost the sense of morality completely. There were no more clear division between right or wrong, evil or good, no truth at all. We life in a era where TV Idols such a Oprah promotes humans as Gods. The people behind the visuals install ideas of right or wrong within the heads of the masses. I believe that visual communication will never die, it will only get more powerful in the sense of having the power of placing ideas, morals and believe within someone's mind so tactically that the person would become convinced that it was his/her original idea to begin with. It is a powerful tool that can be used for either good or wrong, and judging from the era we are living in right now the line between right or wrong is pretty much blurred out.

# UNIT – 3 (QUESTION BANK)

| | |
|---|---|
| 16 | Explain Adobe Photoshop. |
| 17 | What is Photoshop? |
| 18 | Explain the basic terms related to an image. |
| 19 | What is bitmap image? |
| 20 | What is vector image? |
| 21 | What are the steps to create a new document in Photoshop? |
| 22 | What is Menu bar in Photoshop? |
| 23 | What are the tools in Photoshop? Explain |
| 24 | What are step to crop an image? |
| 25 | Explain working with shape process. |
| 26 | Explain the layers in Photoshop. |
| 27 | Explain the layers panel. |
| 28 | How to create a new layer? Explain. |
| 29 | Explain linking and unlinking layers. |
| 30 | What is color modes in Photoshop? |
| 31 | What are the different types of Color modes in Photoshop? |
| 32 | What is HSB Color mode? Explain. |
| 33 | Explain Channel panel in Photoshop. |
| 34 | Explain filters. |

# UNIT – 3 (NOTES)

## 3.1 INTRODUCTION OF COMPUTER GRAPHICS

Computer Graphics involves technology to access. The Process transforms and presents information in a visual form. In today life, computer graphics has now become a common element in user interfaces, T.V. commercial motion pictures. Computer Graphics is the

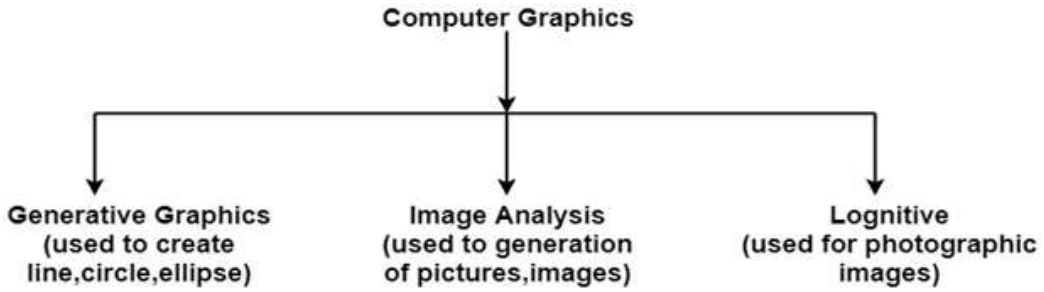
creation of pictures with the help of a computer. The end product of the computer graphics is a picture it may be a business graph, drawing, and engineering. In computer graphics, two or three-dimensional pictures can be created that are used for research. Many hardware devices algorithm has been developing for improving the speed of picture generation with the passes of time. It includes the creation storage of models and image of objects. These models for various fields like engineering, mathematical and so on. Today, computer graphics is entirely different from the earlier one. It is not possible. It is an interactive user can control the structure of an object of various input devices.

**Definition of Computer Graphics:**

It is the use of computers to create and manipulate pictures on a display device. It comprises of software techniques to create, store, modify, represents pictures.

**Why computer graphics used?**

Suppose a shoe manufacturing company want to show the sale of shoes for five years. For this vast amount of information is to store. So a lot of time and memory will be needed. This method will be tough to understand by a common man. In this situation graphics is a better alternative. Graphics tools are charts and graphs. Using graphs, data can be represented in pictorial form. A picture can be understood easily just with a single look. Interactive computer graphics work using the concept of two-way communication between computer users. The computer will receive signals from the input device, and the picture is modified accordingly. Picture will be changed quickly when we apply command.



## 3.2 VECTOR GRAPHICS

Vector graphics is the creation of digital images through a sequence of commands or mathematical statements that place lines and shapes in a given two-dimensional or three-dimensional space. In physics, a vector is a representation of both a quantity and a direction at the same time. In vector graphics, the file that results from a graphic artist's work is created and saved as a sequence of vector statements. For example, instead of containing a bit in the file for each bit of a line drawing, a vector graphic file describes a series of points to be connected. One result is a much smaller file. At some point, a vector image is converted into a raster graphics image, which maps bits directly to a display space (and is sometimes called a bitmap). The vector image can be converted to a raster image file prior to its display so that it can be ported between systems.

A vector file is sometimes called a geometric file. Most images created with tools such as Adobe Illustrator and CorelDraw are in the form of vector image files. Vector image files are easier to modify than raster image files (which can, however, sometimes be reconverted to vector files for further refinement). Animation images are also usually created as vector files. For example, Shockwave's Flash product lets you create 2-D and 3-D animations that are sent to a requestor as a vector file and then rasterized "on the fly" as they arrive.

## 3.3 BITMAP

A bitmap describes a type of image that web-users encounter all the time without realizing it. Basically, it’s a grid where each individual square is a pixel that contains color information. The key characteristics are the number of pixels (or squares in the grid), and the amount of information in each grid square (pixel).

If you’ve already been reading up on your design vocabulary, you might be thinking that this sounds… familiar. Is it déjà vu? Not quite. Bitmaps and raster images are interchangeable terms that refer to the same concept: a grid full of pixels that—when arranged densely enough—form a clear image.

**What You Need to Know About Bitmaps**

Like raster graphics, bitmaps are made up of individual, tiny points that blend together to form a unified image. Unlike vector graphics, which are infinitely scalable, you can't stretch or enlarge them without compromising the quality.

1. How It's Created and Stored

When you break down an image into a grid made of thousands of squares, you get a bitmap. Each square in that grid holds a little bit of color data and displays (or doesn't display) a color based on that data. Like a color-by-numbers sheet, a key correlates each point's data assignment with a color. In the end, it provides the literal map that tells you what that image should look like once it's put together.

2. Bitmap Graphics vs. Raster Graphics

Raster graphics and bitmaps are closely related. Though they're not exactly the same thing, the two phrases are often used interchangeably. If you're curious about the subtleties: * A bitmap refers to a specific type of data storage—a map of bits. * A pix-map is, similarly, map of pixels.* A raster image can be either of the above, depending on how complicated the encoded data is.

3. Bitmap File Formats

There are several file formats to choose from, and each has advantages and disadvantages. You've likely heard of (or used) some of these file types—BMP, GIF, JPEG, EXIF, PNG, and TIFF. You can determine a file's format by where it came from or how the image will be used.

Windows exclusively uses BMPs; GIFs and JPEGs are designed for web transfer; and EXIF files come from digital cameras and carry photo-specific information and camera settings. BMPs are large, full files that can't be compressed. Other formats, like GIF, JPEG, and PNG use compression algorithms that make the files smaller and easier to upload and download via the internet, making them extra convenient when working with online projects or designs.

4. Problems with Bitmaps

First, remember that the size of the file correlates directly with its quality. The higher the quality, the bigger the file—which can be tough if you want to use a high-quality image on the web (and you probably do!). Second, keep in mind that a bitmap graphic can become *pixelated*. Pixelation happens when you stretch an image until the pixels become visible, making it blurry or blocky. But if you're aware of these problems and take them into consideration during your project, you can work with bitmaps without too much hassle.

## 3.4 UNDERSTANDING IMAGE RESOLUTION AND SIZE

**Understanding image resolution**

Image resolution is measured by the number of pixels per inch that shows up on a digital screen. You have probably also heard of the term dots per inch or DPI, but more about that later as it can be quite confusing. The more pixels you have on your screen, the higher the image resolution.

For web, pixels per inch do not matter as the sizes of devices, or your computer monitor is already set. Unless someone is going to take the image from the website and print it, an image with 72 pixels per inch displays the same as a 300 pixels per inch photo on all devices. This is where understanding image resolution for printing becomes more important.

