ADOPTION AND DEVELOPMENT OF DESIGNS FROM SCULPTURES OF AMARAVATHI (ANDHRA PRADESH) ON TEXTILES

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2018

DECLARATION

I, **B. SUVARNA,** hereby declare that the thesis entitled **"ADOPTION AND DEVELOPMENT OF DESIGNS FROM SCULPTURES OF AMARAVATHI (ANDHRA PRADESH) ON TEXTILES"** submitted to the **Acharya N.G. Ranga Agricultural University** for the degree of **Master of Science in Home Science** is the result of original research work done by me. I also declare that no material contained in the thesis has been published earlier in any manner.

Place : Guntur **(B. SUVARNA)**

Date : **I. D. No. GHM/2016-01**

CERTIFICATE

Ms. B. SUVARNA has satisfactorily prosecuted the course of research and that thesis entitled **"ADOPTION AND DEVELOPMENT OF DESIGNS FROM SCULPTURES OF AMARAVATHI (ANDHRA PRADESH) ON TEXTILES"** submitted is the result of original research work and is of sufficiently high standard to warrant its presentation to the examination. I also certify that neither the thesis nor its part thereof has been previously submitted by her for a degree of any university.

Date :

Chairperson
(Dr. D. ANITHA)

CERTIFICATE

This is to certify that the thesis entitled **"ADOPTION AND DEVELOPMENT OF DESIGNS FROM SCULPTURES OF AMARAVATHI (ANDHRA PRADESH) ON TEXTILES"** submitted in partial fulfillment of the requirements for the degree of **"Master of Science in Home Science"** of the **Acharya N. G. Ranga Agricultural University,** Guntur is a record of the bonafide original research work carried out by **Ms. B. Suvarna** under our guidance and supervision.

No part of the thesis has been submitted by the student for any other degree or diploma. The published part and all the assistance received during the course of investigations have been duly acknowledged by the author of the thesis.

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Date: ***(B. Suvarna)***

Place: Guntur

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LIST OF ABBREVIATIONS

Min	:	Minutes
g	:	Grams
%	:	Percentage
L	:	Liters
Kg	:	Kilogram
Km	:	Kilometer
Hr		Hours
m	:	Meters
etc	:	Similar other things
et.al	:	And other people
i.e.	:	That is

NAME	:	B. SUVARNA
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ABSTRACT

Amaravathi sculpture**,** flourished in the Andhra region of south-eastern India from about the 2nd century BC to the end of the 3rd century AD, during the rule of the Sātavāhana dynasty. Amaravati was a seat of Buddhism prior to the rise of Satavahanas, and a stupa and monastery was built there during the reign of Emperor Ashoka (269-232 BC) under Mauryan empire. The great stupa or *Mahachaitya at Amaravati* was one of the biggest in Andhra Pradesh done in Amaravati School of art and sculpture during the Satavahna period in 3rd century BCE. The sculptural wealth seen adorned the Mahacahitya is known for its superb reliefs, which are among the world's finest examples of narrative sculpture. Most of the Amaravati sculptures are made of limestone. Today, there are only a few slabs of the stone left in Amaravati. These structures are now replicated with cement. It is from these replicated sculptural pieces and information from net, different pictures of Buddhist sculpture were collected.

Out of many pictures collected, a total of 40 sculptural designs consisting of animal, birds, floral, creepers were identified. From the selected 40 motifs, twenty were selected for sarees and another 20 for dress materials. All 40 developed motifs were number 1-20 for sarees and 1-20 for dress materials and were placed for the selection of five best each for dress material and sarees. A panel of 30 judges critically evaluated the motifs using a questionnaire developed to identify the best five. Judges evaluation was analysed by using frequency and percentages and final 10 motifs were selected.

Selected motifs were modified using CorelDRAW X5 suitable for dress material and sarees either using a part of the motif or whole of the motif.

As kurti is a favourite of the adolescents, motifs were modified to suit the kurti material. Modified motifs were retained for dress material along with additional design for neck region or sleeve border to enhance the overall look of the kurti. In case of sarees, the modified motifs were further developed into designs as per the present trend with borders, pallu and butis in the saree.

Each motif/design was rendered in three colour ways for both kurti material and saree. Motif/design was shown in three different placements on both sarees and dress materials. For developing colour ways, colours that are used in Kalamkari painting of Srikalahasti were used with the help of CorelDRAW software. All the developed designs were evaluated by a panel of thirty judges for selection of one top preferred colourway and placement for each motif/design for both sarees and for dress materials.

Fabric of 100 per cent plain weave cotton in 90s X 65s count for sarees and 60s X 40s count for dress materials was sourced from Vijayawads, to render Kalamkari painting with sculptural motifs and designs. Sarees and dress materials were treated and painted using Kalamkari technique as per the preferred placements and colour ways using natural colours at Sri Kalahasti of Chittoor district. The cost of each saris was determined by adding the cost of fabric, painting material, and labour involved in tracing, painting and finishing.

The final products-Kalamkari painted saris and dress materials were assessed for consumer's acceptability on 11 different parameters. The selected five dress materials motifs numbers were 19, 20, 5, 2 and 1 were ranked I, II, III, IV and V respectively. Then, among the other 20 motifs for sarees, selected five motifs numbers were 2, 3, 4, 7 and 11 which were ranked as I, II, III, IV and V respectively. Consumer evaluation revealed that all the dress materials and sarees painted with Kalamkari technique were found to be very appealing and accepted on all the parameters of assessment. The cost of the dress materials and saris was rated appropriate by all the consumers. Thus, Amaravathi sculptural motifs adapted for development of designs for dress materials and saris have broaden the design base for textile products and could cater to the demands of high-end consumers through diversity of designs and unique technique of Kalamkari.

Chapter I

INTRODUCTION

Our traditional culture and history represents a unique and continuous beliefs and aesthetic sensibility which was retained throughout eras in the area of arts and crafts. Though new styles, ideas and techniques have evolved over years, the core essence was not sacrificed. The art of India is associated with a number of designs and patterns which are used as decoration on walls, temples and the monuments. Since ages, Kings have patronized and encouraged many arts and crafts and during their period, art, craft and sculpture flourished to a greater extent.

In the Indian subcontinent, sculpture seems to have been a favoured medium of artistic expression. The Indian sculptures reflect contemporary social life, and have close link with religion. As time progressed and new civilizations awakened, different themes were depicted in the sculptures. The materials with which this sculptures are made such as stone, marble, sandstone, clay and bronze offered the possibility to be durable and preserve the cultural characteristics of the bygone eras. The sculptural art is the vehicle to provide immense pleasure as well as aesthetic fulfilment in the observer's minds. It is seen that both the sculptural art and the religion are closely interrelated, therefore, it can be said that the auspicious sculptures are developed by the religious thoughts. One such art is the sculptural art of Buddhist sites found in many parts of the world.

Buddhist art is the artistic practices that are influenced by Buddhism. It includes art media which depict Buddhas, bodhisattvas, and other entities; notable Buddhist figures, both historical and mythical; narrative scenes from the lives of all of these; mandalas and other graphic aids to practice; as well as physical objects associated with Buddhist practice suchas vajras, bells, stupas and Buddhist temple architecture. Buddhist art originated on the Indian subcontinent following the historical life of Siddhartha Gautama and thereafter evolved by contact with other cultures as it spread throughout Asia and the world (https://en.wikipedia.org).

Buddha and other Buddhist deities have been interpreted widely in many different styles and materials. The great Buddhist Emperor Ashoka caused the erection of monolithic pillars of sandstone, 30 to 40 feet high, crowned by animal figures like the bull, lion and elephant, and had them inscribed with the Buddhist concepts of morality,

humanity and piety, which he wished his people to follow. In the early centuries Buddha was portrayed symbolically. About the 2nd century A.D. these symbols were replaced by images of the Buddha himself. Some of the storehouses of Buddhist art are the stupas which, in their earliest forms are moundlike shrines contained sacred relics surrounded by railings and sumptuously carved gate. (Radhakrishnan, 1956).

Buddhist art developed many styles during its history of ten centuries. Due to various factors, the once flourished art and craft has come on the verge of extinct. To protect this vanishing art, one of the most notable ways is through adaption of these traditional sculptural designs on to textile materials. Sculptural designs can be taken as an inspiration in developing designs suitable to the present day consumer requirements. To meet the ever growing demands of the consumer, these sculptural designs can be adopted and render them suitable for application on various textile materials.

Textile designing is the most demanding and emerging field as it has full scope of creativity. Adoption of design on to textiles can be done either through structural or decorative design. To adopt any design, designers take inspiration from various sources like nature and man-made objects, which are part of the near environment and that of past traditions. An inspiration can come from any stimulus that starts the creative process. Sources of inspiration are literally everywhere. Arts and crafts have gained as an important source of inspiration for the textile designers. To create such designs, adaption of crafts not only helps in the revival of it but also helps in bridging the gap between rural art and modern usage. It is the designer's artistic sensibility and interpretive style that brings creative design into being virtually alive. In order to develop a design, designers require good imagination, aesthetic sense for colour and detail and appreciation for beauty.

The common method of producing decorative design in the field of textiles includes various methods of printing, dyeing, embroidery, appliqué, trimmings, certain finishing methods and painting. Painting is an expression of ideas and emotions with the creation of certain aesthetic qualities, in a two-dimensional visual language. Painting is one of the most delicate forms of art giving expression to human thoughts and feelings through the media of line and colour. Painting is the practice of applying paint, pigment, colour or other medium to a surface. The unique thing about Indian painting is that they are usually representative and connected to highly significant religious forms as culture events.

Kalamkari is one such painting technique which is an exquisite form of textile art with a heritage dating back to the ancient times. Kalamkari is an ancient textile craft of India. It is traditionally hand painted or block printed on cotton fabric with vegetable dyes. The process is very slow and vigorous. It goes through a process of resist–dyeing and hand printing. The colours change depending on the treatment of cloth and quality of the mordant. Every step in the process is painstakingly done and with perfection. Kalamkari paintings have a flourishing market in and outside of India. Originally, Kalamkari was used as a means to tell a story. Tales of the court as well as the prevalent ruler's bravery were illustrated on large canvases. These were filled in with colours, with the help of dyes obtained from plants. Furthermore, this type of work also flourished in and around Hindu temples and therefore, ended up having a strong religious connotation. As a result, most kings and members of the royal family gave many artisans their patronage in order to ensure the continuation and development of this art form (www.utsavpedia.com).

