Embroidery is the art of using stitches as a decorative feature in their own right by embellishing fabric or other material with design stitches in strands of threads or yarns using a needle. Embroidery may also incorporate other material such as metal strips, pearls, beads, quilts and sequins (Namrata & Naik, 2008). It forms an art style of beautiful drawing, harmonious colour, sprightly line and elaborate needle skill. It is an expression of self, rendered with patience, brilliance and dedicated hard work.

The origin of Indian textiles can be traced to the Indus valley civilization. The art of embroidery is clearly of the Eastern origin and is of such ancient lineage that our knowledge of it stretches into pre-historic ages. The needlework tradition dates back to 2300 BC to 1500 BC and has been richly inherited by various regions, each having a special style and an individual inspiration. With the discovery of bronze needles at the site of Mohenjo-Daro (2500 BC to 1700 BC), it is evident that there was knowledge of needlecraft long ago (Crill, 1999).

Indian embroidery owes its amazing array to the resulting cross-fertilization of cultures. That is why practically all stitches known the world are employed in India. Delicately or densely patterned, with mutant or vibrant shades, these designs have universal appeal. Since the days of yore, this form of embellishments has threaded raiment with myth and lore, dazzling the eye with its mesmerizing beauty. The ancient Roman historians aptly called it ‘Painting with a Needle’ for it draws colours from the palette of nature to portray life in all variety (Lehri, 2006).

The regional and cultural diversity of regions can be easily noticed in their unique styles through the peculiar types of threads, colours and motifs related to nature, religion and everyday life of people-representing the culture and lifestyle of their
community. Each state in India is unique by itself as far as embroidery and its variegated designs are concerned. Today all over India classic embroideries are practiced by different castes and classes viz. Kantha of Bengal, Kashida of Bihar, Kutch and Kathiawar of Gujarat, Chamba Rumal of Himachal Pradesh, Kasuti of Karnataka, Kashida of Kashmir, Embroidery of Manipur, Appliqué craft of Orissa, Phulkari of Punjab, Chikankari of Uttar Pradesh and Embroidery of Rajasthan (Naik & Byadgi, 2008).

**Embroideries of Rajasthan**

Embroidery of Rajasthan brings new character and dimension to any article that it graces. It is an ancient craft, which has changed over time to reflect the prevailing social, cultural and sometimes even the political mood of the times. It is the colour belt of western India and ornamentation of gold and silver metal work embroidery on the clothing represents opulence, power and dignity. In Rajasthan, some form of embroidery invariably embellishes the three garments worn by women, the *kanchli*, *ghaghra* and *odhni*. Similarly men’s garments like the *angarkha*, *achkan* and *jama* also display certain elements of embroidery. It is also used to beautify the household items, like bedspreads, wall hangings and animal trappings. Earlier the embroidery was done for domestic use; it was by custom a feminine occupation (Bhandari, 2004).

Naik (1996) reported that metal falls in the kingdom of textile fibers, manmade of which gold and silver were most abundantly used in the field textile embellishments in ancient times. Gold and silver threads were lavishly used in the manufacturing of saris, precisely in the border and *pallav* region and to enrich the surfaces by embroidering both costumes and the associated accessories. The embroidery done with metal wires is called *Kalabattu* or *zari* work. Among the outstanding, famous and gorgeous embroideries, probably metal embroidery seems to be the earliest and the most ancient. Even in the Vedas and Epics references have been made on gold and silver embroidery. This fine work was skillfully done on the fine, light weight and the most durable muslin cloth, one of the world famous traditional textiles of India.

Metal embroidery a popular embroidery style of Rajasthan, found its patron in royalty. They preferred gorgeous garments embroidered in gold and silver because the embroidery is auspicious and also it represents wealth, power and importance.
The royalty was so patron of this style of ornamentation that they often employed it on a wide range of articles other than apparel, like footwear, belts, caps, cushion and even elephant caparisons and canopies.

Rajasthan is rich in its cultural heritage of metal embroidery so there is need in documenting this art which is directly related to the preservation of tradition and traditional wisdom. Historical database always serves as an indication of original form of any craft and provides better insight. Historical link from the past provides inspiration for modification and innovation in present and continuity to future.

**Documentation**

Documentation enables to understand the embroidery, to locate embroidery holistically in the larger socio-historical context, in terms of community, occupation, technology, market and trade linkages.

Documentation of motifs also serves as a baseline for more proactive interaction and movement into the realm of revitalization. Thus, documentation as a form of intervention is not merely an academic exercise where the oral history of craft traditions is studied and recorded, rather, it is critical in preventing the irreparable loss that takes place when an oral tradition or the practitioners of that tradition fades away. It can also involve reserving a way of life and attitudes in addition to a set of techniques passed down through the generations.