**Pixels per inch and printing**

Pixels per inch are important when printing images. The more pixels you have per inch, the better the image resolution. This means that you will get better quality prints. Generally 240 or 300 pixels per inch are acceptable for printing. When it comes to large scale printing such as billboards, it can be larger than 300. The height and width of an image is also important to determine image resolution as PPI is only a relative measure.

Understanding image resolution and size

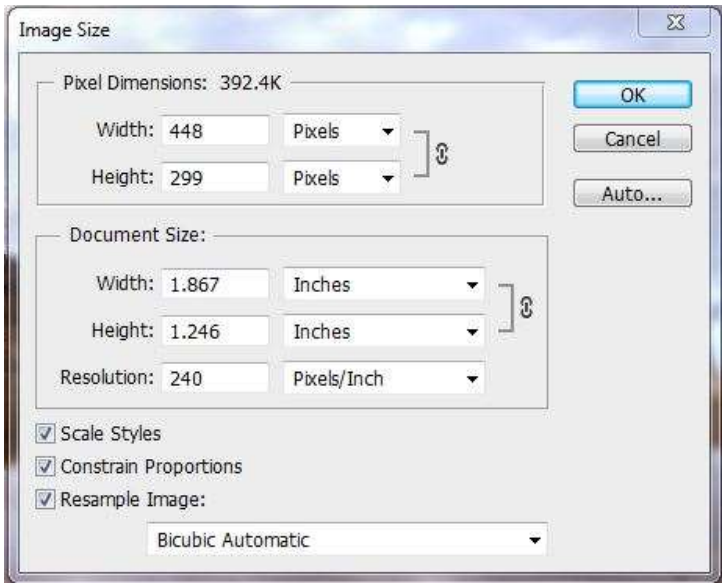



Image size of smaller image

However, when the image was saved in a smaller format – below is how this changed the dimensions of the photo.

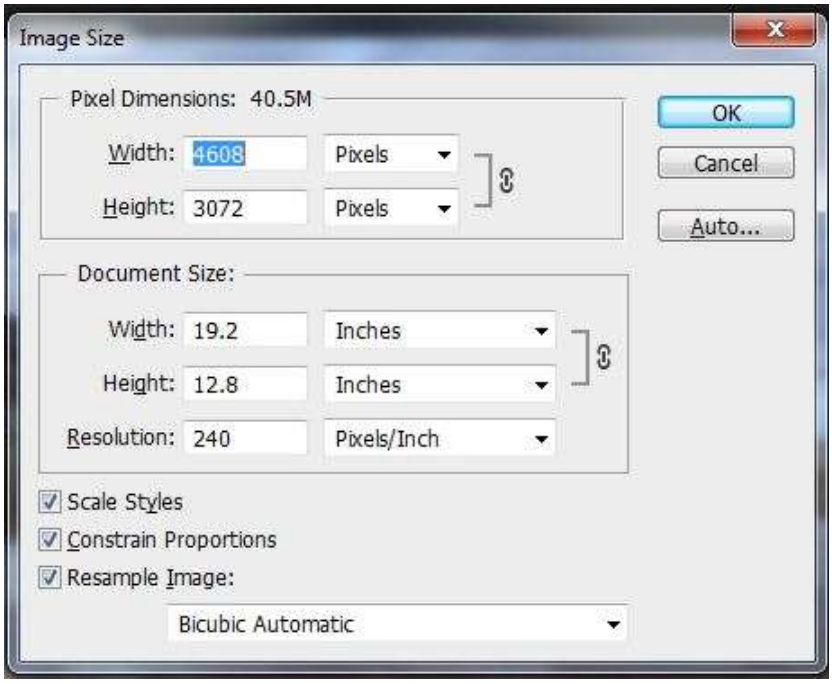



Image size of original

Now, you are probably asking how that makes a difference. The resolution of the small image have decreased so much, just look at the effect on the female walking in front when zoomed in. The pixels per inch have decreased so much that her hair alone is far less than 50 pixels.

Small resolution affects pixels per inch

But compare this to the original image – zoomed in. It becomes impossible to count the pixels in her hair alone.

Large resolution pixels per inch

**What about image size?**

Once you understand image size better as illustrated above, you will realise that size do matter. Larger images can be printed larger without pixelating as there are much more pixels per inch while the same is not true with smaller photos. Understand now why photos pixelate? You are that much closer to understanding image resolution. Today, we have the ability to shoot at any resolution and quality setting we want. But this comes at a price. With smaller sizes you sacrifice print quality, but bigger quality settings influence storage space. However, I will say that with the affordability of storage solutions these days, the birth of cloud storage and photo sharing and storing sites like SlickPic, there is really no excuse for not shooting at maximum quality. You can always make the image smaller if you want to use it online later.

## 3.5 RELATION BETWEEN SIZE, RESOLUTION

Pixels have no set size, they just expand or contract to fill the space available. Below the same image is shown twice, both times at the same image or document size. But each copy is made up of a different number of pixels which just expand in size to fit the image size. So while both 'image sizes' may be the same, the resolution of each is clearly different.


**FIGURE 1** This image is made up of 1200 x 800 pixels and looks to the eye like a scene might look in reality

The aim is to have enough pixels, which when resized to fit the image size, are smaller than the monitor or printer dots. The image above has a pixel size smaller than the monitor dots and so looks good. The picture below has too few pixels and so have resized to the point where the pixels are larger than the monitor dots and the image looks either bad, or even useless as in the 12 x 8 pixels image.


**FIGURE 2** Although blown up to the same size as the previous image, this image is made up of only 120 x 80 pixels and now we are starting to see the actual pixels, which is called 'pixelation.'

Below are the same images as before but resized so that the pixel resolution is 72 dpi to suit the monitor. Since the pixels are now set to the same resolution, it is the image, or document size, that shrinks or expands to fit. Both images now have the same resolution; it is now the image size of each that is clearly different.

**FIGURE 3** Here the same two images are now set to the same resolution. While both look good now, what differs is the size at which the image is displayed. The smaller image only has enough pixels to display well at that size.

This means that when talking about the working file size of an image it is not enough to just state the resolution or image size by itself. Both resolution and image size need to be used together.

**Resolution**

So, often people speak about a 300 dpi image as being a quality image. But what do they mean by a '300 dpi' image? This is rather like someone asking you how far is it from Abuja to Lagos and you answer '70 kilometers per hour'. They would look at you funny. That is because you only told them half of the answer. Yes it may be 70 kilometers per hour, but you need to tell them for how many hours. This is the same as someone saying, 'Oh, just give me a 300 dpi image'. What they have told you is that they want each inch of your image to have 300 dots, but they haven't told you how many inches they want the image to be. It is the number of pixels in an image that determine file size; resolution by itself is not enough.


**FIGURE 4** This is one inch of the image below. DPI means 'dots per inch' but you need to know how many inches to know the file size of an image. Just giving the resolution is not good enough.

**FIGURE 5** Above is the full image. The image is clearly more than just one inch square. So to understand the file size you need to know both the resolution (300 dpi) and the reproduction size (8 inches high by 12 inches wide, for example). So when an editor or a designer is asking you for an image and they say, "Just send me a 300 dpi image", you need to ask, "300 dpi at what dimensions?"

**File Size**

There is actually an easier way to ask the editor what he really wants and that has to do with file size. This is much the same way that if someone asked you the distance between Abuja and Lagos it would be easier to answer, '700 kilometers'.


**FIGURE 6** An A4 grayscale image at 300 dpi is calculated below at 8.6 MB in size. In reality it is closer to 8.7 MB simply because the dimensions of an A4 page are larger than 8 x 12 inches.

To see how the file size is calculated, take the image above as an example and assume that it is A4 at 300 dpi. To simplify it let's assume that is 8 inches x 12 inches.