The painting style and the process of painting the pictures in Kalamkari is very difficult. To bring the full form of the painting the artist follow 23 tedious steps of dyeing, bleaching, block printing, starching and more processes should follow.

An increasing number of people all across the globe are now discouraging the use of synthetic dyes and pigments that are associated with harmful chemicals. In such a scenario, Kalamkari emerges as the perfect craft because it is completely done in organic colours bringing a host of beautiful colours which are safe to both the environment and are skin friendly. Uniqueness in design which is rendered entirely by hand in earthly colours is an additional attraction. Consumers seeking exclusiveness in design have an eye to this beautiful craft flourishing in the state of Andhra Pradesh.

Taking inspiration from the sculptural art of Buddhist stupa, the thesis objectives are formulated as below

- ✓ To collect information on different motifs/designs used in Amaravathi Sculptures
- ✓ To adopt and develop the motifs/designs suitable for different textiles
- ✓ To develop the selected designs using Kalamkari techniques and to find the consumer acceptability

Limitations of the study:

1. The study was limited to only Kalamkari technique due to paucity of time.
2. The study was limited to only dress materials and sarees.
3. The work was done on only five items of clothing each.
4. Colourfastness tests of the developed designs were not carried out.

Chapter II

REVIEW OF LITERATURE

The review of literature provides a brief resume of literature and appropriate theoretical orientation, showing the extent of knowledge regarding the subject. Literature pertaining to the present topic is presented under the following headings.

2.1 Introduction

Amaravati is a small town located on the right bank of the river Krishna, about 35 km north of Guntur, the district headquarters. The present day Amaravati township was established by a local Zamindar by name Vasireddy Venkatadri Naidu during the last quarter of 18th century. It is said that Vasireddy Venkatadri Naidu, shifted his Zamindari capital from Chintapalli to the Dharanikota area and created a new township. This palace is known as Vijayanti and the township is named as Amaravati. The name Amaravati is given not only because of his palace named Vijayanti, but also because of the name of god Siva of the Pancharamakshetra. The Siva is locally known as Amaravatesvara, which later on became Amaresvara **(**Chauley, 2013).

2.2 History of Amaravathi:

The recorded history of Amaravati and Dharanikota is from 2nd century BCE. It was the telugu capital of Andhra Satavahanas who ruled from 2nd century BCE – 3rd century CE. The Satavahana era lied in between the Maurya and Gupta eras (Chauley, 2013). Between approximately the 2nd century BCE and the 3rd century CE, Buddhism burgeoned in the coastal area of south-east India, the part of the country that was traditionally known as Andhra. Among the more than one hundred Buddhist sites and remains in this region, particularly in the lower Krishna river valley, the great stupa is undoubtedly the most outstanding. They ushered in Post Mauryan period and had cultural impact on people of Andhra, Maharashtra, Karnataka, Gujarat and Madhya Pradesh significantly. Satavahana's preserved Hinduism and also fostered Buddhism presenting a wonderful example of openness and enlightened thinking **(**Shimada and Wills, 2016).

2.2.1 Contribution of Satavahanas:

The Amaravati town and the neighbouring Dharanikota were the imperial capital for the Satavahanas who succeeded the Mauryas, also contributed to Buddhist art and architecture. After Ashoka the Great**,** the Satavahanas were the ones who built imposing stupas in the country, particularly in the Krishna river valley. After decline of Satavahanas, Andhra Ikshvakus came to rule the Krishna river valley region followed by Pallava kings. Subsequently, Eastern Chalukyas and Telugu Cholas controlled the region. In medieval times, the Kota Kings were in control of Amaravati who were later

subdued by Kakatiyas in 11th century CE. Later Amaravati became part of the unified Telugu empire under the Vijayanagara empire.

Figure 2.1 Location of Amaravathi.

Study in evolution of Indian Architecture especially of Buddhist Architecture has attracted the fascination of scholars from throughout the world. The earliest man made structural dwelling in the country are residential structure meant for habitation, secular and are reported from the early phase of proto-historic period. The religious buildings came in to existence with the growth of religious pantheons. In the history of Indian civilization Buddhism, which besides being one of the oldest religions, has been a way of life and a socio-cultural system (Chauley, 2013**).**

2.3 Buddhist history of Amaravathi

Amaravati was a seat of Buddhism prior to the rise of Satavahanas, and a stupa and monastery was built there during the reign of Emperor Ashoka (269-232 BC) under Mauryan empire. The great stupa or Mahachaitya at Amaravati was one of the biggest in Andhra Pradesh.

The discovery of the stupa was made around 1797 by Raja Vesireddy Nayudu, a local landlord who had decided to move his residence to Amravati because of the East India Company's annexation of Guntur district. In the process of searching for building materials to move his house to Amaravati, Naidu and his subjects came across the stupa mound, which had been covered with soil. Numerous bricks and stone pillars were found inside the mound which he used for his building projects. Hearing this, the Madras government sent Colonel Colin Mackenzie, a military engineer and surveyor to Amaravathi. Working until the end of 1817 Mackenzie made detailed drawings of the excavated sculptures and removed considerable number of sculptures from the site and sent to Masulipata, Calcutta, Madras and London. Most of these were damaged and

some found their way into private property. Many institutions, government have come up with the excavations but did not function well in their early stages and were not able to save Amaravathi from destruction. Out of the vast sculptural wealth this stupa has yielded, a good number have become the objects of exhibition in the galleries of the British Museum, London; Musie Guimet, Germany; National Museum, New Delhi; Indian Museum, Calcutta; Government Museum, Madras. The rest are on display in the site museum (Shimada and Wills, 2016).

2.3.1 Amaravati school of Architecture

Amaravati is situated on the banks of the Krishna River. Amaravati School of art and sculpture evolved during the Satavahna period. This creative activity dates back to 3rd century BC and comprises the intricately designed Mahachaitya. The sculptural wealth of Amaravati is displayed include the typical motifs of the Amaravati art and sculptures. This includes the lotus (Figure 2.2) and the 'purnakumbha' motifs (Figure 2.3). These symbols stand for abundance and auspiciousness. Lord Buddha is depicted in the form of 'Swastika' mark. This has been carved out on the cushioned seat over a throne that is situated under the Bodhi tree. The same symbol is found on the Flaming pillar (Figure 2.4). In the lower reliefs of the domes the Jatakas have been depicted. The standing Buddha here dates back to the 8th century AD.

At a later stage the Amaravati School depicted Buddha in the human form for the first time. The sculptures of this school depict Buddha in the superhuman form. There are animal sculptures, the Triratna, (Figure 2.5) the coins of that age and other minor antiquities. The sculptures of the 2nd century BC include the fragmentary Ashokan pillar. The images of Lord Buddha from Alluru, Dharma Chakra from Lingaraja Palli, Bodhisattvas are some of the finest instances of the Amaravati School of art and sculpture. The sculpted figures apparently reflect the features of Satavahana sculptures and architectures. The female figures are full of dynamism and life. Other pieces of art from the Amaravati School include the ornate bull or 'nandiswara' (Figure 2.6) that was situated in the Amareswara temple; earlier forms of Lord Ganesha, Ganeshani and Lakshmi.

Amaravati School also had a great influence over other south Indian sculpture. It shows mastery in stone sculpture. The monuments located places like Jaggayyapeta, Nagarjunakonda and Amaravati are examples. The Andhra sculpture is also known as Amaravati schools. The stupas at Amaravati were composed of green

marble. The art of Amaravati region is one of India's major and district styles. A great number of graceful and elongated figures on the reliefs imbue a sense of life. The quality of the surface enhances the beauty of sculpture.

The figures of Amaravati have slim blithe features and are represented in difficult poses and curves. However the scenes are over-crowded, (Figure 2.7) the general effect is not pleasing. The technical excellence of sculptures is very admirable. Lord Buddha is mainly represented through symbols (www.indianetzone.com)

The Amaravati stupa must have been the largest stupa in the whole country. Earlier structure of the stupa was a simple structure, with limestone crossbars and simple carvings, but was later renovated by the Satavahana rulers, after which it became a highly marked architectural monument. Amaravathi Stupa is also believed to have been constructed with the efforts of the great saint, Acharya Nagarjuna.

2.4 Amaravathi Stupa:

The word Stupa is mentioned in the Rigveda, Atharvaveda, Vajasaneyi Samhita, Taittriya Samhita, in the Panchavimsata Brahmana and the Monier-Williams Sanskrit-English Dictionary which says it a "knot or tuft of hair, the upper part of head, crest, top, summit, a heap or pile of earth or bricks etc."

Rigveda refers to a Stupa raised by the King Varuna above the forest in a place having no foundation (Rigveda; verse 28). The word 'estuka' is also used in the same sense in Rigveda, probably by then anything raised on the ground like a heap/pile might have been known as Stupa. However the Pali word 'thupa' is quite similar to the term 'Stupa'. Thupa means a conical heap, a pile or a mound or a conical or bell shaped shrine containing a relic (Panth 1976).

The word tope for Stupa was first introduced into English by Elphinstone in his account of the tope of Manikyala in the Rawalpindi District in the year 1839: 'Tope is an expression used for a mound or barrow (hill or hillock) as far west as Peshawar **(**Chauley, 2013).

A legend says that, after the death of Buddha his remains were kept at eight places in stupas by his disciples. But Ashoka, when embraced Buddhism after the great Kalinga war in 3rd century BC, had removed the relics. He is believed to have kept the remains of Buddha at 84,000 places in the world in order to spread Buddhism across the

globe. The stupa found to be engraved with intricate carvings depicting the life and teachings of Lord Buddha. This is a *Sariraka* type of stupa and hence it's of great importance. Mahastupas are known as 'Sariraka Stupa' (containing buried bodily remains of Lord Buddha), Other type of Stupa are: Paribhogika stupa (containing buried belongings of the Buddha). The Stupa architecture in its origin, evolution and structural arrangement remains an exciting architectural phenomenon (http://121.242.207.115/asi.nic.in.)

2.4.1 History of stupa:

The history of Mahachaitya is spread to a period of roughly over a thousand and seven hundred years (circa 3rd centur B.C to circa 14th century A.D). The foundation of this Maha-stupa must have been laid by the great Mahadeva-Bikshu emissary of Emperor Ashoka who was deputed to Mahishamandala for the propagation of the Buddhist norm. The first construction is believed to have been plain and modest.

