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Qno1. Name different types of print techniques. Hence also give short introduction about print history.

Ans1. Introduction:

Printing is essentially the process of images and text reproduced through a template or master form. If there is an invention so crucial and vital in the life of humans, it must be the ability to print. Through printing we are able to produce in huge numbers magazines, newspapers, books, photographs, leaflets and many other publications. It has played the grand and vital role of promoting knowledge and literacy across the divide in basically any part of the world.

history of printing:

East Asia:

The history of printing is believed to start in East Asia, where the woodblock printing technique of patterns, images and text printing was highly in use. The technique started in China, mostly as a way to print on textiles before the same was done on paper. The earliest prints on cloth in China go back beyond 220 A.D. In contrast, Roman Egypt woodblock printing goes back around the 4th century. By the 9th century, China had started printing on paper with the first ever completed extant printed book with its own date printed by 868 A.D., known as the *Diamond Sutra*. More than 400,000 copies of Pictures and sutra copies had been printed by the 10th century at a time when the classics of Confucius were also in circulation. After this development in China, printing spread into Japan and Korea, where the Chinese logograms were used.

Middle East:

In Arabic Egypt, block printing developed in the 9th and 10th centuries, mostly for amulets and prayers. Most of them were not just printed on wood, but also on clay, lead and tin.

Europe:

Block printing was the first form of printing to enter Europe, mostly as a way of printing motifs on cloth and by the 14th century, it was a common development. Mid-15th century saw woodcut books and block books being printed with both images and text, mostly carved on a single block and were mostly affordable alternatives to books and manuscripts printed on a movable printing method.

Printing Processes: There are five main methods of printing a fabric, these being the block, roller, screen, heat transfer and ink-jet methods. The heat transfer method differs from the others in that it involves the transfer of colour from the design printed on paper through the vapour phase into the fibres of the fabric. With the other methods the dye or pigment is applied to the fabric surface through a print paste medium. The ink jet printing process however is a comparatively recent innovation and is referred to as a 'non-impact' method, because the print paste is fired on to the textile from a jet which is not actually in contact with the fabric.

Block printing:

The blocks are usually made of wood and the design is hand carved, so that it stands out in relief against the background surface. The print paste is applied to the design surface on the block and the block then pressed against the fabric. The process is repeated with different designs and colours until the pattern is complete.

Block printing is a slow, laborious process and is not suitable for high volume commercial use. It is a method still practised in the oriental countries where markets exist for the types of printed fabrics produced.

Roller printing:

Roller printing has traditionally been preferred for long production runs because of the very high speeds possible. It is also a versatile technique since up to a dozen different colours can be printed simultaneously. The basic roller printing equipment, shown in below figure, consists of a number of copper faced rollers in which the design is etched. There is a separate printing roller for each colour being printed. Each of the rollers rotates over the fabric under

pressure against an iron pressure roller. A blanket and backing cloth rotate over the pressure roller under the fabric and provide a flexible support for the fabric being printed. A colour doctor blade removes paste or fibres adhering to the roller after contact with the fabric. After the impression stage the fabric passes to the drying and steaming stages.

Screen printing:

This type of printing has increased enormously in its use in recent years because of its versatility and the development of rotary screen printing machines which are capable of very high rates of production. An additional significant advantage is that heavy depths of shade can be produced by screen printing, a feature which has always been a limitation of roller printing because of the restriction to the amount of print paste which can be held in the shallow depth of the engraving on the print roller. Worldwide, some 61% of all printed textile fabric is produced by the rotary screen method and 23% by flat screen printing.

There are two basic types of screen-printing process, the flat screen printing and the rotary screen-printing methods.

Heat transfer printing:

Transfer printing techniques involve the transfer of a design from one medium to another. The most common form used is heat transfer printing in which the design is printed initially on to a special paper, using conventional printing machinery. The paper is then placed in close contact with the fabric and heated, when the dyes sublime and transfer to the fabric through the vapor phase.

Ink-Jet Printing:

There has been considerable interest in the technology surrounding non-impact printing, mainly for the graphic market, but the potential benefits of reductions in the time scale from original design to final production has led to much activity in developing this technology for textile and carpet printing

processes. The types of machines developed fall into two classes, drop-on-demand (DOD) and continuous stream (CS).

Qno2. What is roller printing?

Ans2. Roller printing:

Roller printing also called direct printing, method of applying a coloured pattern to cloth, invented by Thomas Bell of Scotland in 1783. A separate dye paste for each colour is applied to the fabric from a metal roller that is intaglio engraved according to the design. The technique can be used with almost any textile fabric.