File size is determined by the number of pixels so the aim is to find out how many pixels the image contains. Since the resolution is 300 dpi, it means that each inch is 300 pixels across. As the image is 8 inches wide that means there are 2,400 pixels in width (8 x 300). Likewise, as the image is 12 inches long, the image is 3,600 pixels in length (12 x 300). To get the total we multiply the breadth by the length and the answer is 8,640,000 pixels (2400 x 3600). Well this is a grayscale image and we know from the section on image pixels that for a grayscale image each pixel is 8 bits or 1 byte in file size. So in total the A4 image of 8,640,000 pixels has a file size of 8,640,000 bytes or about 8.2 MB (this is because there are 1024 bytes in a kilobyte and 1024 kilobytes in a MB).

So it would be a whole lot easier if your editor asking you for an image big enough to fit the size he wants to print it at asked you for an 8 MB grayscale image. Or if he wanted it in RGB colour he would multiply that figure by three and ask you for a 24 MB image.

**Image Size Panel**

It is not necessary to calculate the file size exactly every time. Photoshop has an Image Size panel that can be used as a calculator. The panel cannot be accessed without an image being opened, so create a new image first (Ctrl+N) choosing the colour mode needed (RGB, CMYK, Grayscale, etc). Make sure the 'Constrain Proportions' box is unticked to allow width and height to be separate, and that the 'Resample Image' box is ticked to allow the resolution to be separate as well. Now figures can be entered into the Document Size (highlighted) with the file size appearing at the top of the palette (indicated).

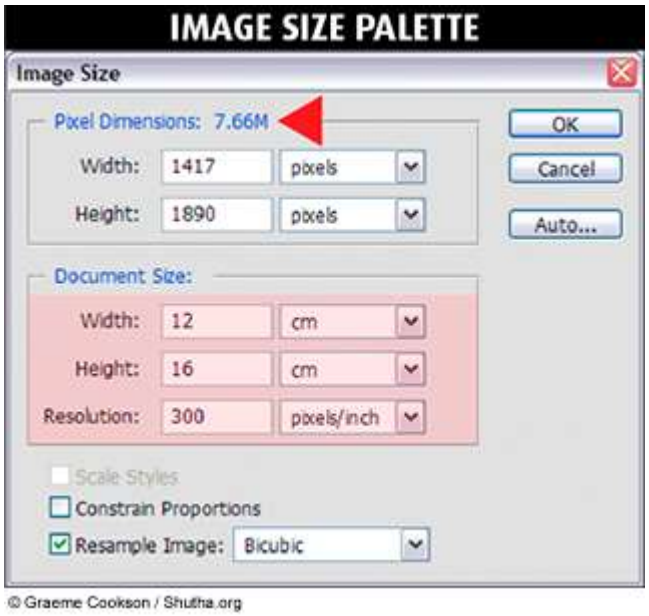



**FIGURE 7** The image size palette provides an accurate way of calculating the size of a digital image you have opened in Photoshop.

**FILE SIZE**

You aren't always in front of a computer when you need to calculate image size though. So it is really helpful to have a rule of thumb that guides you. Just think of an A4 as 24 Mb for an RGB colour, 8 bit image at 300dpi. The beauty of the number 24 is that it is so divisible, and

therefore easy to calculate file sizes. Take a piece of A4 paper and write '24 on it. Fold it in half and write 12, fold again and write 6, then fold once more and write 3. Almost all the images you use will fit one of these sizes. So the next time you are asked what file size is need for a quarter page RGB photo, fold an A4 twice to give you 6 Mb.

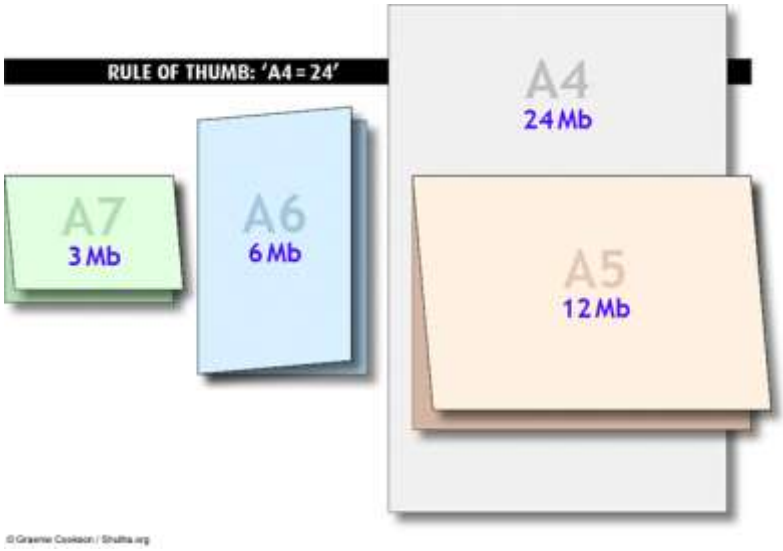



**FIGURE 8** The illustration above shows a quick way of calculating the file size of an RGB image needed for printing an A4, A5, A6 and A7 image.

A grayscale is one third of an RGB so write 8,4,2,1 instead. For a CMYK image write 32,16,8,4 as it has one extra channel. If the image is 16 bit than double the figures. In this way, wherever you are you can impress your editors or clients by a speedy calculation of what file size they need.

**Image Interpolation**

If you need to have a larger file size than was provided by the digital camera or scanner, then Photoshop can create the extra pixels. But this does come at a cost. On the right is an image that was one tenth the image size of that on the left. It was then interpolated 10-fold (1,000 %) to bring it up to the same dimensions. While there is nothing to stop you resizing an image this way, be aware that Photoshop has no reference to what the original unscanned image looked like and therefore has to 'invent' the extra pixels. An increase of several percent will not be noticed, but the more the resizing, the softer the image will become.


**FIGURE 9** The image on the left is the original quality. The one on the right was reduced to a 10th the size and then interpolated up in Photoshop to the same size. You can see how soft the image becomes as Photoshop simply invents pixels and blurs all edges.

**File Size and Compression**

The Camera Raw file has a size, but this will be dealt with later. The Image converted from a Camera Raw file, or scanned from film, has a different file size. You may then crop the image to reduce the file size, or use interpolation to increase the file size. For the sake of simplicity, let us just deal with the finished image after you have shot it, converted it, and done any cropping. This image, when opened in Photoshop, has an "open" or "working" file size, as seen in the Image Size Panel section above. However, when you come to save the finished image you will have to decide about file compression. Usually you will be save the image either as a TIFF file, which can have compression or none at all, or as a JPEG file, which will always have compression. If the image has been saved with compression then you notice that the save image has a much smaller file size than what it was when it was open. Think of this as "saved" or "compressed" file size.

The problem comes when you look at an image that has been stored on your hard disk and you need to decide what the "open" or "working" file size is as it is the "open" file size that counts when you have to send an image to a client. If the file is a JPEG then you know already that it is compressed, but if it is a TIFF then you may not know if compression was used.

## 3.6 CONCEPT OF PATH

**Understanding Paths**

When you draw an object, you create one or more lines called a **path**. A path is made up of one or more curved or straight lines, known as **segments.** The start and end points for a segment is called an **anchor point**. An anchor point is a bending point to modify the line segment. A path can be open or closed. An open path has open-ended endpoints, such as a line, while a closed path has connected endpoints, such as a circle. Paths can have two types of anchor points: smooth points or corner points. A smooth point connects two curved segments to create a smooth line, while a corner point connects two straight or curved segments to create a path direction change. You can draw a path using both smooth and corner points. The outline of a path is called a stroke, which you can format with different characteristics. You can specify stroke weight (thickness), color, or a dashed pattern. The interior of an open or closed path is called a fill, which you can also format with a color or gradient.

**What are Paths?**

Photoshop is not a vector-based application overall, but it does have a few vector-based features. The primary one is Paths. To put it simply, Paths are vector-based line drawings. A path is made up of any number of line segments connected by anchor points. These line segments can be straight, curved, or a combination of the two. For something to be a path, it has to be closed. This means that each anchor point has to be connected to another anchor point.