The ornamental renovations were brought later during the next seven centuries. The stupa had received its rich patronage from seven centuries from Kings like Vasistiputra Pulumavi, Sivaskanda Statakarni, Gautamiputra Yajna Sri Satakarni, Buddhist monks like Acharya Nagarjuna, nuns like Nanda and lay-Devotees like Utara, Khalata etc. Evidence shows that the stupa was an object of worship receiving attention during the reign of the dynasties of the Satavahana, Ikshvaku, Chalukya, Pallava, Salankayana. Vishnukundin, Kakatiya and Kota kings. The Chinese traveler Yuan Chwang and the Tibetan Historian Taranath glorified in their accounts the greatness of this ancient seat of Buddhism **(**http://121.242.207.115/asi.nic.in).

2.4.2 Stages of Development of Stupa:

Its development was gradual as noticed in five phases. During the Asokan period (in 4^{th} and 3 rd Centaury .B.C) it was well established with a pillar edict of the emperor, partial railing in granite having characteristic Mauryan polish and lime stone cross bars and copings with simple carvings of religious symbols and linar drawings. In the second phase (2^{nd} and 1^{st} Century. B.C), the site further developed more and more connections with other Mahajanapadas and Buddhist centers in the north such as Vaissali, Saravasti, Rajagriha, Kushinagar, Pataliputra and Ujjain as attested by the varieties of punch marked coins, sculptural representations and label inscriptions. People from distant lands and different walks of life are used to visit this monument on pilgrimage. However, by the early centuries of the Christian era in the third phase (1^{st} and 2^{nd}

Centaury. A.D.), in its heyday during the Sada Satavahana period, the Chaitya attained its glorious status as Mahachaitya in winder dimensions with several additions and alternations from time to time and a lofty railing in limestone exuberantly sculptured. This glory continued in fourth and fifth phase (3-6 and 7-12 Centaury. A.D.), upto medieval times when it was praised (1182 A.D) as "chaityamatyunnatam yastra nanachitra suchitritam" lofty, and well adored with varied sculptural panels. Even in the 14th Century. A.D., we hear of Sthavira Dharamakirti from Ceylon village Gadaladeniya **(**Sahkar and Nainar, 2003).

2.4.3 General features of Stupa:

The word Stupa means a mound. While there are several kinds of stupas, round and tall, big and small, these have certain common features. Generally, there is a small box placed at the centre or heart of the stupa. This may contain bodily remains (such as teeth, bone or ashes) of the Buddha or his followers, or things they used, as well as precious stones, and coins. Maximum numbers of Stupa were built by Maurya kings, more than 80, 000 of them. Sunga kings also built and refrubished the old ones. The features of the stupa are (Figures 2.8 and 2.9) as follows:

l. Harmika — It is built on the top of the oval shaped stupa.
ll. Medhi — It is an elevated circular path around the Stupa used for Pradhikshina
Ill. Torana — It is the gateway to the stupa. Sculptures can be seen on both Toranas and Medhi.
IV. Vedica — It is a railing meant for the protection of the holy place.
V. Chatras — They are umbrella like structures on top of a Stupa and are three in number representing 'Tri-ratnas' of Buddhism viz — Buddha the enlightened one, Dham or doctrine and Sangha or order.
VI. Pradakshina Path — Often, a path, known as the pradakshina patha, was laid around the stupa. This was surrounded with railings. Entrance to the path was through gateways. Both railings and gateways were often decorated with sculpture. Surface of the hemispherical body of Stupa was built with bricks and inner side had thick layer of plaster.

The great stupa or Mahachaitya at Amaravati was one of the biggest in Andhra Pradesh with a probable diameter of 50 meters and a height of 27 meters. It has a brick built circular vedika or drum with projecting rectangular Ayaka platforms in four cardinal directions measuring 7.20 X 2.10 meters each. Five Ayaka pillars must have

stood on each platform symbolically representing the five main events in Buddha's life viz., the birth, the great renunciation, the enlightenment, the first sermon and the final extinction. The drum and Ayaka platforms were covered with sculptured slabs. All the four-ayaka platforms have yielded seven crystal and one ivory relic caskets, some of which contain bone-pieces, pearls, precious stones and gold flowers. This is a Sariraka type of stupa and hence it's great importance.

Mounted on the circular drum stood an anda or hemispherical dome. Tall sculptured dome slabs covered the vertical part of the dome, above which came decorations in stucco. Scenes from the life of Buddha, Jataka stories, animal motifs, floral decorations formed the subject matter of these sculptures carved on the locally available light green limestone. The drum was crowned by a harmika or box like structure over which stood a chhatra or umbrella. All now missing except the remains of the plinth (http://121.242.207.115/asi.nic.in).

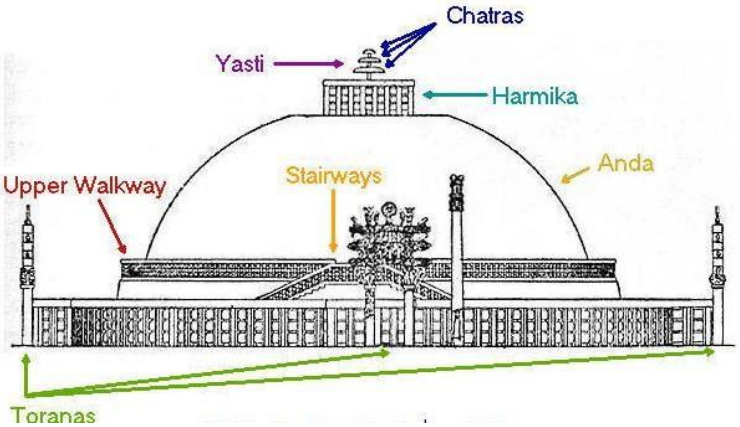


Figure 2.8. General features of the stupa.

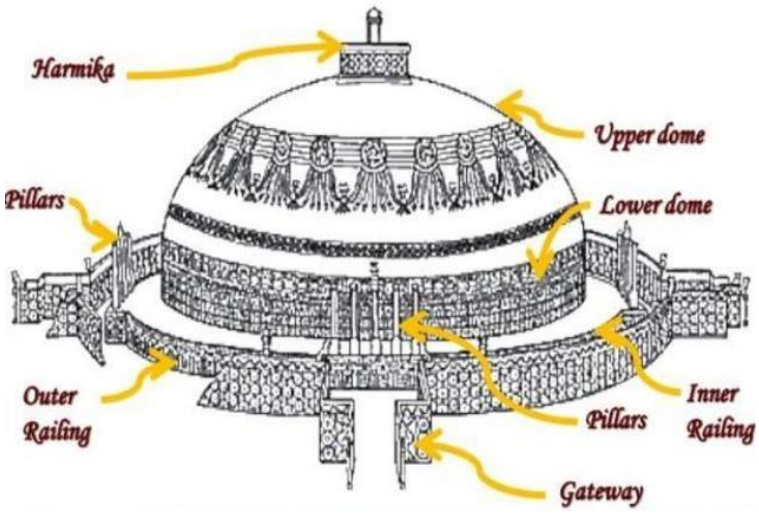


Figure 2.9. Architectural details of the stupa.

The drum of the stupa had a well laid Pradakshinapatha or circumambulatory path of 4 meters width paved with Cuddapah slabs protected by a railing in stone on its outer extreme end, pierced on all the four sides by gateways projecting out. The railing consisted of Urdhvapatas or upright pillars, three suchis or cross-bars connecting each pair of upright pillars, and Ushnisha or coping stone running on top of those pillars. Seated lions stood on pillars guarding either side of the gateways. Lions represented power and strength and were meant to ward off evil spirits and protect the Stupa (Figure 2.10). The stone railing of later periods was highly ornamental. The railing was completely covered with narrative reliefs and elaborate decoration. At each of the cardinal points there was a gateway. Between the railing and the drum there was a circumambulatory passageway. The enormous cylindrical drum was elaborately decorated with sculpture. The outer surface had a series of alternating slabs and pilasters. The slabs are carved in great detail with representations of the stupa and represent an invaluable source of information about the original aspect of the Great Stupa (www.bl.uk/onlinegallery**).**

The main part of the Amaravati Stupa was a solid great dome which most likely stood about 18 metres high. The dome was made of pale green limestone which was probably painted with bright colours.

The upper part of the dome was probably decorated with plaster garlands (Figure 2.11). Garlands made of real vines and flowers were used to decorate buildings for festivals and special occasions. Although none of these garlands have survived at Amaravati, people believe that they existed because they can be seen in stone reliefs showing stupas. Fragments of plaster garlands have also been found at other stupa sites in the region.

The Stupa is so linked to the Buddhist life that they were not content to erect monuments alone: sculptors represented them on stones, and we find them abundantly represented on panels on the Stupa monuments itself, on the railings-balustrades surrounding it, on cave walls, structural, monolithic made out of varied material starting from clay, stone, wood, ivory, metals, terracotta etc. the study of material is abundant and spreads over time and space (Chauley, 2013**).**

2.4.4 Sculptural art of Amaravathi:

The antiquity of Amaravathi and Dharanikota dates back to the prehistoric times when man was in the most primitive stage of his existence. Tools used by him then were made primarily of stones, and such early stone age artefacts like handaxes, cleavers, discoids, scrapers and so on put to various practical uses, came from Dharanikota in the course of explorations.

The sculptural art of Amaravathi began after one or more phases of purely architectural development of the mahachitya. Only two example, prior of the flowering of the sculptural art, are known: the earliest of the two is the design of triratna on a granite uplight, and next comes the outline of the stupa and uriksha-chaitya on an inscribed cross-bar. The latter is more an example of graphic art than sculptural, yet the delineation of torana and supposed umbrella in the composition may tend to show artist's inaptitude in depicting different planes. No human figure has been portrayed in it.

The earliest sculptures phase of Amaravathi, so to say, is a manifestation of the central Indian art-tradition represented by Bharhut and the early phase of Sanchi. These are relief-sculptures with emphasis on landscape and animal motifs. There are a few yaksha and yakshi figures also but they reflect certain advancements over Bharhut. For, whereas the figures have been modelled in rounded contours, the lines are not rigid, and frontality appears less pronounced. In the depiction of imagined landscapes, as the titled reliefs in the stele show, there is a deliberate attempt not to crowd the scences with men and women. Indeed, the human figures remain all along subordinate not only to the main themes of a unilocal narration but also to the landscape marked by trees, rivers, animals and buildings (Sahkar and Nainar, 2003).