**Metal Embroidery**

The metal embroidery is of following types - *Zardozi*, *Gota work*, *Danke-ka-kaam*, *Mukke-ka-kaam* and *Aari tari*. Gold and silver metallic threads are drawn through a series of dies to obtain a fine thread. This can either be hammered flat or used as it is. It can be wound around a silken or cotton filament core to make it thread. Nowadays, electroplating with other metals also achieves similar effect.

Metal threads can be divided into two major categories: those that are hollow and are attached by passing sewing thread through them as if stitching on a bead, and couching threads that have solid core and held down with stitches across the metal (Everett, 2011).
**Zardozi**

Embroidery that uses pure gold and silver wire, *zari* is known as *Zardozi* and was, probably, derived from the Persian word *zar*, meaning gold and *dozi* means embroidery. *Zardozi* is one of the oldest and most beautiful embroidery styles of India. It is glittering ornate, heavily encrusted gold thread work practised in various part of the world. This work is also known as *karchobi*, which is derived from *karchob*. Jaipur, Ajmer, Tonk and Jodhpur are important centres for *zari* work in Rajasthan. *Zardozi* involves the use of gold threads, spangles, beads, seed pearls, wire, gota and kinari. The art of this embroidery is mostly passed on from father to son where certain skills are taught with utmost secrecy.

Painstakingly and delicately done by hand, creations in *Zardozi* work are timeless, unbounded by the shackles of trends. The original embroidery of *Zardozi* was done with pure silver wires coated with real gold, and was known as *Kalabatun*. The wire that came out of the furnace, although containing a lot of silver in it, glittered like gold. Though silver and gold wires have now been replaced with synthetic threads, the art remains the same (Naik, 1996).

**Gota work**

*Gota* work was patronised by the Mughals and spread to the courts of Jaipur and Jodhpur. The embroiderers of Jaipur, Bikaner, Ajmer, Udaipur and Kota are world famous for their uniquely styled *gota* work and the tradition continues today.

*Gota* is a band of gold or silver ribbon of that varies with width, woven in a satin weave. *Gota* work is very intricate. In real *Gota*, silver & gold metals are used. But in routine, the base metal is copper, coated by silver etc. Now the copper has been replaced by polyester film which is metalized and coated as per requirements. This has resulted in better quality at lower cost. This plastic *Gota* has good resistance to moisture and does not tarnish as compared to metal based *Gota*.

The raw material comprises of a yarn of silver polished with gold and passed under 10 calendars to make into fine strand called "Kasab" and further drawn under a calendar to give it a flattened effect known as "Badla". Badla was prepared by mixing 100 grams of silver 10 grams of gold, hammering the mixture into thin sheets and cutting into very fine strips. In recent years pure yarns are replaced by synthetic
yarns. The colors commonly used were red, orange, pink, magenta, maroon and yellow which are nowadays available in all possible shades as per the customer demand (Shrikant, 1998).

**Danke-ka-kaam**

Danke-ka-kaam is a speciality in terms of places like Udaipur. This craft is primarily distinguished by the use of small metallic square around which zardozi is done. The *danka* is a small square plate which is variable in size not bigger than 1.5cm. Although *danka* was originally made in gold, but nowadays silver plated with gold is also used (Mehta, 1994).

Previously, *danka* was also made with fine silver sheet, which was first warmed and then gold foil was applied to its surface and pressed. Nowadays, well finished, polished thin silver sheets of 98 percent purity are electroplated with gold strips of 30cm by 2.5cm are used. These are then washed in plain water and polished once again with granular sand. The strip is cut into 1.25 cm squares. The cost of the *danka* is calculated according to its weight (Bhandari, 2004).

**Mukke-ka-kaam**

Mukke-ka-kaam, a type of embroidery in Rajasthan extensively uses the gold and silver threads to make the fabrics even more attractive. The gold and silver metal threads are known as Mukke-ka-kaam that produces stunning embroideries that are used widely in Rajasthan. *Mukka* is the local name for metallic gold or silver thread that is wound around a core of cotton fibre. Both golden and silver *mukka* is used in this embroidery work. This style is mostly done in the Thar belt of Rajasthan. The metal thread for Mukke-ka-kaam is doubled, laid on the fabric and couched down by stitching with another thread (Rai, 2008).