**How Do Paths Work?**

Paths have one huge advantage. Because they are vector-based, they will look just as sharp and clear when resized. No matter the size or resolution, you can get the same great detail and clarity. Another advantage to Paths is the ability to create your own unique shapes. Photoshop comes with a number of built-in shapes, but there are plenty more that you might find useful. Once you create a shape as a path that you might want to reuse in the future, you

can save it. This way, it's always available as a path, so you can reuse it whenever you want and scale it to the size you need without any distortion or loss of quality.

**How Do You Use Paths?**

Paths have numerous practical applications that can make your artwork look significantly more professional. It's often used by graphic designers to make text follow a curve or make a circle, precisely separate objects from backgrounds, and stylizing type for artistic typography, using Bezier Points. It's fantastic for creating logos and other graphics that may need to be scaled to a number of sizes in future projects. Digital artists will also find value in the tool as you are able to turn freehand drawings into precise vector-based images that can be manipulated and scaled as desired.

You can create paths in several ways:

- With the pen tool: Draw lines with anchor points at the ends to make a path.
- With the shapes tool: Use the Paths option to turn any shape into a path.
- Create as a path: You can purposefully create a path using either the pen tool or the shapes tool.
- Convert to a path: You can convert an existing image, graphic, or even text into a path.

Just like with other elements, you are able to set a fill color for the path and both the color and weight for a path's stroke. The Paths feature is probably one of the most underused and misunderstood features of Photoshop, but it can be an invaluable tool to add to your arsenal.

Types of line segments

There are two types of line segments:

1. **Straight line segments**. These are the easiest to draw and understand. You'll see that straight line segments do not have direction lines or direction points.
2. **Curved line segments**. These are the tricky ones! The shape of each curve is controlled by the *direction lines* and *direction points* that you can see on the diagram above. More on these shortly.

Types of anchor points

Also, there are two types of anchor points:

1. **Smooth anchor points**. When the curves on each side of an anchor point enter and leave the point at the same angle, you have a smooth anchor point. In other words, there is a *smooth transition* through the point from one curve to the next. You can see from the diagram that this type of point has two direction lines opposite each other (180 degrees apart).
2. **Corner anchor points**. This type of point marks a *sharp change of direction*between one curve and the next. It is also used when connected to one or two straight lines. On the diagram, notice that the direction lines on the corner anchor points are not 180 degrees apart (or in the case of the straight line segments, that there are no direction lines at all).

**About path components**

Let's also take a quick look at path components. A path can consist of one or more path components. Each component is a series of segments and anchor points. Furthermore, each component is distinct and separate from all other components – that is, they don't join up. Here's an example of a path with 3 distinct path components:

Note that path components don't have to be closed paths; they can have endpoints, like the wavy line above. Note also that although the wavy line and triangle overlap each other, they are not joined, so they are still separate path components.

## 3.7 PHOTOSHOP TOOLS

Photoshop tools for Selection, Cropping, and Measuring

| Icon | Tool Name | Use |
|---|---|---|
|  | Move (V) | Moves selections or layers. |
|  | Marquee (M) | Makes rectangular, elliptical, single row, and single column selections. |
|  | Lasso (L) | Makes freehand, polygonal (straight-edged), and magnetic selections. |
|  | Quick Selection (W) | Make selections by painting. |
|  | Crop (C) | Crops an image. |
|  | Eyedropper (I) | Samples pixels. |

Retouching and Painting Tools

| Icon | Tool Name | Use |
|---|---|---|
|  | Spot Healing (J) | Removes imperfections. |
|  | Brush (B) | Paints the foreground color. |
|  | Clone Stamp (S) | Paints with a sample of the image. |
|  | History Brush (Y) | Paints with the selected state or snapshot. |
|  | Eraser (E) | Erases pixels—or reverts to a saved history state. |
|  | Gradient (G) | Creates a gradient. |
|  | Blur (no shortcut) | Blurs pixels. |
|  | Dodge (O) | Lightens pixels in an image. |

Drawing and Type Tools

| Icon | Tool Name | Use |
|---|---|---|
| | Pen (P) | Draws a vector path. |
| T | Horizontal Type (T) | Creates a type layer. |
| | Path Selection (A) | Allows you to manipulate a path. |
| | Rectangle (U) | Draws vector shapes. |

Navigation Tools

| Icon | Tool Name | Use |
|---|---|---|
| | Hand (H) | Navigates the page. |
| | Zoom (Z) | Increases and decreases the relative size of the view. |

## 3.8 PHOTOSHOP LAYERS

Photoshop layers are like sheets of stacked acetate. You can see through transparent areas of a layer to the layers below. You move a layer to position the content on the layer, like sliding a sheet of acetate in a stack. You can also change the opacity of a layer to make content partially transparent. You use layers to perform tasks such as compositing multiple images, adding text to an image, or adding vector graphic shapes. You can apply a layer style to add a special effect such as a drop shadow or a glow.

**Organizing Photoshop layers**

A new image has a single layer. The number of additional layers, layer effects, and layer sets you can add to an image is limited only by your computer's memory.

You work with layers in the Layers panel. Layer groups help you organize and manage layers. You can use groups to arrange your layers in a logical order and to reduce clutter in the Layers

panel. You can nest groups within other groups. You can also use groups to apply attributes and masks to multiple layers simultaneously.

**Photoshop layers for non-destructive editing**

Sometimes layers don't contain any apparent content. For example, an *adjustment* layer holds color or tonal adjustments that affect the layers below it. Rather than edit image pixels directly, you can edit an adjustment layer and leave the underlying pixels unchanged. A special type of layer, called a *Smart Object*, contains one or more layers of content. You can transform (scale, skew, or reshape) a Smart Object without directly editing image pixels. Or, you can edit the Smart Object as a separate image even after placing it in a Photoshop image. Smart Objects can also contain smart filter effects, which allow you to apply filters non-destructively to images so that you can later tweak or remove the filter effect. See Nondestructive editing and Work with Smart Objects.

**Video layers**

You can use video layers to add video to an image. After importing a video clip into an image as a video layer, you can mask the layer, transform it, apply layer effects, paint on individual frames, or rasterize an individual frame and convert it to a standard layer. Use the Timeline panel to play the video within the image or to access individual frames.

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**Photoshop Layers panel overview**

The Layers panel in Photoshop lists all layers, layer groups, and layer effects in an image. You can use the Layers panel to show and hide layers, create new layers, and work with groups of layers. You can access additional commands and options in the Layers panel menu.

**Display the Photoshop Layers panel**

1. Choose Window > Layers.

**Choose a command from the Photoshop Layers panel menu**

1. Click the triangle in the upper-right corner of the panel.

**Change the size of Photoshop layer thumbnails**

1. Choose Panel Options from the Layers panel menu, and select a thumbnail size.

**Change thumbnail contents**

1. Choose Panel Options from the Layers panel menu, and select Entire Document to display the contents of the entire document. Select Layer Bounds to restrict the thumbnail to the object's pixels on the layer.

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**Convert background and Photoshop layers**

When you create a new image with a white background or a colored background, the bottommost image in the Layers panel is called Background. An image can have only one background layer. You cannot change the stacking order of a background layer, its blending mode, or its opacity. However, you can convert a background into a regular layer, and then change any of these attributes. When you create a new image with transparent content, the image does not have a background layer. The bottommost layer is not constrained like the background layer; you can move it anywhere in the Layers panel and change its opacity and blending mode.

**Convert a background into a Photoshop layer**

1. Double-click Background in the Layers panel, or choose Layer > New > Layer From Background.
2. Set layer options. (See Create layers and groups.)
3. Click OK.

Convert a Photoshop layer into a background

1. Select a Photoshop layer in the Layers panel.
2. Choose Layer > New > Background From Layer.

   Any transparent pixels in the layer are converted to the background color, and the layer drops to the bottom of the layer stack.

## 3.9 CHANNELS IN PHOTOSHOP

Channels are grayscale images that store different types of information:

- *Color information channels* are created automatically when you open a new image. The image's color mode determines the number of color channels created. For example, an RGB image has a channel for each color (red, green, and blue) plus a composite channel used for editing the image.
- *Alpha channels* store selections as grayscale images. You can add alpha channels to create and store masks, which let you manipulate or protect parts of an image.
- *Spot color channels* specify additional plates for printing with spot color inks.