The Buddhists have selected the wheel and the stupa as the symbols for the great being as well as for the cosmos. The wheel becomes the symbol of Dharma, which in turn is the foundation and the support for the cosmos. While erecting the stupas the Buddhists placed emphasis on round or globular shape. While choosing the round shape the Buddhists were perhaps actuated by a desire to symbolize the Sun, the radiating sources of all energy. A great being like the Budha, radiates like the Sun, the same cosmic energy.

2.5 Design inspiration and innovation

Source of inspiration has a vital role, both in defining the characteristics of a new design and in informing the creation of a distinct design. Anything visual can be a source of inspiration for a design, from a leaf to architecture. Many themes take their inspiration from nature. Designers are inspired by animals, plants and other natural objects, as well as natural phenomena such as thunderstorms or sunsets. Designers collect portable physical objects like leaves or shells, use photographs or work from memory. One should never stop looking for sources of inspiration as any new thing seen can be suitable turn into a design. Inspiration helps to produce attractive designs made by the artistic arrangement of motifs in one or more colours. Designers have used their imagination with the inspiration in developing designs suitable for day to day market. Besides bringing innovation in the design, aspects of current fashion, consumer preferences, suitability to a specific material are to be ascertained (http://www.cse.dmu.ac.uk).

Bhasin (2015) described that Kanchipuram is very ancient city dotted with large number of temples and each temple has its own architecture style in the form of sculpture, patterns, colour and the construction. It was observed that all these factors are major influences for the Kanchipuram designers to choose their inspiration. The inspirations from temples are mixed with natural or geometrical shapes to explore the creative ideas to convert the final motif.

Karmakar (2015) stated that design as an expression of emotion, since it is a mirror of regional identification and cultural activities and a key element to sell a textile product. He opined that through design, expression of imagination, cultural activities, intuition and feeling of the audience and spectators is conveyed. The design of an artist is to explicate his experience in captivating forms and then relish an illimitable and unexplainable congeniality. Moreover quality of any design depends on its motifs. One has to understand the market trends and people's choice for successful design of a product.

Kishore *et al. (*2013) took inspiration from monumental design of Tajmahal and Khajuraho temple designs and rendered them suitable for skirts, sarees, kurties using CorelDRAW X5. Designs for different apparel were developed either using the entire motif or by applying components and detailed carvings of the designs. To study about

different designs used in the present traditional woven textiles, they were sourced from text books, magazines, internet and from some traditional woven textiles of different states.

Tiwari (2013) stated that folk art in India takes on different manifestations through varied medium such as pottery, painting, metalwork, paper art, weaving and designing of objects such as jewellery and toys. He described folk art as the art of people who are exposed to changing landscapes as they travel over the valleys and highlands of India who carry with them the experiences and memories of different spaces and their art consists of the transient and dynamic pattern of life. Often puranic gods and legends are transformed into contemporary forms and familiar images and that fairs, festivals and local deities play a vital role in these arts. According to him it is an art where life and creativity are inseparable. He reiterated that the rural, tribal and arts of the nomads constitute the matrix of folk expression.

Latif *et al.* (2012) inspired by wood carving art of Kashmir, collected wood work motifs from the traditional old buildings of Kashmir for creation of textile designs. The designs developed from wood work motifs appeared to be an excellent addition in the field of textile designing and opined that it was also the best way to conserve the culture. It was concluded that conversion of motifs from one surface to another propagate the traditional designs more as it is far easier to handle designed cloth as compared to the wood work.

2.6 CAD in Textile Designing

CAD plays a vital role in facilitating the creations of new designs in short duration in fast changing global trade. It is virtually a "No Limit" solution for textile designing and manufacturing because it has enormous application area. It allows designers to offer more flexible and responsive service to customers and can therefore contribute to develop business. CAD has lead to better quality and flexibility in design development, increasing the efficiency and shortening the time between the design concept and actual marketing. All the basic components of design can be programmed in computer languages and stored in computer memory. Whenever required, the computer can be asked to plot the design with various colour combinations. Hence, it was felt necessary to collect information about role of CAD in textile designing and some of the reviews are listed below:

Dwivedi and Dwivedi (2013) discussed the role of CAD/CAM in design and manufacturing for textile industries. It was reported that computers have influenced every sphere of our life and they act asfastest and accurate data manipulating system that is designed to automatically accept and store input data. CAD plays a vital role in textile designing as well as fabric simulation. These processes give customer satisfaction, on time delivery, variety in designs and colour and rapid transmission of designs to consumers.

Oates (2013) remarked that CAD has become indispensable for textile designers leading to endless possibilities and that the entire process of designing is revolutionized where previously designers used to labour over graph paper and stencils, but now they simply have to use a mouse or stylus pen to bring out innovative designs. He said that the result is not only an increase in speed but greater accuracy than the manual process. Due to thus it is no wonder that even small-scale textile designer and manufacturing companies are using CAD systems.

Kashyap and Ojha (2012) emphasized that introduction of computer for creating designs provide immediate visualization of the results of any design and that any alteration can be done with easy and visualize the changes with a click. They reiterated that the whole process of designing, correction and redesigning does not require tedious labour and incase of textile designing, there is great accuracy in designing. Placement of the motif can be done quickly which reduces the time period. Conventional method of drawing the design can be swapped by computerized designing.

Sethi and Sharma (2011) highlighted in their review article about the importance of CAD as a design tool and that computer in the hands of a designer can prove to be a tool of unlimited creativity with the system working as simple as an artist sketch book. Modifying sketches or images of design concept is simplified with changes in silhouette, style line and colour all with the pressing of keys or at the click of mouse. Computer as a tool helps in fraction of a minute and that more than a million ideas can be visualized on the monitor screen. The demonstrated benefits of CAD include increased productivity, reduced product development time, increased creativity to improve conceptual design, high product design capacity, reduced cost of sample and prototype.

Naik and Byadgi (2010) stated that in the present scenario of fast life style, designs with assistance of CAD has not only expanded horizon of designing but also can create any number of designs that could be saved in the library to apply as and when required. CAD systems are more advantageous with respect to the speed, pattern creation, editing, repeating, flexibility, variety, colour ways and cost effective.

2.7 Research studies related to adaptation of designs

Designing is an art and the art is a product of the creative process. It is the human power to conceive, plan and realize the products that serves human beings in the accomplishment of any individual or collective purpose (Saxena, 2012). Designers take inspirations from various sources and adopt them to suit the present market. Adaptation also allows for revival of design.

Gandotra and Sharma (2017) developed screen printed silk stoles using blue pottery motifs. An interview schedule was used for collecting data from sixty respondents regarding the preferences for the fabric, placement, colour combination of motifs, stole designs and surface embellishments, etc. Eighteen designs were developed using hand painting technique with respect to their placement of motifs. Six most preferred designs and layout of design of stoles by the respondents were considered and developed with piping, ribbons and laces as embellishments. An effort was also made to assess the profit margin of prepared stoles and the result showed that all the developed designs of stoles were saleable.

Ruhil *et al*, (2017) attempted to study about the consumer preferences for creative curtain designs using computer technology. Twenty five stylized curtain designs were developed using CorelDRAW-12 and Photoshop software. A catalogue of designed curtain was also prepared. Among the total of twenty five innovative designed curtains, five designs were preferred by the experts. These designs were developed with the combinations of different designing techniques/features i.e. embroidery, patch work, shirring, Toran, cowl effect etc. Curtain embellished with 'Sindhi Appliqué' was liked very much by the consumers. The designed curtains were found appropriate and added stylish way of dressing the window and enhanced the look of the home.

Garcha and Saini (2017) developed screen and stencil print designs from Anasazi pottery designs. Anasazi designs were done in black on white pottery by the prehistoric Native American civilization. Taking inspiration from these design, 40

designs were documented from which 15 designs were shortlisted by a panel of judges. In developing designs, Anasazi ceramic patterns were simulated, trimmed, adjusted, enlarged, and reduced in size with the help of CorelDRAW X4 and thirty designs on tunics were developed and shown to respondents for their preferences. Based on their preference, five top ranked designs suitable for tunics were selected for printing with screen and stencil based on the intricacy of design and garments were constructed. The study concluded that the information can further be used effectively by designers of custom designing.

To keep the Madhubani art of the Bihar state alive, a study was planned by Gupta and Gangwar (2016) to make an effort of adding another dimensions in the application of Madhubani designs on textiles using hand painting. Traditional designs of Madhubani painting were collected for the study from various secondary sources like books, cards, internet and library. The selected motifs were used to develop designs sheets for hand painting. Thirty six designs in different categories i.e., center design and border designs were adapted based on suitability on articles like cushion cover, folder and table cloth. Designs were evaluated for selection of one best designs in each category for each article on the basis of motif. Finally three articles namely cushion cover, folder and table cloth were developed using one preferred design in hand painting which were highly appreciated by the respondents.

In an attempt to develop digital embroidery designs from traditional motifs of Haryana, Sunita *et al,* (2016) collected 400 traditional motifs of Haryana from primary and secondary sources and screened them for their suitability to apparels, home textiles and utility articles as well as digital embroidery. Experts preference was followed for selection of one third top preferred motifs from each of the five categories made under geometrical, floral and foliage, animal and bird, human and religious motifs. Two top preferred articles, their base fabrics and colours were also noted. A total of sixty designs, twenty for each category of products were developed using selected thirty four motifs and two top raked designs for each selected product were chosen for placements. Twelve design placements in three colour ways was created and the top rated was selected for digital embroidery. A total of twelve products were developed in digital embroidery which were highly appreciated and accepted by consumers.

Rani (2016) has done a study on stimulation of textile designs from Henna motifs for fabric paintings on fashion apparel. About 186 traditional henna motifs were

collected from secondary sources like books, journals, magazine and internet etc. and screened for their suitability to saris and fabric painting. Collected designs were refined in CoralDRAW X5 and Adobe Photoshop. Designs were categorised under four categories as floral and foliage, paisley, animal and bird and insect and human motifs. Top five designs were selected by a panel of 30 experts and were placed in five different placements in three colour ways each. One of the design placement with a particular colour way was finally rendered on fabric using nozzle technique of henna application. All the fabric painted saris were found very appealing and accepted by consumers on all the parameters of assessment.

Sodhi *et al*, (2016) have used fusion methods of fabric painting and Aari work in adopting Madhubani painting motifs on different articles. Total forty motifs of Madhuani painting were collected through secondary sources. Out of these motifs, fifteen motifs were selected by experts' preferences for development of designs for further application. Samples of three selected designs were prepared by combining fabric painting and Aari work techniques. The prepared samples of Madhubani painting designs in combination with selected fabric embellishment technique highly appealed the experts and the cost of the prepared samples in fusion with fabric painting and Aari work was also highly accepted by majority of the respondents.