1. In this machine counterpart of block printing, engraved Cu cylinders or rollers are used in place of hand carved blocks. θ In this method, a heavy copper cylinder (roller) is engraved with the print design by carving the design into the copper. θ Copper is soft, so once the design is engraved, the roller is electroplated with chrome for durability.
2. Roller-printed cotton cushion cover panel, 1904
3. ENGRAVED COPPERPLATE PRINTING θThe printing of textiles from engraved copperplates was first practiced by Bell in 1770. θIt was entirely obsolete. θThe presses first used were of the ordinary letterpress type, the engraved plate being fixed in the place of the type. θIn later improvements the well-known cylinder press was employed; the plate was inked mechanically and cleaned off by passing under a sharp blade of steel; and the cloth, instead of being laid on the plate, was passed round the pressure cylinder.
4. θThe plate was raised into frictional contact with the cylinder and in passing under it transferred its ink to the cloth. θThe great difficulty in plate printing was to make the various impressions join up exactly; and, as this could never be done with any certainty, the process was eventually confined to patterns complete in one repeat, such as handkerchiefs, or those made up of widely separated objects in which no repeat is visible, like, for instance, patterns composed of little sprays, spots

5. It gives higher production without rotary screen-printing machine. 14 colours can be used for printing. Even Medium designs can be produced. It can be used for printing any style. Any colour is used for printing without higher alkali or conc. acid. Higher production by using single colour. Complex design is possible.
6. OPERATION: This machine has a main cylinder that is fitted with a large gear. In this printing, the print paste is supplied from reservoirs to rotating copper rollers, which are engraved with the desired design. These rollers contact a main cylinder roller that transports the fabric. By contacting the rollers and the fabric, the design is transferred to the fabric.
7. θ ENGRAVED ROLLERS: Solid and shell engraved rollers are available which varies in length. When the copper engraved rollers are chromium or nickel plated their lives can be considerably lengthened.
8. As many as 16 rollers can be available per print machine, each roller imprints one repeat of the design. As the roller spins, a doctor blade in continuous mode scrapes the excess of paste back to the colour trough.
9. θ DOCTOR BLADES: Colour doctor is made of steel. It consists of a sharp steel blade and has a razor like edge, which rests on the engraved roller. The other edge is clamped between two brass plates and screwed together. The doctor blade is given a to and from motion parallel to the direction of the roller axis to prevent unequal wear and tear of the blade edge which is done by the transverse motion.
10. At the end of each batch the paste reservoirs are manually emptied into appropriate printing paste batch containers and squeezed out. The belt and the printing gear (roller brushes or doctor blades, squeegees and ladles) are cleaned up with water.
11. θ LINT DOCTOR: The lint doctor is made of brass No transverse motion is imparted to it. Its purpose is to pick up loose cotton fibres attached to the engraved roller, which otherwise would find their way into the printing paste in the colour box. θ LAPPING: This is covering of the central pressure bowl and is made up of a special fabric of linen warp and worsted weft. Eight to twelve layers of the fabric are wound on the bowl to free from creases.

12. **ØBLANKET:** It is a thick woollen cloth tightly woven and felted. It is of uniform texture, elasticity and of equal thickness. This increases the elasticity of the lapping and it circulates continuously round the pressure bowl between the lapping and cloth to be printed. After continuous use the blanket becomes hard and soiled by the paste penetrating into it and must be either turned or replaced.
13. **ØBACK GREY:** When the woollen blanket is used unbleached cotton, cloth is run between the blanket and the cloth to be printed protects the blanket from the paste passing through the cloth. It is not necessary when the washing blanket is employed. It is wound on a roller and after printing it leaves the machine and is wound again on another roller. After use it is taken for bleaching and may be used for printing.

Qno3. As an apparel designer what should be kept in mind during making of prints for teenagers?

Ans3. Many fashion designers who think of starting a clothing line make some mistakes and end up closing their shops. You may be a talented clothing line designer but that does not automatically make you a successful businessperson. When starting a business, you should stick to some basics to run your venture successfully.

You may be up to starting a clothing line that designs and markets apparel merchandise such as shirts, t-shirts, skirts, dresses, pants, and accessories like jewellery, gloves, and socks. But you should pay attention to the basics of running your apparel line business successfully. For instance, as a skilful graphic designer, you create amazing t-shirt designs, but to sell your t-shirts, you need to learn some business skills as well.

If you have no or little experience of doing a business, pay attention to some basics to avoid the mistakes others made. An overwhelming number of businesses fail simply because they do not abide by some basic things required to run a company successfully. According to the Bureau of Labour Statistics, about 50% of small businesses fail in their fifth year, while 20% fail in their first year. You would not like to see your fashion start-up to be in this list of failed businesses.