- An image can have up to 56 channels. All new channels have the same dimensions and number of pixels as the original image.

The file size required for a channel depends on the pixel information in the channel. Certain file formats, including TIFF and Photoshop formats, compress channel information and can save space. The size of an uncompressed file, including alpha channels and layers, appears as

the right-most value in the status bar at the bottom of the window when you choose Document Sizes from the pop-up menu.

## 3.10 FILTERS IN PHOTOSHOP

It can use filters to clean up or retouch your photos, apply special art effects that give your image the appearance of a sketch or impressionistic painting, or create unique transformations using distortions and lighting effects. The filters provided by Adobe appear in the Filter menu. Some filters provided by third-party developers are available as plug-ins. Once installed, these plug-in filters appear at the bottom of the Filter menu.

Smart Filters, applied to Smart Objects, let you use filters non-destructively. Smart Filters are stored as layer effects in the Layers panel and can be readjusted at any time, working from the original image data contained in the Smart Object. To use a filter, choose the appropriate submenu command from the Filter menu. These guidelines can help you in choosing filters:

- Filters are applied to the active, visible layer or a selection.
- For 8-bits per-channel images, most filters can be applied cumulatively through the Filter Gallery. All filters can be applied individually.
- Filters cannot be applied to Bitmap-mode or indexed-color images.
- Some filters work only on RGB images.
- All filters can be applied to 8-bit images.
- The following filters can be applied to 16-bit images: Liquify, Vanishing Point, Average Blur, Blur, Blur More, Box Blur, Gaussian Blur, Lens Blur, Motion Blur, Radial Blur, Surface Blur, Shape Blur, Lens Correction, Add Noise, Despeckle, Dust & Scratches, Median, Reduce Noise, Fibers, Clouds, Difference Clouds, Lens Flare, Sharpen, Sharpen Edges, Sharpen More, Smart Sharpen, Unsharp Mask, Emboss, Find Edges, Solarize, De-Interlace, NTSC Colors, Custom, High Pass, Maximum, Minimum, and Offset.
- The following filters can be applied to 32-bit images: Average Blur, Box Blur, Gaussian Blur, Motion Blur, Radial Blur, Shape Blur, Surface Blur, Add Noise, Clouds, Lens Flare, Smart Sharpen, Unsharp Mask, De-Interlace, NTSC Colors, Emboss, High Pass, Maximum, Minimum, and Offset.

- Some filters are processed entirely in RAM. If you don't have enough available RAM to process a filter effect, you may get an error message.

## 3.11 RENDERING IN PHOTOSHOP

In the world of graphics and architecture, a rendering is the term used for a two-dimensional drawing that an artist creates to illustrate what a structure will look like once it has been built. From this term came the word render, which means "to make visible" or "to draw." With the advent of the digital age and the introduction of computer-aided design software like Photoshop, these terms have evolved to match the evolution of the tools available

**Rendering**

Rendering in Photoshop deals specifically with the process of taking a two-dimensional image of a three-dimensional subject and making the final image look as realistic as possible. This goal is achieved through the use of various lighting and shadowing effects, as well as the generation of environmentally appropriate light refraction and reflection. The use of any of these techniques is referred to as rendering. The term also applies to the process of adding texture to a surface within the image.

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**Render Filters**

Render filters are one of several categories of filter available for use in the Photoshop program. Filters are used both to perform editing tasks such as blurring or dimming images and to apply special effects like textures and distortions. Render filters create effects that deal specifically with light refraction and reflection, cloud and shadow generation and the application of fiber textures. Other filter types include blur filters, brush stroke filters, noise filters, pixelate filters and sketch filters.

**Rendering Uses**

The rendering process in Photoshop has many potential uses in the graphics-editing world. It can be used to create the illusion of a variety of fabrics such as satin or cotton fiber. It can also be used to change the time of day suggested by an image by adjusting the amount and

intensity of the lighting. It can generate realistic shadows and highlights in a flat image to create the impression of three dimensions.

## 3.12 TRANSFORMATION OF OBJECTS IN ADOBE PHOTOSHOP

After an object is inserted in a new layer, we can use Layer transformation commands to transform the object. To transform the layer or the selected fragment we can use one of the commands from the menu Edit - Transform. For example, the following commands: Scale, Rotate, Skew, Distort, Perspective, Rotate 180°, Rotate 90° CW, Rotate 90° CCW, Flip Horizontal, Flip Vertical. You can also use the command Free Transform from the Edit menu, which will help you to perform all transformations at one time. If you select the command Edit – Free Transform, the layer or the selected fragment will be enclosed in a frame with eight markers, and in the Options palette a number of parameters for adjustment will appear

**Scale** – to adjust the scale of the image within the area you should move one of the eight markers. To change the scale proportionally you should drag the marker in the corner keeping the Shift key pressed. You can enter values for the W and H parameters in percentage from the original size directly in the Options palette. For the size to be changed proportionally, you should activate the relation sign between the W and H parameters.

**Flip** – to flip an image you should move one of the markers behind the opposite marker. For example, if you drag the left marker all the way to the right side of the right marker, the image will flip horizontally. However, if all you want is to flip the image, you'd better use the commands Flip Horizontal and Flip Vertical from the menu Edit – Transform.

**Rotate** – to rotate an image you should bring the cursor to the marker in the corner so that the cursor transforms in a two-side rounded arrow, press the left mouse and keeping it pressed, drag the cursor. You can set the rotation angle in the Options palette using the Rotate parameter.

**Skew** – to skew an image you should drag the marker on the side, the upper and the lower marker keeping the Ctrl key pressed (Command in Mac). You can adjust the Skew transformation option in the Options palette setting the H and V parameters.

**Distort** – it is possible to distort an image by dragging a corner marker keeping the Ctrl key pressed (Cmd in Mac).

**Perspective** – to create a perspective you should drag a corner marker keeping the Ctrl and Shift keys pressed (Cmd and Shift in Mac).

## 3.13 STROKE A SELECTION IN PHOTOSHOP

Stroking in Photoshop CS6 enables you to create outlines of selections, layers, or paths. Stroking a selection creates a border around the selection. It's up to you to decide whether to put the border inside, outside, or centered on the selection. (Photoshop doesn't care.)
To stroke a selection, follow these steps:

1. In the Tools or Colors panel, choose a foreground color and make a selection of your choice.
2. Choose Edit→ Stroke.
3. In the Stroke dialog box, adjust the settings and the options.
    a. Width: You can select 1 to 250 pixels. You can also type a value by using another measurement, such as inches, but Photoshop converts it to pixel values before applying.
    b. Color: Click in the Color box to select the hue you want from the Color Picker.
    c. Location: Select where Photoshop should apply the stroke in relation to your selection border. The Inside option always gives you sharp corners on a rectangle. The Center and Outside options can result in blunt, mitered corners.
    d. Mode: This determines how the stroke color merges with other colors on the same layer.

e. Opacity: The default value is 100%. If you want the stroke to be semi-transparent, type another value.

f. Preserve Transparency: Select this option to apply the stroke only to no transparent pixels.

**4.** Click OK to apply the stroke.

## 3.14 ACQUIRING & IMPORTING IMAGES

**Acquiring Images**

There are several ways you can go about getting images into Photoshop:

- Create an image from scratch by choosing File>New in Photoshop
- Open an image file that already exists on your computer by choosing File>Open.
- Download an image from a website to your computer. You can usually do this by right-clicking on the image in your browser and choosing "Save Image As..." However, you need to be aware of copyright restrictions on any images you may which to use.
- Acquire an image from a digital camera either by downloading it with a cable or by using a media card reader. To use a media card reader, remove the media card from the camera, insert the card into the card reader, and plug the card reader cable into the computer (typically into a USB or firewire port). You can then drag the image files to the computer desktop.
- Scan an image using a slide scanner (for negatives or slides) or flatbed scanner (for prints).