Chouhan and Babel (2016) explored the possibility of developing shawls using traditional Madhubani motifs through a fusion of aari work and hand painting technique. For documentation of motifs, 30 motifs were selected through secondary sources. A panel of 5 clothing and textile experts was selected for evaluation of Madhubani motifs for placement on shawls. Out of 30 motifs, 15 suitable motifs were selected. 10 shawl placement designs were developed by using 15 selected motifs which were used in border and field. Out of 10 placement designs, 5 designs were selected through evaluation by previously selected 5 clothing and textile experts. Madhubani painting designs were prepared with fabric painting and Aari work. Accessories such as laces, stones and glitter were selected for value additions on shawls. The prepared samples were assessed by the experts in terms overall appeal and cost acceptability to fusion of Fabric painting and Aari technique. It was found that the respondents had very high opinion about the developed designs. The cost of prepared samples of Madhubani painting was highly acceptable by the majority of the respondents. It was opined by the experts that motifs developed were very innovative and creative in terms of fineness and intricacy.

Negi *et al.* (2015) has made an attempt to develop a design pool using folk art, by the adaption of Aipan designs of Kumaun region for textile designing through appliqué work.. Traditional designs of Aipan were collected for the study from various secondary sources. The selected motifs were used to develop designs for appliqué work without distorting the originality of the basic design. Thirty designs in different categories i.e., center design; border design and buti design were adapted to make them suitable for appliqué work. The designs were developed keeping in mind their suitability for articles like bags made from the discarded and waste fabric scraps. The plain red poplin and left-out fabrics were used for the preparation of articles. Finally one selected arrangement for each type of bag i.e., Side bags, back bags, pencil pouch and mobile holder were prepared. The adapted designs were evaluated by panel of judges to rank the designs in each category, from 1 to 10 on the basis of preference for suitability for appliqué work.

Sharma and Paul (2015) made an attempt to develop fusion designs by using the CAD from the two folk paintings of Warli art of Maharashtra and Madhubani art of Mithila to adopt on apparel using digital printing techniques. The motifs used in Madhubani and Warli paintings were collected from the available literatures, paintings and from web. A total of 9 designs, three each for sarees, dress materials and kurties were developed. The entire or components of the motifs were used in fusion designs using CorelDRAW and Adobe Photoshop. Two most preferred designs from each category were selected by a panel of 30 judges. All the designs were rendered in digital printing on textile materials. All the printed articles were well appreciated by the judges. The researchers opined that digital printing technique produces vibrant and even colouration on textiles with no release of effluents; thereby reducing the load on environment and its degradation. Digital printing also facilitated faster product development, so commercialization and economic gain is better.

As an inspiration from Rajasthani miniature paintings Srivastava and Rajvanshi, (2014) identified and collected ten miniature paintings from each of seven schools of Rajasthan i.e. Mewar, Marwar, Bundi, Kota, Jaipur, Kishangarh and Bikaner from secondary sources. A total of seventy designs were identified from the seven schools (taking 2 motifs from selected five paintings of each of the schools). These were evaluated by a panel of judges to select fifty designs for developing three colour ways of the each design. Colour ways were developed by the researchers with the help of Photoshop software for developing digital embroidery designs. These simulated designs

from miniature paintings in different colour ways for surface enrichment on fashion apparels were appreciated by all the respondents.

Babel *et al.* (2013) conducted a study to explore the market potential of designer sarees developed from traditional wall paintings of Mewar for their popularisation. A total of 30 Mewar painting were collected from various places and 50 motifs were developed or modified from eleven best Mewar paintings were selected by the researcher. According to rating 15 modified motifs were used for designing 15 sarees using computer. Of these, best five placements were selected for embroidery on sarees. Rating by 60 consumers including faculty and students have rated that developed designs for saris inspired from Mewar wall paintings were highly acceptable with good marketability.

Krishnaveni (2012**)** has conducted a survey on "Nirmal Toys" Nirmal town to study the different colours, figures and techniques used Toys and paintings. This survey indicated that there is no attempt made to adapt the motifs and designs used in Nirmal toys and Paintings on textiles. Designs were adopted on different textiles items using weaving, Block Printing, Painting and Embroidery Techniques. Twenty nine designs were developed and modified using CorelDRAW 11 for application on kameez, dress materials, Sarees suitable for weaving, Block Printing, Painting and Embroidery Techniques. The items which were designed were subjected for evaluation to know the consumer acceptability of articles by a panel of 50 consumers. The study concluded that animal, bird, floral and other motifs in stylised form were highly accepted. It has also opened new avenues for the designers to explore.

Sangama and Rani (2012) conducted research on the Aipan designs used in Kumaun region of Uttarakhand state for adoption on to textiles using weaving technique. The designs were selected based on their aesthetic appearance. The selected motifs were modified and classified into three categories namely buti, buta and border design. With five designs in each category, a total of 15 designs were developed and evaluated by the faculty and students of textiles department and five were finalized. The researchers concluded that the developed designs can be utilized for production of household articles as well as other type of textile products using weaving techniques or applied on the textile surface by printing, embroidery, painting or combination thereof to create distinct and new range of textiles.

Taking India's rich cultural heritage, its traditional embroidery and printing work, as a great source of inspiration for apparel decoration, Babel and Yadav, (2011) developed designs for sari using traditional motifs of block printing. Current status was analysed using a questionnaire. Motifs of block printing were collected and arranged in systematic manner to develop twenty placements and shown to twenty experts including textile and fashion designers, housewife's and marketing personnel, to select the best five placements for developing value added Kota doria sari designs with block printing and in computerized embroidery. The developed /modified designs were highly appreciated by the respondents and consumers in terms of intricacy and fineness with a higher acceptability (above 70 percent). The designs were found totally fresh and unique by the respondents and consumers.

Devi and Srivastava, (2011) collected information on various motifs from traditional textiles and costumes of Meitei community of Manipur for adaptation on apparel items. A total of thirty motifs categorized in animal, bird, human, floral and miscellaneous motifs were selected on the basis of their suitability for adaptation on saris. Of the 30 designs, 15 were developed in CAD in four different colour ways. Among them, 3 designs were selected by judges to develop final product using stencil and hand block printing. It was found by the researchers that all the developed saris were very cost effective and appreciated by the respondents.

Byadgi and Naik (2010) made an attempt to develop Gujarat traditional embroidery motifs into Jamdani patterns on Dharwad sarees. A total of seventeen conventional motifs used in traditional Gujarat embroidery were selected and grouped into three categories viz., main motifs, buttas and borders. The motifs were digitized and woven on handloom with jacquard shedding to produce weft Jamdani patterns using small swivel shuttles. Extra warp figuring in the border on either sides of the saree was produced by dobby shedding mechanism. The study indicated that the total cost of Jamdani pattern sarees was relatively less. The net profit earned from embroidered saree was about 32 per cent higher than the profit earned from swivel pattern while the time consumption reduced very drastically when compared to embroidered sarees.

Srivastava and Rajvanshi (2008) conducted a study on stimulation of textile designs from Phad painting from Bhilwara district of Rajasthan for fashion apparels and assessment of market potential. A total of fifteen designs were selected from the phad paintings. These fifteen innovative designs were developed in three colourways each by

using textile designing software "Photoshop" and "Tuka-Studio". The developed designs were shown to a panel of thirty judges to select two best designs for each end use items (i.e., Short-kurta, Dupatta and Wrap- round). Thus a total of six designs were selected to render them in screen printing. The acceptability and market potential of designed items revealed that developed products were highly appreciated and had enough market potential.

Kalia (2006) conducted a study on "Designing of ladies Kurta inspired from Hawaiian motifs". The designing process included exploration of Hawaiian flora and fauna motifs, creation and short listing of various motifs for design development. Forty designs were created out of which ten best designs were selected by thirty textile experts. The selected designs were printed on kurta by different stencil printing techniques. Market and consumer acceptability of kurta was assessed by twenty students of Home Science College, Chandigarh, ten shopkeepers and ten boutique owners of Chandigarh. The kurta were highly appreciated by all the respondents.

Kaushik, (2001) developed hand crafted soft furnishings depicting Indian miniature paintings. Various Indian miniature paintings were selected on the theme of romance, portrait, hunting and religious. The results revealed that majority of the consumers preferred cotton blended fabric and geometric pattern on a dark background. Concept of hand crafted cushion covers and partition panels was stated as very novel and innovative by majority of the respondents.

2.8 Kalamkari painting:

Printing, painting, dyeing, brocading techniques are some of the techniques that have been traditionally used all over the world to decorate textiles, apparels and home furnishing articles for their personal use.

The term kalamkari literally means 'work done with a pen.' The word Kalamkari is derived from a Persian word where 'kalam' means pen and 'kari' refers to craftsmanship. The term is now inseparably attached to the painted and block-printed cotton and silk textiles, produced in the Coromandel Coast (parts of Andhra Pradesh and Tamil Nadu) of India. Kalamkari art is entirely a handicraft using natural or vegetable dyes and metallic salts called mordants to fix the dye into the cotton fibers. An exact resist process, complex and careful dyeing, sketching and painting of the

design and, occasionally, even the addition of gold or silver tinsel into it are the other integral components of this art(Chandra, 2015).

Today, two of the most prominent centres of Kalamkari production are Srikalahasti (Chittoor District) and Machilipatnam (Krishna District) in Andhra Pradesh. While in Srikalahasti, the textiles are literally painted with pens made out of bamboo and cotton, in Machilipatnam, the line drawing done with a pen is transferred onto wooden blocks which are carved and then used to print fabric. In Machilipatnam, the production is carried out in karkhanas (commercial workshops), where the block makers, washers and printers work under the same roof. In Srikalahasti, the textiles are produced by small family units where the members work together (https://www.sahapedia.org).

2.8.1 History of Kalamkari

Centuries ago, folk singers and painters used to wander from one village to other, narrating stories of Hindu mythology to the village people. But with course of time, the process of telling tales transformed into canvas painting and that's when Kalamkari art first saw the light of day. This colourful art dates back to more than 3000 B.C. According to the historians, fabric samples depicting Kalamkari art was found at the archaeological sites of Mohenjo-Daro. Fragments of Indian block-printed cloth dating to the late Roman period have been discovered from archaeological sites in Egypt. However, the oldest samples from the Coromandel Coast itself are from 13th- 14th century A.D (https://www.sahapedia.org).