**Aari Tari**

The name *aari* embroidery was derived from hooked needle used for embroidery known as *ari*. Literature record explains that the art of *ari* work was brought from Pakistan and taught the beautiful embroidery to the cobblers who were recruited by the ruling emperors in 16th century onwards. Their main occupation was to decorate the artefacts and apparel of royal family.
Zardozi and Aari are two classifications with a slight difference in needle holding. Zardozi is embroidered with simple hand needle thus involving more effort, while for the aari the needle is fixed in a stick, which makes the hole in the fabric and thread, can be pulled both ways.

In Aari tari embroidery outline of the motif was embroidered first followed by the field of the motif. Ari work is done with both coloured and golden thread. The thread is put on the tip of a pen-like needle which is passed through the cloth giving chain stitch-like impressions. This is also seen on velvet coverings, curtains, tent hangings and the coverings of animal carts and temple chariots.

Design Development
From time immemorial, it is a well recognised fact that we have rich cultural heritage. This heritage is nowadays under extinction so we must take efforts to preserve this cultural heritage of art and this was done by documenting the various traditions or by making blend of it with modern technology so that coming generations could know their ancient art. One cannot ignore the new markets and need of it. There was need to develop new designs and products, as nowadays fashion trends are fragile and consumer constantly demand innovative changes over existing designs.

The designer's role is to help research, analyse, categorize and document the craft tradition so that this knowledge will be protected and accessible. The designer works for the motifs, designs and techniques to be documented and so that it is made accessible to more users. Most often, artisans cannot afford to maintain references close at hand and hence they have never seen what their forefathers used to make. Their databanks are in their minds and at their fingertips. There is real danger of motifs, designs and traditions dying out due to change, under use, or even the death of a specialized artisan or craft family or group. The fact that many craft traditions are oral traditions make documentation even more critical. In the absence of any documentation, oral traditions, once lost, can never be revived. It is a permanent loss. It cannot be overemphasized that for any design interaction to be effective, it is necessary to study the traditions and develop an understanding of the constraints and parameters within which artisans operate.
Henceforth, efforts are made to preserve this cultural heritage of art and craft by creating stylised designs according to the market trends. To keep pace with the changing demands of the consumer taste and fashion, Computer Aided Designing is a boon in modern era through which varieties of motif and pattern can be designed.

**Computer Aided Designing**

Computer Aided Designing plays an important role in designing. The conventional method of designing was tedious, time consuming and laborious. The entire process of designing is revolutionised where previously designer used to labour over graph paper. The modern technique aims at simulation of conceived designing onto the monitor and this help in better visualisation of wide spectrum of designs. The possibilities of designing are endless with the introduction of Computer Aided Designing. It plays a vital role in facilitating the creations of new designs and improving existing designs. Manual design takes more than 15 days, where as Computer Aided Designing system reduces the time to day or two.

**Product development**

Design has an important role in economic and social change that does not stop at creating a new or better product. Design plays an important role in encouraging environmentally sustainable and economically viable model of craft activity and help in the empowerment of marginalized groups, especially in cases where income generation, social mobilization and community rehabilitation is needed. Designers work as catalysts, whether intervening to involve hitherto excluded groups in craft activity, or in helping existing artisans deal with new clients through education and training.

**Training**

Training is defined as the use of specific means to specify learning often with the use of techniques that can be identified and continually be approved (Janakiram, 2011).

Training is a pre-requisite tool for human resource development of any nation, communities or people. It stands equally true for women who are deprived of training opportunities in spite of extensive involvement in various activities. Training
needs act as a motivating force for positive impact of training on its beneficiaries. The status of any society can be gauged from the status accorded to the women. In India women are mostly dependent on their males, without whom they cannot do any work. Though they are equal in family welfare but their corporation remains unnoticed in comparison to the male. Women’s participation in income generating activities is believed to increase their status and decision making. They need to be empowered by skill training programme to enhance their knowledge in the field of designing.

Training plays an important role in generating employment opportunities for women in local areas and thus prevents them in searching jobs away from their homes. Increase knowledge of technical communication through a visual format to enhance issues related to precision and quality. Adoption of correct and effective methods helps to improve quality and consistency. Training will incorporate information and technique based inputs concerning materials and processes to encourage adoption of appropriate methods for better results.

Training create better understanding and appreciation among women about markets, products, processes, pricing, functionality, application potential, quality, product communication, consumer needs, scales of production, etc. through first-hand exposure, hands-on training, and consistent dialogue during the process of product development.