**Importing Images into Photoshop**

When you acquire images in Photoshop Elements from media sources, such as CD-ROMs, DVDs, external hard drives, and your internal hard drive, the process is very similar to opening files from digital cameras. Insert a CD or DVD into the CD/DVD drive, and the Windows AutoPlay Wizard opens just like when you insert a media cartridge or connect a cable from your camera to your computer.

**Getting files from storage media**

Just cancel out of the wizard if a wizard launches and follow these steps:

1. Open the Organizer from the Welcome screen.
2. When the Organizer window opens, choose File→ Get Photos and Videos→ From Files and Folders.
3. Open the source drive from the listed drives.
4. Select images and click Get Media (from the Organizer) or Open (from one of the editing modes) to open the files in the Organizer or an editor.

## 3.15 IMAGE MODES

An image mode determines the number of colors that can be displayed in an image and can also affect the file size of the image. Photoshop Elements provides four image modes: RGB, bitmap, grayscale, and indexed color.

**Bitmap mode**

Uses one of two color values (black or white) to represent the pixels in an image. Images in bitmap mode are called 1-bit images because they have a bit depth of 1.

**Grayscale mode**

Uses up to 256 shades of gray. Grayscale images are 8-bit images. Every pixel in a grayscale image has a brightness value ranging from 0 (black) to 255 (white). Grayscale values can also be measured as percentages of black ink coverage (0% is equal to white, 100% to black).

**Indexed Color mode**

Uses up to 256 colors. Indexed-color images are 8-bit images. When converting into indexed color, Photoshop Elements builds a color lookup table (CLUT), which stores and indexes the colors in the image. If a color in the original image does not appear in the table, the program chooses the closest one or simulates the color using available colors. By limiting the panel of colors, indexed color can reduce file size while maintaining visual quality—for example, for a web page. Limited editing is available in this mode. For extensive editing, you should convert temporarily into RGB mode. When you choose a different color mode for an image in the Edit workspace (Image > Mode > [image mode]), you permanently change the color values in the image. You might want to convert into a different mode for several reasons. For example, you

may have an old scanned photo in grayscale mode in which you want to add color, so you would need to convert it into RGB mode. Before converting images, it's best to do the following:

- Edit as much as possible in RGB mode.
- Save a backup copy before converting. Be sure to save a copy of your image that includes all layers in order to edit the original version of the image after the conversion.
- Flatten the file before converting it. The interaction of colors between layer blending modes will change when the mode changes.

**RGB Color mode**

- The default mode of new Photoshop Elements images and images from your digital camera. In RGB mode, the red, green, and blue components are each assigned an intensity value for every pixel—ranging from 0 (black) to 255 (white). For example, a bright red color might have an R value of 246, a G value of 20, and a B value of 50. When the values of all three components are equal, the result is a shade of neutral gray. When the value of all components is 255, the result is pure white; when the value is 0, the result is pure black.

## 3.16 CANVAS AND IMAGE SIZE IN PHOTOSHOP

When working with an image-editing program, such as Adobe Photoshop, you can modify both the image size and canvas size of an image. While they sound similar, they modify the image in two different ways. When you modify the canvas size of an image, you either increase or decrease the amount of area of the image canvas. This means that adding to the canvas size will add blank area around the image (or fill it with the background color if there is only one layer). Conversely, if you decrease the canvas size, the image will be cropped, meaning you will lose some of the image depending on where you crop it.

When you modify the image size of an image, you change how large the image is. When you increase the image size, the image will appear bigger, and may become blocky or blurry if increased too much. Decreasing the image size will shrink the image, and may cause some detail to be lost. When you change the image size, you can also modify the image

resolution (in DPI), and stretch the image by unchecking the "Constrain Proportions" box. Unlike changing the canvas size, when you change the image size, the original image still fills the whole window.

So if you want to add more area to an image or crop a section of it, change the canvas size. If you want to shrink, expand, or change the resolution of an image, adjust the image size.

## UNIT – 4 (QUESTION BANK)

| | |
|---|---|
| 35 | Explain about Corel Draw. |
| 36 | What are the Menus in Corel draw? |
| 37 | What are the Tools in Corel draw? |
| 38 | Explain ruler bar. |
| 39 | What is vector graphics? |
| 40 | Explain Color palette. |
| 41 | Explain Transformations in Corel Draw. |
| 42 | Explain Weld Objects in CorelDraw. |
| 43 | Explain Intersection of Objects in Corel draw. |
| 44 | What is snapping objects? |
| 45 | Explain the special effects in Corel draw. |

## UNIT – 4 (NOTES)

### Overview of Corel Draw:

Coral draw is one of the most important applications used in designing through which you can design any type of picture, logo or monogram. This vector-based drawing program can be used to create an advertisement for any company, birthday cards, logos, Boucher and newspaper to World Wide Web Pages. CorelDraw offers a complete set of tools for creating much kind of drawings and multi page documents.

CorelDraw tools are designed to meet the demands of the graphic arts professional. Each of the tools used in CorelDraw has one special work associated with it. With these tools we can type and zoom the text, draw objects, fill circles and lines with colors and do many more things. If you are new to CorelDraw, the program may seem complex at first because it is so rich in features, but if you take it one step at a time you'll soon be creating impressive drawings.

**The CorelDraw Interface**

A program's interface refers to the way it looks and to the controls, dialog boxes and other components that enables you to interact with it. When you launch CorelDraw, the application window opens containing a drawing window. The rectangle in the center of the drawing window is the drawing page where you create your drawing. Although more than one drawing window can be opened, you can apply commands to the active drawing window only.

## Menu in Corel Draw

File edit view layout arrange effects bitmaps text tools window help.

File

NEW Creates a " New Blank document"

NEW FROM TEMPLATE

Creates a new document by using existing designed formats.

OPEN

Opens an existing or saved document

CLOSE

Close the active document without exiting the program.

SAVE

Saves the active file with its current file name, location and file format

SAVE AS

Saves an already saved file with different name and Format.

REVERT

Revert to the last saved version of a drawing

ACQUIRE IMAGE

Lets you scan something using the installed scanner.

IMPORT

Lets you import a bitmap or any other file into a document either directly or by linking it to an external file. When you link to an external file, edits to the original file are automatically updated in the imported file.

EXPORT

Lets you export and save images to a selected file format that can be used in other applications. For example, you can export a file to the Adobe Illustrator (AI) or GIF format.

SEND TO

Sends your active documents directly to various locations like My Documents, Mail Recipient, Creates shortcut for your file on desktop etc.

PRINT

Prints active document

PRINT MERGE

You can use the Print merge wizard to combine text with a drawing.

PRINT PREVIEW

Shows how a document will look when you print it.

PRINT SETUP

Lets you change the print settings.

PREPARE FOR SERVICE BUREAU

You can use the Prepare for service bureau wizard to guide you through the process of sending a file to a service bureau. The wizard simplifies processes such as creating PostScript and PDF files; gathering different pieces required for outputting an image; and copying the original image, embedded image files, and fonts to a user-defined location.

PUBLISH TO WEB

It provides several options for publishing your document or selection for use on the World Wide Web. You can choose several options such as image format, HTML layout, export range, and file transfer protocol (FTP) site parameters for uploading your files.

PUBLISH TO PDF

Lets you export or save your file in a PDF file format. The Portable Document Format (PDF) is a file format designed to preserve fonts, images, graphics, and formatting of an original application file. Using Adobe Acrobat Reader and Adobe Acrobat Exchange, a PDF file can be viewed, shared, and printed

DOCUMENT INFO

Gives you detailed information about your active document.

EXIT

To close the active document and exit the Corel draw.