Some samples of Madder dyed cloth with traditional Indian motifs have also been discovered in Egyptian tombs during excavations at Al Fustat near Cairo. These bear testimony not only to the antiquity of the craft but also prove that it was well developed and formed a part of the flourishing export in ancient times (Bhatnagar, 2015)

But, it was during the Mughal era when this style of painting got recognition. Mughals promoted this art in the Golconda and Coromandel province where skillful craftsmen (known as Qualamkars) used to practice this art, that's how this art and the word Kalamkari evolved. Under the Golconda sultanate, this art flourished at Machilipatnam in the Krishna district of Andhra Pradesh and further was promoted during the 18th century, as a decorative design on clothing by Britishers in India (https://www.utsavpedia.com).

The British East India Company established a flourishing trade in these fabrics in the later half of the 17th century and special orders were placed on the Indian craftsman for producing goods for the European market. The printed calicos of the Coromandel Coast became so much part of the fashion scene that often embroidered samples of garments were sent by the fashionable ladies of London and Paris for duplicating in print. Not only for garments but also for furnishings Kalamkari goods, known as Chintzes, were extremely popular. Many European designs like the Tudor Rose were incorporated into the Kalamkari tradition during this period. But by far the strongest influence, were the designs from Iran and Persia, much favoured by the Muslim rulers of those days. Persian motifs like the "Cypress tree", "Mihrab", "Almond", 'Tree of life" etc. have ever since been an inseparable part of Kalamkari. Absorbing various traditions and adapting them to the Indian idiom, the Kalamkari craftsman evolved a rich and vibrant textile tradition (Bhatnagar)

Kalamkari gained popularity as a temple art in the south of India in the Kingdom of Vijaynagar. It flourished around Hindu temples as supplements for murals in the interiors of temples. At that time the themes were mainly religious. Minstrels would paint mythological figures on cloth and wander from place to place singing and spreading the word of God. It was a part of a popular cult and due to its vast rural base became a representative of the grass root culture of India (Purohit, 2013).

The art of textile painting and printing also existed in western India in the states of Gujarat and Rajasthan. 'From contemporary trade records it appears that the principal cotton painting centres in the 16th and 17th century were Burhanpur in Khandesh, Sironj in Rajputana, Agra, Petaboli and Palakollu on the Golconda sea board and certain towns like Kalahasti in hinterland of Madras (Das, 1992).

During the sixteenth century a lot of internal warfare between the Marathas, Mughals and the Rajputs influenced the art in many different ways. Kalamkari evolved into a new decanni style after the invasion of the Mughals. It also took in the attributes of miniature paintings under Ibrahim Adil Shah (1580-1627) of Bijapur.

In the 17th century, Kalamkari saw a rise in demand from the Mughals, Persians, Dutch as well as the British. 'The kalamkari fabrics of India with jewel bright colours, printed and painted in fascinating and intricate designs caught the fancy of women in England and France and became the fashion for daily wear (Ramani, 2007). What

attracted them the most was the 'brilliant colouring, undimmed by repeated washes, the light texture and drape of the fabric, and its strength and durability were a unique and unprecedented combination, rendering the cloths suitable for a variety of uses (Chisti & Jain 2000).

2.8.2 The styles of Kalamkari paintings:

Kalamkari art is available in two distinct styles: Machilipatnam and Srikalahasti. Both these centres are located in the state of Andhra Pradesh.

A. Masulipatnam Kalamkari:

Owing to Muslim rule in Golconda, the Masulipatnam Kalamkari was influenced by Persian motifs & designs, widely adapted to suit their taste. The outlines and main features are done using hand carved blocks. The finer details are later done using the pen.

B. Sri Kalahasti Style:

The Kalahasti tradition which developed in the temple region mostly concentrated on themes form Hindu mythology, epics (Ramayana, Mahabharatha), images of Gods and heroes.

C. Karrupur Style:

Karrupur is a style of Kalamkari that developed in the Thanjavur region during the Maratha rule. The Kalamkari work was a further embellishment to the gold brocade work in the woven fabric, which was used as sarees & dhotis by the royal family during the period of Raja Sarfoji and later Raja Shivaji (http://www.indiamarks.com).

2.8.3 Tools and dyes used:

2.8.3.1 Tools used:

Basic tool used in Kalamkari painting is undoubtedly the Kalamkari pen and then comes natural dyes, burnt tamarind stick and kalamkari magam. Kalamkari pen is made out of bamboo reed, sharpened at one end and a cloth rolled on the stick in a particular pattern and a thread is tied around the cotton cloth to secure the cloth at the required place. Cotton cloth acts as filler when dipped in dye and then used on to the fabric. The pen is first dipped in required dye and it is gently squeezed for the colour to flow on the area, which needs to be painted. The pen which is used in the outlines are sharp compared to the one used to fill in large areas. Kalamkari magam, a wooden

frame is used while painting which, secures the cloth on both ends (Bibhudutta *et al.*, 2013).

2.8.3.2 Dyes used:

Natural dyes, discovered through the ingenuity and persistence of our ancestors, can resist brightly for centuries or millennia and may be found hidden in such diverse places as the roots of plant, a parasitic insect and the secretions of sea snail, Kalamkari employs the usage of such natural vegetable dyes and the artists of kalamkari are well versed with their usage. Vegetable dyes are organic in nature, and both the process of extraction and application of colour to fabric is laborious and time consuming. The application of natural colours needs help of mordants to fix the colour on to the fabric. Thus the tedious nature of dyeing coupled with painting with kalam makes the kalamkari of Srikalahasti a coveted item.

Table 2.1Details of dyes used and its application in Kalamkari.

Source	Purpose / Colour	Raw material		Remarks
		Local name	Botanical / technical name	
Vegetable	Red colour	Chaval kodi/ Chevellikodi/ Chay root	Oldenlandia umbellata	
		Pobbaku	Narigama alta	Acts as a carrier of colour
		Suruli chekka Or Surruduchekka	Ventilago madraspatana	Helps in lending intensity to the red
	Yellow colour		Myrobalan flowers	
		Dhanimma beradu	Pomegranate rind	Sometimes used to achieve yellow, however the colour is slightly dull
	Blue	Neel	Indigo	Process is tedious, laborious and costly hence discontinued
Synthetic		Neeli mandu	Ultra marine blue	
Vegetable	Outlining of motif	Chinta boggu	Tamarind twigs	

	Treatment of the grey cloth		Myrobalam fruit	
		Buffalo milk		Creates a leathery surface and prevents spread of colour
Mineral	Obtaining black colour		Rusted Iron fragments	
		Sugarcane jiggery		
		Palm jiggery		
	Mordanting the fabric	Patika	Alum	

2.8.3.3 Preparation of different colours:

1. Mayrabolan (Karakha Pindhi mixed with cow milk) forms light yellow.
2. Kassim kaaram (Jaggery + Rusted iron filings + water) black outlines for the fabric.
3. Natural Indigo produces Blue.
4. Pomegranate produces Golden yellow.
5. Catechu (Suryadu chakka) produces Rosemary.
6. Algerian produces Red.
7. Alum mixed with water gives out Gray.
8. Cow Milk (Highlights the colour on the fabric). (Bibhudatta *et al.,* 2013*)*

The vigour of the Kalamkari designs was due to richness of colours. The colours used are deep red, black, indigo, green, yellow, dusty pink, brown and off-white. Generally, the colour schemes were:

- Female figures were usually in yellow.
- Devatas or Gods were depicted in indigo or blue.
- Rakshasa or Demons were in red and green, and some figures were left without any colouring at all.

The colours are prepared as follows:

i) Black colour: The basic black dye used by the Kalamkari craftsman is iron liquor. This was made by soaking iron pieces in a solution of jaggery (molasses) and water in a mud pot. The solution takes about 20 days to mature. Brownish foam on the surface indicated that the solution was ready to use. In a cool place, the solution could be stored

for up to one year. The black Kassim solution was used for outlining of figures/motifs and for filling larger areas in black colour.

ii) Yellow colour: A yellowish coloured dye is obtained by mixing Myrobalam flowers with boiling water in an earthen or metal pot. The solution is stirred and then cooled. For a dark shade of yellow, the solution is left for a week. Before painting with the yellow dye solution onto cloth, alum is added to it. Once Myrobalam yellow painting is completed, the cloth is dried in the shade. The next day, the cloth is washed well in flowing river water and dried in the sunlight.

iii) Green colour: The yellow solution, if set for several days, can turn a slight greenish tint. Otherwise, green colour can be obtained by painting portions with the myrobalam yellow solution and then treating the same portion of cloth with indigo dye.

iv)Brown colour: Sometimes artists add a solution of aged mango bark and boiling water over the Myrobalam yellow dye solution to obtain superior colour fastness, or to create a slightly brownish colour. The printing paste is made of country gum, or powdered tamarind seed or even common flour.

v) Red colour: Alum or Phitkari is used on a Myrobalam-treated cloth for developing dull red colour.

vi) Red and Maroon colour: Chavalikodi root and Surulipatta bark (madder plant) is added to boiling water. Alum or Phitkari-painted cloth is submerged in the boiling water for about 40 minutes. The cloth is then removed, rinsed with cold water, and let dry. For a darker shade of red or multiple shades of red in a single piece, the entire process is repeated until desired colour(s) is obtained.

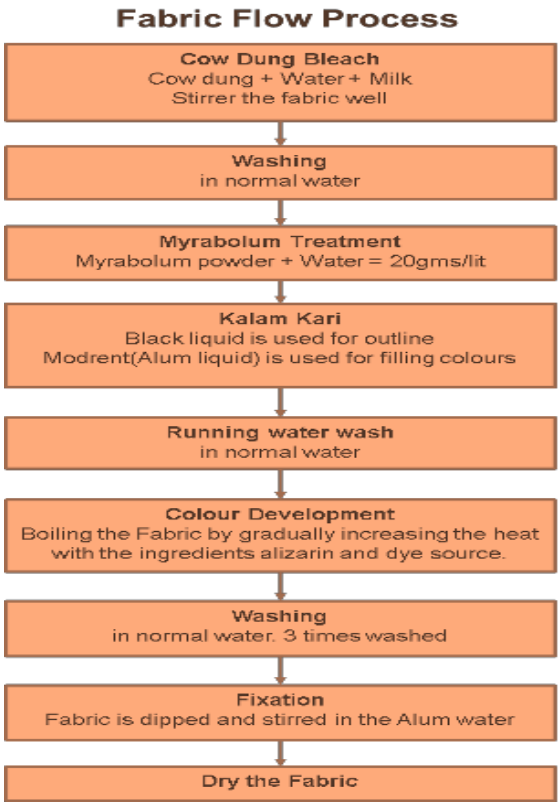
vii) Pink colour: Lime juice is applied onto portions of cloth that have already been dyed red, in order to obtain a light pink colour. Typically, lime juice is used to create pink line details on red figures or floral motifs.

viii) Blue colour: The blue is made by using colours obtained from indigo plant. It is applied on unpainted portions of the cloth where a blue colour is desired. Once dried, the cloth is washed in water and dried. However, the colour may turn pale on repeated washing. The indigo dye is treated with alkaline and lime solution to make it fasten on

cloth. After treatment, the solution looks yellow-greenish in colour and smells like mud. The indigo solution is then ready for painting, turns blue when exposed to air.