1.1 RATIONALE OF THE STUDY

Since India has rich cultural heritage most of which are reflected in costume and embroideries of various region of the country. Rajasthan is the colourful belt of western India and ornamentation of gold and silver metal embroidery on the clothing represents opulence, power and dignity. It is an ancient craft, which has changed over time to reflect the prevailing social, cultural and sometimes even the political mood of the times. It has a rich heritage of different types of metal embroideries i.e. Zardozi, Gota work, Danke-ka-kaam, Mukke-ka-kaam and Aari tari. The importance of this sector lies in fact that there is enormous scope and employment potential. Therefore there is great demand of this craft in India and abroad, there is need to pay attention to sustain and further improve this craft. It has also become necessity to
document the heritage of craft of metal embroidery of Rajasthan to create more awareness about lesser known craft which will be of greater cultural significance. There is not much information about the embroidery. To fill such gap the present study was taken up.

An effort was made to explore and preserve this cultural tradition of craft through documentation of the metal embroideries and exploring tools and techniques used in this embroidery of Rajasthan. The documentation of motifs are very essential and it will serve as a guide to craftsmen, as they embody the genius of indigenous talent perfectly synthesized from time to time to new cultural impacts. Through documentation, this collective variety of metal embroidery will be accessible to designers, artisans, academician and students. It can also involve conserving a way of life and attitudes in addition to a set of techniques passed down through the generations. Documenting a cultural heritage linked with a craft is directly related to the preservation of traditional art.

Historical database always serve as an indication of original form of any craft and provides better insight. It provides an inspiration for modification and innovation in present and continuity to future. Most Indian crafts are still practising the traditional style but some of our crafts need modern design inputs to increase quality and utility. Simple yet modern designs can help rural artisans in finding new buyers and better profit margins. The researcher collected motifs of traditional designs of different types of metal embroidery and created contemporary designs to suit the consumer needs for the present market demand. These days, fashion changes quickly and consumers constantly demand for new designs. Metal embroideries are used exclusively to create products as per the demand but have not been used in combination of all metal embroideries. The new designs developed in the present study are combination of two metal embroideries to form unique product for the acceptance by younger generation. It will also create awareness of the embroidery which are at the verge of extinction such as Danke-ka-kaam and mukke-ka-kaam.

The modern technique of Computer Aided Designing aims at simulation of conceived designing onto the monitor and this help in better visualisation of wide spectrum of designs. It plays a vital role in facilitating the creations of new designs.
of metal embroidery and improving existing designs. The design directory of motifs of metal embroidery will be beneficiary to the artisans, designers and others associated in the field of Fashion and Textiles.

The study further focuses to create an opportunity for women by providing them training on knowledge and skills about embroidery techniques. They need to be empowered through skill development to enable them to improve their status in society which is possible by making them economically independent. By gaining the knowledge and skill performance in embroidery it will generate employment opportunities and source of income for them. Value addition of the product with the help of embroidery would help women to start their work, earn money, and improve their livelihood. They can stay at home and work.

Different research evidences related to Gota work (Luniya and Bhalla, 2012), materials used in Zardozi, (Basant and Goel, 2013), historical overview of Kutch embroideries (Pandya and Dholakia, 2013), documentation of rare textile artefacts (Manek, 2012), use of phulkari motifs for knitting (Kaur and Gandotra, 2012), use of Gujarati motifs for weaving (Naik and Byadgi, 2010), development of product in Danka work (Babel and Kaur, 2010) and training women for skill development (Joshi, 2012) has been done.

Not many studies have been undertaken related to documentation of motifs of metal embroidery, socio-economic conditions of the artisans, tools and techniques used in this embroidery, contemporisation of motifs and product development through combination of two metal embroideries and training women for skill development. Hence an attempt is made to fill the lacuna.

Therefore keeping the above points in mind following objectives was framed.

1.2 The main objectives of the study were:

1.2.1 To document the metal embroidery motifs of Zardozi, Gota work, Danke-Ka-Kaam, Mukke-ka-Kaam and Aari Tari
1.2.2 To study the Socio-economic profile of artisans in metal embroidery
1.2.3 To study the raw material, tools and techniques used in metal embroidery
1.2.4 To prepare design directory of stylized designs with the help of Computer Aided Designing

1.2.5 To create a range of product using combinations of metal embroideries and assessing consumers acceptability

1.2.6 To impart training to the women for Skill development

1.3 Delimitation of the study:

1.3.1 Embroideries were restricted to five metal embroidery of Rajasthan-Zardozi, Gota work, Danke-ka-kaam, Mukke-ka-kaam and Aari tari.

1.3.2 The study was limited to 50 units.

1.3.3 For embroidery, imitation work was used.

1.3.4 Designing work was done only through Computer Aided Designing.

1.3.5 The product development was limited to only stole.