## Tools in Corel draw

he various tools available in the toolbox are explained below in Table 1.2.

| Tool | Name | Description |
|---|---|---|
| | Pick tool | Lets you select and transform objects. |
| | Shape tool | The Shape tool lets you edit the shape of objects. |
| | Zoom tool | The Zoom tool lets you change the magnification level in the Drawing window. |
| | Freehand tool | The Freehand tool lets you draw lines and curves. |
| | Rectangle tool | The Rectangle tool lets you draw rectangles and squares. |
| | Ellipse tool | Lets you draw ellipses and circles. |
| | Pentagon tool | Lets you draw polygons and stars. |
| | Basic shapes tool | Lets you choose from a full set of shapes, including hexagram, a smiley face, and a right-angle triangle. |
| | Text tool | Lets you type words directly on the screen as artistic text or a paragraph text. |
| | Interactive distraction tool | Lets you apply a Push or Pull distortion, a Zipper distortion, or a Twister distortion to an object. |
| | Eyedropper tool | Lets you select a fill from an object on the Drawing window. |
| | Outline tool | Opens a flyout that lets you set the outline properties. |
| | Fill tool | Opens a flyout that lets you set fill properties. |
| | Interactive fill tool | Lets you apply various fills. |

## Using the rulers

You can display rulers in the drawing window to help you draw, size, and align objects precisely. You can hide the rulers or move them to another position in the drawing window. You can also customize the ruler settings to suit your needs. For example, you can set the ruler origin, choose a unit of measure, and specify how many marks or ticks appear within each full unit mark. By default, CorelDRAW applies the units used for the rulers to the duplicate and nudge distances. You can change the default and specify different units for these and other settings. For information about nudging, see Positioning objects.

**To hide or display the rulers**

• Click View ▸ Rulers.

A check mark beside the Rulers command indicates that the rulers are displayed.

**To move a ruler**

• Hold down Shift, and drag a ruler to a new position in the drawing window.

**To customize ruler settings**

1. Click View ▸ Setup ▸ Grid and ruler setup.
2. In the **Document** list of categories, click **Rulers**.
3. In the **Units** area, choose a unit of measure from the **Horizontal** list box.

If you want to use a different unit of measure for the vertical ruler, disable the **Same units for horizontal and vertical rulers** check box, and choose a unit of measure from the **Vertical** list box.

4. In the **Origin** area, type values in the following boxes:
   - **Horizontal**
   - **Vertical**
5. Type a value in the **Tick divisions** box.

## Vector Graphics

Vector graphics is the creation of digital images through a sequence of commands or mathematical statements that place lines and shapes in a given two-dimensional or three-dimensional space. In physics, a *vector* is a representation of both a quantity and a direction at the same time. In vector graphics, the file that results from a graphic artist's work is created and saved as a sequence of vector statements. For example, instead of containing a bit in the file for each bit of a line drawing, a vector graphic file describes a series of points to be connected. One result is a much smaller file. At some point, a vector image is converted into a raster graphics image, which maps bits directly to a display space (and is sometimes called a *bitmap*). The vector image can be converted to a raster image file prior to its display so that it can be ported between systems.

A vector file is sometimes called a *geometric* file. Most images created with tools such as Adobe Illustrator and CorelDraw are in the form of vector image files. Vector image files are easier to modify than raster image files (which can, however, sometimes be reconverted to vector files for further refinement).

Animation images are also usually created as vector files. For example, Shockwave's Flash product lets you create 2-D and 3-D animations that are sent to a requestor as a vector file and then rasterized "on the fly" as they arrive.

## Color Palette

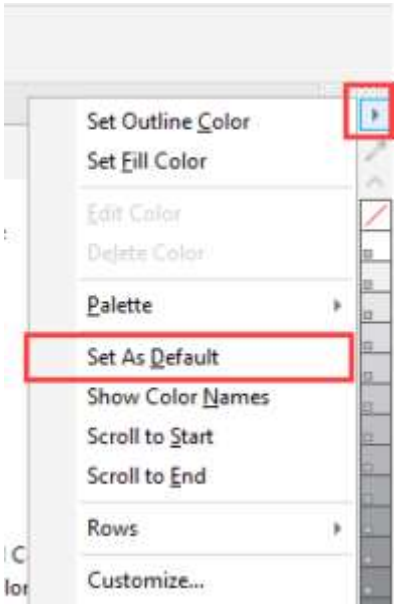
A color palette is a set of colors in a group meant to be used for a certain kind of output. You use them to apply FILL and OUTLINE colors to text and objects. The primary color groups or models are RGB, CMYK and SPOT color. Some common uses for these color models are:

- CMYK colors are for offset
- RGB are for web graphics, digital printing, sublimation and laser engraving
- SPOT colors for screen printing, vinyl cutting and some other printing methods. Some colors cannot be printed in CMYK so a SPOT COLOR will be used to acquire an exact color match.

Each kind of color has specific values or name. This blue color all looks the same but there are actually 3 different color models.

Palette Options

At the top or left end of all palettes (depending on if the palette is docked horizontally or vertically) is a small black arrow (flyout button) to open the palette options.




You can set a palette as the default palette, choose to show color names on the swatches, or have the palette displayed in 1, 2 or 3 rows. And if you click on Customize in the flyout menu, you have further palette options available such as large swatches and wide borders.

**The Document Palette**

The Document palette contains the colors used in your current document and appears in the bottom left corner of the interface, above the status bar. Every time you use a color in your document it's automatically added to the Document palette – even if you later change the color or remove it from your document. If you have removed colors from your Document palette, or added a bitmap, you can choose to reset your color palette. Click on the flyout arrow and select Palette **>** Reset Palette**.** This will then give the opportunity to add colors from a bitmap. However, if you prefer to control which colors are added to the Document palette, you can disable the automatic updates and add colors manually by dragging colors from your document down into the palette. To disable automatic updates, click on the flyout arrow and select Customize**.** Uncheck the setting Automatically update the document palette**.**

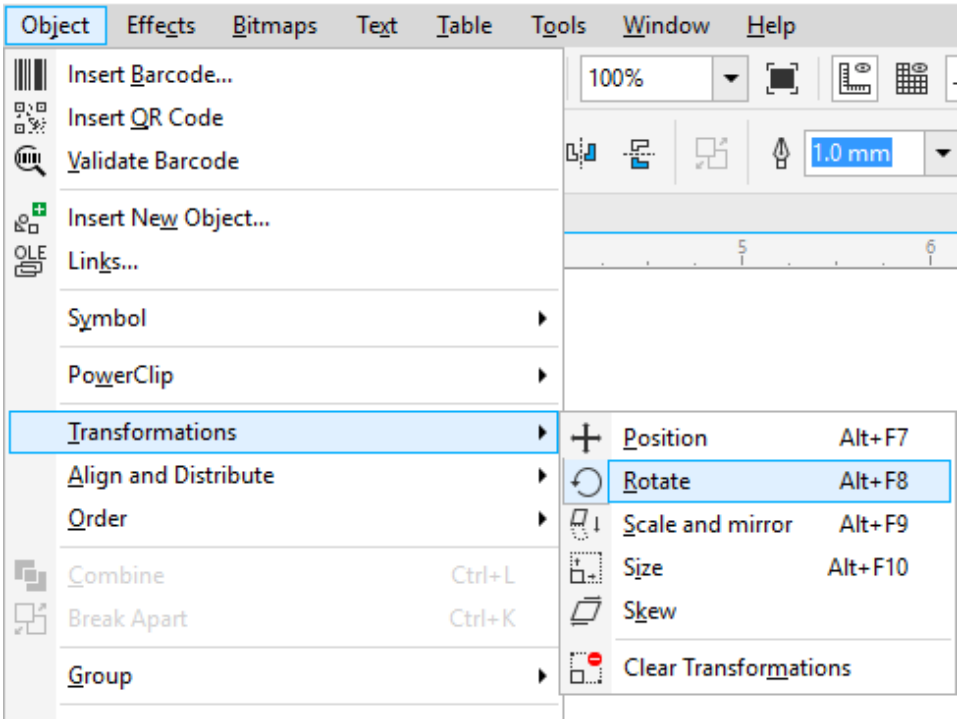
The Document palette is open by default but if you don't see it, go to Window > Color Palette **>** Document Palette to open it.