Charcoal pencils for drawing the outlines of motifs are made by burning twigs of the tamarind tree. The shade of a given colour can vary from one printing to another depending on the plants age and even the weather. Colours are boldest when the dyed cloths are dried under hot, sunny skies. During the rainy season colours are duller and in the winter they are darker (Bhatnagar, 2015).

2.8.4 Process of making Kalamkari



The process of making Kalamkari involves 23 steps. From natural process of bleaching the fabric, softening it, sun drying, preparing natural dyes, hand painting, to the processes of air drying and washing, the entire procedure is a process which requires precision and an eye for detailing.

Required size of grey cloth is soaked in water for one hour and thoroughly kneaded and washed to remove the starch and then dried.

A. Treatment of the grey cloth with myrobalan fruit and milk solution:

The prepared grey cloth is soaked in the myrobalan solution in the pot for 10 to 15 minutes taking care that the cloth is evenly soaked. The excess solution squeezed and the fabric in allowed to be dried in open fields. The cloth takes on a light yellow colour.

B. Outlining in Black:

The outlining of the main theme and figures are drawn free hand with the help of charcoal twigs

C. Painting in Black:

The charcoal outline is traced with a kalam giving a permanent black outline. Finer details of the theme are also painted. Alum solution is used for red colour. The fabric is spread on a woollen rug and the portions which are to appear red are painted with the alum solution. The cloth is dried in shade for a day.

D. Red Dyeing:

The alum painted fabric is put into the red dye liquor and boiled for an hour. This gives a brownish red shade and the process may be repeated if a darker shade of red is preferred

E. Bleaching:

The cloth after developing the red on the alum painted pattern is to make the unpainted portion white, if desired. Traditionally bleaching is done by soaking the cloth in water mixed with goat dung, the fabric is squeezed and left of the night. Next morning the fabric is washed thoroughly and dried in sunlight taking care that the painted portions face downwards. The cloth is kept moist by sprinkling water over it hourly. The treatment with goat dung is repeated in the night followed by a repeat of drying. The process is repeated for the third time, but this time the painted side is revealed to sunlight. Depending upon the whiteness preferred the process may be repeated a number of times. The portions painted with the black and alum retains their black and red colours respectively while the rest become white.

F. Painting in yellow:

A repeat of the process of treating the fabric with buffalo milk solution is done to prevent spreading of colour and making the surface leathery. The bleached and milk treated fabric is spread on a blanket and the portions desired to be yellow and green are

painted with the help of a kalam. Once painted, the fabric is allowed to dry in sunlight and washed the next day.

G. Painting in blue and green colour:

If a blue colour is desired, the cloth is once again treated with diluted buffalo milk. The cloth is finally washed and dried. However, the blue applied by the ultra-marine blue is not as fast as desired; hence the cloth is washed very lightly and carefully. Blue dye (Indigo or ultramarine blue) Blue is applied on yellow portions to achieve green colour.

2.9 Research studies related to Kalamkari painting

Kedar et *al*. (2018) carried out a study to revive the ancient and ethnic art of textile dyeing, painting and printing with natural dyes. *Ficus benghalensis* as a dye source was used on mulberry silk fabric. Pre- treatment with Myrobolan and pre- mordanting with alum and copper sulphate were carried out. Silk fabric dyed and painted fabric with the dye extracted from *Ficus benghalensis*, showed fair to excellent results for light and perspiration fastness properties while rated good to washing and rubbing fastness properties. Kalamkari painting done on the dyed fabric was rated very good to excellent. This dye also showed excellent antimicrobial activity.

Singh (2018) coined a study to develop new age kalamkari prints that can be applied on western outfits that will appeal to the youth. In the study, different fabrics were used for the explorations in software and instead of the traditional 4-5 colour process, 2 colour or 3 colour and also single colour design explorations were done to reduce time and cost of production. Designs were created taking a theme of birds. Birds were depicted against manmade objects giving it a quirky appearance. Theme based designing was done and sample prints were generated through Reach Fashion Design software so that only the required areas would be painted for final products to reduce wastage as well as to make the process faster. The prints designed were an amalgamation of trends with tradition but tried to keep the essence of the art intact by imparting a message.

Babel and Chouhan (2017) carried out the documentation of design from Kalamkari painting and developed value added shoes through hand painting using Kalamkari art. A total of thirty motifs were developed keeping in mind their suitability for shoes. Developed design sheets were subjected to visual evaluation on five point

rating scale for selection of fifteen appropriate designs by clothing and textile experts. Finally ten pair of shoes was prepared by using ten most suitable designs out of fifteen selected designs for hand painting and these prepared shoes were highly appreciated by the respondents.

Juneja *et al,* (2017) designed and styled ponchos with Kalamkari motifs as a design solution that appealed to younger's taste at affordable prices. Kalamkari motifs were collected and 30 design sheets with most preferred motifs arranged in different patterns as random, border, horizontal, all over and diagonal arrangement were developed and evaluated by 100 respondents. Best preferred 5 prototypes were developed with selected designs on Khadi silk blended fabric. Ponchos were developed with different surface ornamentation techniques such as zari work, applique work,block printing and embroidery work. The developed prototypes were assessed with respect to different parameters such as aesthetic appeal, cost and uniqueness. The idea of bringing about innovation in Kalamkari was accepted by the consumers.

Kumar and Shankar (2016) conducted a study to find out the purchase preference of women while buying the kalamkari handlooms in e-commerce sites in Andhra Pradesh. The main focus of this study is to find out the awareness of women towards kalamkari products, and the elements, women were considering while choose the kalamkari Products, in conjunction with the lifestyle, income levels and perception of women. It was found that colours, designs, quality, touch and feel of the kalamkari fabric along with fit and comfort of the fabric have the great impact on consumer buying preference. Consumers preferred to use fabrics and garments which were affordable with traditional and cultural touch.

A study was undertaken to use corolla of *Nyctanthes arbortristis* as a natural colour for dyeing and painting of cotton and silk with Kalamkari technique using bamboo stick by Deshmukh and Dongre (2015). Cotton and silk painted and dyed with Corolla of *Nyctanthes arbortristis Linn* exhibited fair to excellent wash and sunlight fastness. Further four different dresses were designed and evaluated for fabric elements and colour which rated very good to excellent by the panel judges. Therefore the study suggest the use of *Nyctanthes arbortristis Linn* corolla extract as very good option for yellow, and yellow orange colour as a value addition to fashion fabric and ultimately in eco-friendly clothing.

Hand Painted Kalamakri also known as the Srikalahasti kalamkari is widely used in clothing, home décor and lifestyle products today. The major items of women apparel in Kalamkari clothing is a dupatta, kurta or a saree. An online survey was conducted where the prints and their application were shown to a group of 30 people between the ages of 20-25 yrs. They were asked to vote for designs that they would wear and would want to see in the market. 24 out of 30 people responded well to the prints. Such positive responds to the designs shows that there could be a larger market for such prints (Purohit, 2013).

Deshmukh and Ganeshani (2013) conducted a study to explore, analyse and evaluate distinct herbal dye sources such as *Buchanania cochinchinensis* (Lour) *Almeida*, *Tecomella undullata*, *Syzygium cumini*, *Nyctanthes arbortristis*, *Lagerstomia reginae Roxb* to paint textiles. Taking the global environmental awareness into consideration vegetable mordants such as babul bark, anar chal and alum was used. Result show that vegetable mordants can be successfully used as substitute for metal and chemical mordants. Vegetable dye sources and mordants yielded variety of colours and shades. Painted kalamkari samples were subjected to wash, rub and sunlight fastness and were assessed in terms of colour change. Moderate to very good fastness was found. The colours when used for kalamkari on cotton showed good to excellent fastness.

It can be concluded that designing on textiles is done taking different sources of inspiration. It also indicated that painting with natural colours on various apparel created an appeal to consumers and greater marketability of products.

Chapter III

MATERIAL AND METHODS

This research work was undertaken to study and adapt motifs and designs commonly used in Amaravathi sculptures on textiles. Motifs and designs were adapted onto sarees and kameez, by techniques of kalamkari painting. The materials and methods followed during the course of study are discussed in this chapter under the following headings.

3.1 Selection of Location

3.2 Selection of material

3.2.1 Selection of material for sarees and dress material

3.2.3 Collection of motifs from sculptures

3.3 Design adoption techniques

3.4 Development of questionnaires

3.5 Selection of motifs for adoption

3.6 Development of colour ways

3.7 Placement of motif/design

3.8 Selection of colour ways and placement of designs

3.9 Kalamkari Painting

3.9.1 Tools used in Kalamkari

3.9.2 Preparation of colours

3.9.3 Desizing of cloth:

3.9.4 Tracing the outlines

3.9.5 Painting on Fabric

3.10 Costing of the designed items

3.11 Assessment of consumer acceptability for prepared products

3.11.1 Pretesting

3.11.2 Final evaluation of samples

3.12 Statistical analysis

3.1 Selection of Location:

The town Amaravathi occupies a prominent position in the history of Indian art. It is situated about 35 Km to the north of the town of Guntur. The excavated stupa site and the Archaeological Museum are the main locations that gave information about sculpture. The most important historic monument in Amaravathi town is the Mahachaitya. It is protected by the Archaeological Survey of India which maintains a site museum known as old museum. Fragments of stupa are a treasure of the museum with labels on them showing the period which it belongs to and a small description about the sculpture. Photography was not allowed in the museum.

On the banks of Krishna river in 4.5 acres of land, 'Lotus pandal' with eight pillars was constructed on which is the statue of Dhyana Buddha statue of 125 ft (38 m) was constructed. The statue has a museum in the base underneath it, which consists of sculptures depicting scenes with Buddhist significance, most modern copies of the original reliefs from the Amaravati Mahachaitya stupa which are now in museums around India and the world. Photographs from this museum were collected along with internet resources for different sculptural motifs.