- 1. Know Your Niche Well:** First, determine your field of expertise in the fashion industry. For example, if you have an experience of creating bag & tote design, focus on selling these items only. Similarly, if people appreciate your t-shirt design, start your print t-shirt business by manufacturing, marketing and selling such design merchandise. Avoid marketing those clothing and apparel fashion items you have not design before, when starting a clothing line. This is because you may be designing most of the fashion products in the initial days of your small business.
- 2. Identify your target audience:** Many fashion start-ups fail because they do not know much about their target customers before starting a clothing line. Avoid making this mistake. Research your target customers social, financial, educational, and other backgrounds. This information will help you in designing and producing your clothing line as per the choice and needs of your customers. Do not try to sell one product to every section of the population. For example, if you identify teenagers as your target consumers, then you should create fashion items as per their choice of colours, trends, etc. Knowing your target audience is also important from the marketing point of view. For example, if you identify college students as your primary customers, you will think of placing an advertisement in college newspapers. If middle-age people are target buyers of your fashion products, you will use a different advertisement strategy. Similarly, you will adopt different graphic design strategies as well. For example, in case your fashion business targets young people, your brochure design will have trendy colours and other elements. So, know your customers well.
- 3. Find Out the Exact Cost:** According to a study by a U.S bank, 82% of small business fail because of their cash flow problem. Lack of funding is surely one of the reasons for many businesses closing early without realizing their full potential. To avoid such a situation when starting a clothing line, have a realistic account of how much finance you need to set and run your company. Write down all your essential expenditures such as payment of employee salaries, purchasing of office furniture

and equipment, raw material and other supplies, and postage. Do not forget the expenditure you need to make for creating marketing materials such as business card, that you will distribute to your clients. Moreover, your company may not be able to start earning right away. Clients may also delay your payment. Keep some funds aside to meet unforeseen expenses. So, find out the ways to have funds for your fashion enterprise. You should consider applying for a bank loan. You can also think of getting financial help from investors or angels.

4. **Set your pricing right:** After starting a clothing line you would probably want to make your start-up profitable. Make sure that pricing of your fashion items is right. You will earn a profit when you generate more revenue than your fixed and variable expenditures. You have already made a one-time investment on fixed items such as office furniture. But other expenditures such as salary payments and buying your raw material will be made regularly. Keep these costs in mind when determining the prices of your fashion items. Generally, business owners set their wholesale and retail rates way higher than their expenses. You can think of fixing your prices at such high level that you earn a profit margin of 30-50% over your total expenses on running the business.

5. **Create A Memorable Business Logo:** When you start a clothing line, your potential customers will get a first impression of your fashion business by looking at your company's logo. A logo is not just a business symbol of a company, but it's an identity mark. A professionally designed logo has the power to drive customers. This is because people react emotionally to the colours, typefaces, tagline, images etc. elements of a logo. Fashion logo of a company should have vibrant colours depending on the type of fashion products it makes and sells. A well-designed logo conveys a brand message of the company. So, create your fashion logo design considering your business message for the customers and incorporate colours, typefaces etc. elements accordingly. There are crowdsourcing sites like Design hill that will create a professional fashion logo as per your design brief. Design hill is a leading graphic design marketplace where

clients launch their design contests such as logo design contest. Hundreds of graphic designers work on these design projects to win the contests. But ensure that your company has a unique logo that stands out from the crowd.

6. Ensure an Online Presence Of Your Business: Another major requirement for starting a clothing line successfully is to put it on the web. Most of your consumers make search for fashion products online. A good online presence of your fashion business is therefore essential to do business.

However, a basic requirement to do online business is to create a website for your fashion company. Your e-commerce website should provide consumers all information such as your fashion products or services, pricing, images of products, product descriptions, and contact information etc. So, when you start a clothing business, you must have a user-friendly website for your business to drive online traffic toward your company's site.

7. Find A Business Partner: A way to run your business smoothly is to find someone who can work side by side with you. In other words, get some business partner who can share your burden of running a company. The partner should have some experience of a fashion business. Find someone whom you can trust.

8. Build your brand: One of the things to consider for attracting a consistent stream of customers is to build your fashion brand. You will need to devote a lot of time for your brand building exercise. A business becomes a brand when people start trusting its products or services. Spread a good word about your company's fashion products by using all platforms such as fashion events. Talk to the clients personally about your new fashion venture and tell how it stands out from other similar ventures in the market.

9. Create A marketing strategy: You cannot hope of starting a clothing brand without first having a sound marketing strategy in place. Your

fashion business will largely depend on your plans for reaching out to your target audience. To create a marketing plan, consider exploring all the platforms as fashion events taking place in your locality. Meet the clients and invite them to have a look at your new fashion products. You should think of using some of the well-known fashion designers to your advantage. Send them your clothing apparel and other products for their review. A favourable word by them for your fashion brand will enhance the reach of your business in the market. Think of building a social media marketing strategy as well. Your potential consumers are on social channels like Twitter and Facebook. Your business must be visible to the consumers on major social channels. Make a strategy to engage them with your fashion products on different social media platforms.

- 10. Learn from mistakes Quickly:** You will make mistakes while starting a fashion line. Learn from those mistakes quickly and do not repeat. If some of your business strategies are not yielding results, then discard them and make new plans. Quick learners will always be ahead of their competitors in a market. For example, many small companies and individuals make the mistake of spending their cash too quickly on too many things when starting a clothing line. You may need money for an urgent buying of raw material to meet some orders from clients. If you are a supplier of fashion design products, ask the manufacturers and wholesalers for deposits in advance. So, be a quick learner. To conclude, while starting a clothing line, research your niche, market, and consumers, make an effective marketing plan, get a memorable logo, ensure the online presence of your fashion products and learn fast from your mistakes.