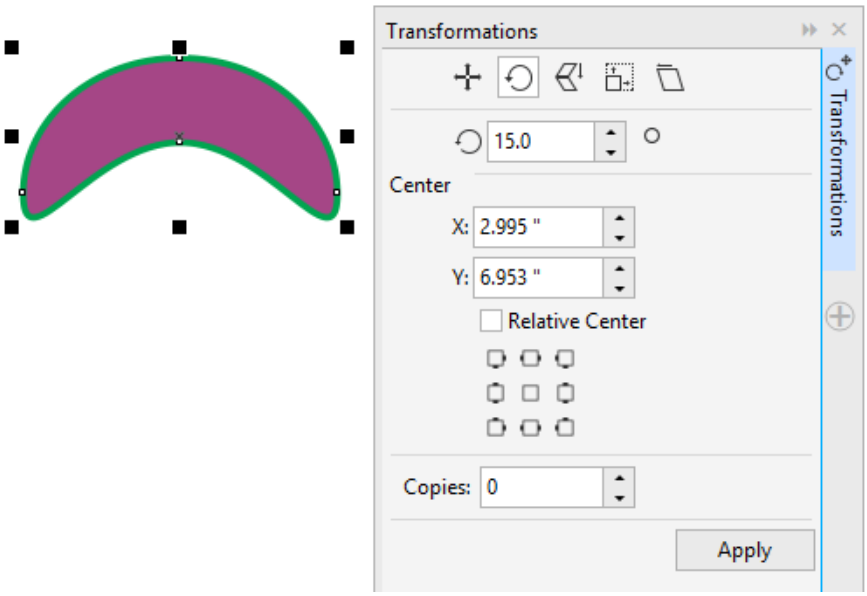
The Document palette is saved with the document so that if you take the file to a different system, you will have it there as well.

## Transformations in Corel Draw:

Use the Transformations ducker in CorelDRAW to position, rotate, scale, mirror, and skew objects with ease and precision. You can transform selected objects, and you can transform copies of the selected objects, leaving the original objects unchanged.

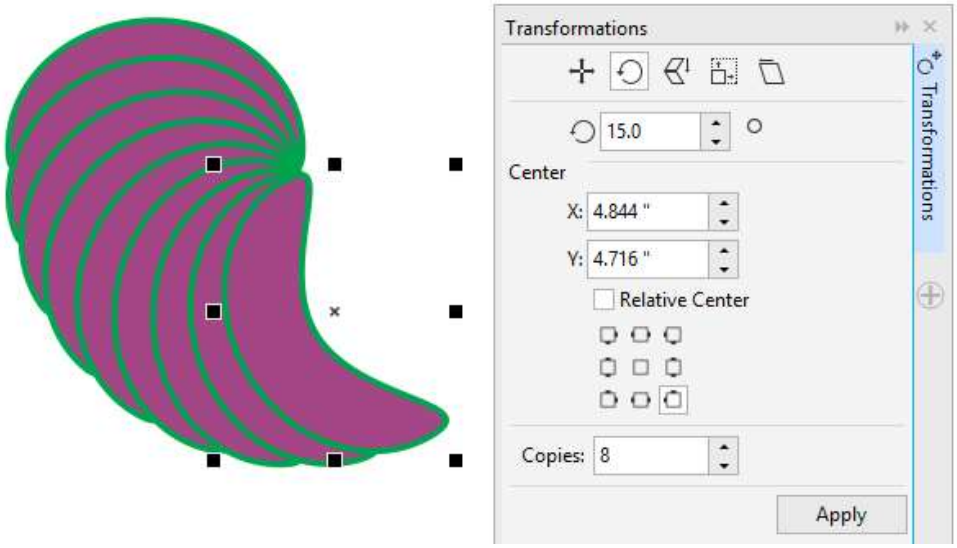
1. Select the object.
2. Click Object menu > Transformations, and click a command. The Transformations docker opens at the page that corresponds to the command you selected (the Rotate page in the following example).






3. Do any of the following:

- Type the values you want, and click **Apply**. The selected object is transformed.
- To apply the transformation to an object's copy leaving the original object untouched, hold down **Shift**, and click **Apply**.
- To apply the transformation to multiple object copies, type a number in the **Copies** box, and click **Apply**.



## Weld Objects in CorelDraw

Welding objects together in CorelDraw creates one object with a single line. In this example, three separate shapes were joined to make one shape. Follow these three steps to weld objects:

1. Select all the objects by holding down the shift key and clicking on each shape. You can also just drag the selection tool over all the objects. (Image 1)
2. Click Arrange > Shaping > Weld (Image 2) or use the Weld button located in the property bar. (Image 3)
3. The new object will take on the fill and outline properties of the “target” object. The “target” object is the first object you created or the last of all the objects you select by holding down the shift key and clicking on each object.

## Intersection of Objects:

1 . Select the source object.

2 . Hold down Shift, and select the target object.

3 . Click Object ▸ Shaping ▸ Intersect.

In the Classic workspace, this command appears under the Arrange menu.

To intersect multiple objects

1 . Marquee select the source object or objects.

2 . Hold down Shift, and click each target object.

3 . Click Object ▸ Shaping ▸ Intersect

## Snapping objects

When you move or draw an object, you can snap it to another object in a drawing. You can snap an object to various snap points on the target object. When you move the pointer close to a snap point, the snap point becomes highlighted, which identifies it as the pointer’s snapping target. You can snap objects to other objects, to page elements (such as the center of the page), to the document grid, pixel grid, baseline grid, or the guidelines.

To snap an object to another object with greater precision, you can first snap the pointer to a snap point in the object, and then snap the object to a snap point in the target object. For example, you can snap the pointer to the center of a rectangle, drag the rectangle by the center, and then snap the rectangle to the center of another rectangle.

| Snapping mode | Description |
|---|---|
| Node | Lets you snap to a node on an object |
| Intersection | Lets you snap to a geometric intersection of objects |
| Midpoint | Lets you snap to a line segment midpoint |
| Quadrant | Lets you snap to points that are at 0°, 90°, 180°, and 270° on a circle, ellipse, or arc |
| Tangent | Lets you snap to a point on the outside edge of an arc, circle, or ellipse where a line touches, but does not intersect, the object |
| Perpendicular | Lets you snap to a point on the outside edge of a segment where a line is perpendicular to the object |
| Edge | Lets you snap to a point that touches the edge of an object |
| Center | Lets you snap to the center of the closest object (arc, regular polygon, or curve centroid) |
| Text baseline | Lets you snap to a point on the baseline of artistic or paragraph text |

## Giving Effects in Corel Draw:

Transform an average design into an amazing design with a variety of special effects tools in CorelDraw Graphics Suite. With a versatile toolbox at your fingertips, you can decide how subtle or how grand your special effects will be for each design project. CorelDRAW is proud to feature four pressure-sensitive Liquid tools—Smear, Attract, Repel and Twirl—that give you the creative edge for retouching photos.

Apply several camera effects to adjust the color and tone of your photos, including Bokeh blur, Colorize, Sepia toning and Time Machine. These visually stunning special effects allow you to recreate popular photographic styles from the past with seven unique visual and historic styles that range from 1839 to the 1960s. Enjoy even more ways to enrich your images with RAW file support for over 300 types of cameras. Your design combinations are endless with this diverse collection of special effects. Here are some additional special effects can easily incorporate into your everyday drawings:

- **Shape tools**
- **Freehand Pick tool**
- **Quick Pan tool**
- **Drop Shadow tool**

What can these special effects tools do for you?

**Shape tools**

Reap the benefits from four new shaping tools that provide creative special effects options for refining your vector objects, including the Smear tool, Twirl tool and the Attract and Repel tools.

**Freehand Pick tool**

Save time by gaining greater control over object selection and transformation, especially when working with curved objects and non-linear shapes. See how the Freehand Pick tools allow you to easily isolate and manipulate an object. A very popular special effects tool!

**Quick Pan tool**

With a single click, you can bring out the pan hand to quickly pan around your image while maintaining your same zoom level. It's a brilliant way to get a visual overview of your entire project.

**Drop Shadow tool**

Learn how to create a chiseled wood carving special effect with the Drop Shadow tool. Watch how easy it is to apply a cool chiseled effect to your text.