3.2 Selection of material:

3.2.1 Selection of material for sarees and dress material:

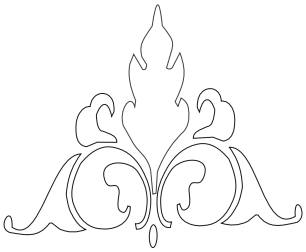
The material selected for sarees was a 100 per cent plain weave cotton fabric in 90sX 65s count and 60sX 40s count for dress materials to render Kalamkari painting with sculptural motifs and designs. Material was sourced from Vijayawada.

3.2.3 Collection of motifs from sculptures:

Animal, birds, floral, creepers and other motifs were selected for adoption in Kalamkari painting designs on sarees and dress material. From the collected photographs and other material sources, either the whole motif/pattern or parts of the motif was selected to develop into suitable designs. A total of 40 sculptural designs were selected, for adopting them suitable for sarees and dress material. The selected motifs for dress materials and sarees were given from figure 3.1 to 3.40. From the selected 40 motifs identified from borders, figures, ornaments etc. of Amaravathi sculpture, the motifs were modified using Corel DRAW software. Among these 40 motifs 20 motifs were used for dress materials and 20 for sarees.

Sculpture

Identified motif

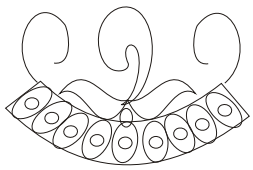


Developed motif

Figure 3.1. Border motif - 1.

Sculpture

Identified motif

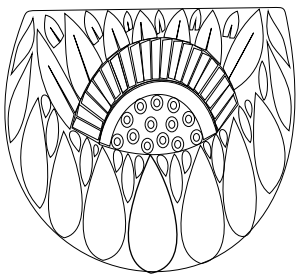


Developed motif

Figure 3.2. Border motif -2.

Sculpture

Identified motif

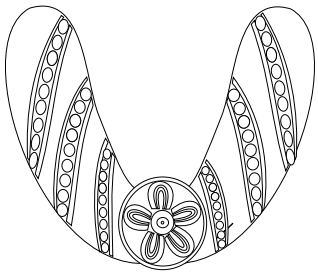


Developed motif

Figure 3.3. Lotus motif.

Sculpture

Identified motif

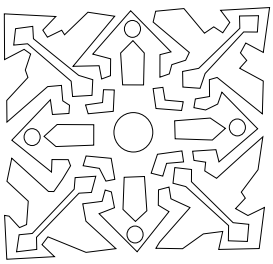


Developed motif

Figure 3.4. Garland motif.

Sculpture

Identified motif

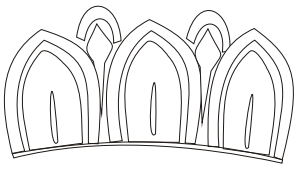


Developed motif

Figure 3.5. Geometrical motif.

Sculpture

Identified motif

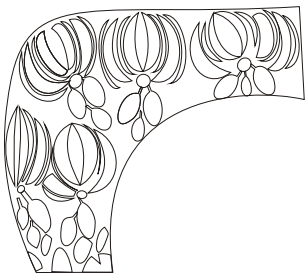


Developed motif

Figure 3.6. Petal border.

Sculpture

Identified motif

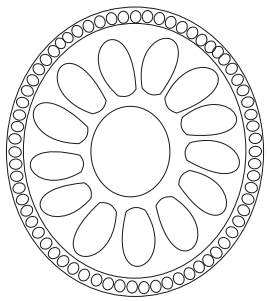


Developed motif

Figure 3.7. Floral pattern.

Sculpture

Identified motif

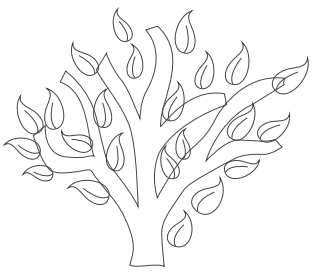


Developed motif

Figuire 3.8. Circular motif.

Sculpture

Identified motif

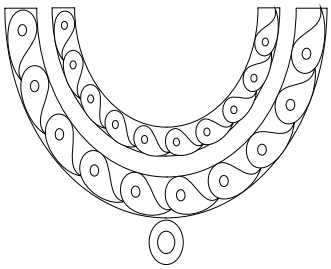


Developed motif

Figure 3.9. Tree motif.

Sculpture

Identified motif

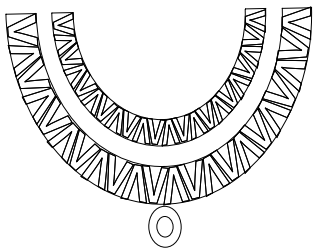


Developed motif

Figure 3.10. Ornament motif -1.

Sculpture

Identified motif

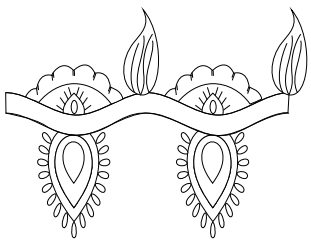


Developed motif

Figure 3.11. Ornament motif - 2.

Sculpture

Identified motif

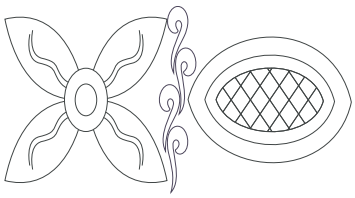


Developed motif

Figure 3.12.Crown motif.

Sculpture

Identified motif

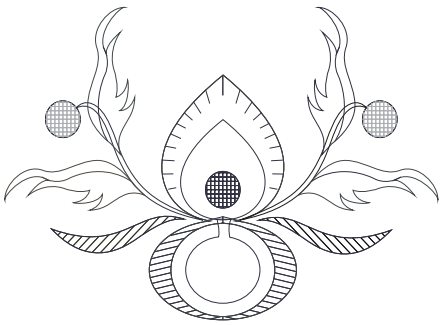


Developed motif

Figure 3.13. Border motif -3.

Sculpture

Identified motif

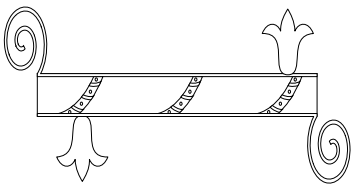


Developed motif

Figure 3.14. Head ornament motif.

Sculpture

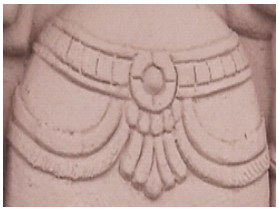
Identified motif



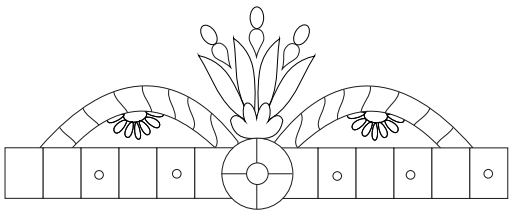
Developed motif

Figure 3.15. Border motif -4.

Sculpture



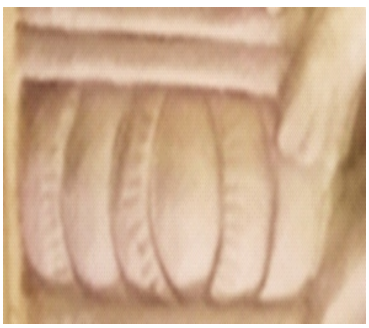
Identified motif



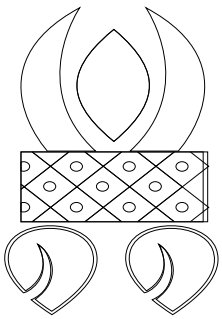
Developed motif

Figure 3.16. Stupa dome design.

Sculpture



Identified motif

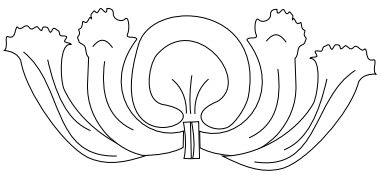


Developed motif

Figure 3.17. Border motif - 5.

Sculpture

Identified motif

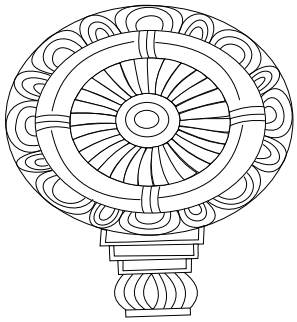


Developed motif

Figure 3.18. Border motif -6.

Sculpture

Identified motif



Developed motif

Figure 3.19. Flaming Pillar motif.

Sculpture

Identified motif

Developed motif

Figure 3.20. Animal motif.

All the developed motifs were shown to a panel of 30 judges for final selection of motif through a questionnaire. A panel of judges including staff of Home Science College, PG students of the department of Apparel and Textiles, specialization students of the department and other Home Science students of the college have selected the final motifs for rendering them on textiles.

3.3 Design adoption techniques:

Either the whole motif or parts of motif was considered in adoption onto textiles. In case of dress material, as kameez is the most accepted garment by adolescents, so designs were developed to suit the kameez material. Motifs that were developed were used along with additional designs suitable for neckline and sleeve borders or garment edges in order to enhance the look of the garment. In case of sarees, motifs in various sizes, design from motifs to suit borders, motifs in gradation of sizes for buti and pallu were designed as per the present trend.

3.4 Development of questionnaires:

A total of three questionnaires were developed to evaluate the motifs selection, colour ways and placement of motifs and final consumer evaluation of finished products. (Appendix I to III)

3.5 Selection of motifs for adoption:

Of the 20 selected motifs for each of the final product, judges were asked to evaluate them as per six parameters developed in a questionnaire to ascertain the ranking of motifs. Motifs that received first five ranks were considered for further study.

3.6 Development of colour ways:

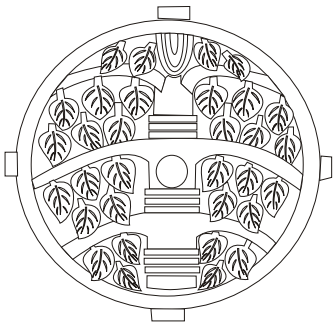
Since Kalamkari hand painting technique is being used in final products, the colours that are generally used in Kalamkari are used for rendering the designs. For selected motifs, three different colour ways were developed with the help of Corel DRAW software using colours used in Kalamkari painting.

3.7 Placement of motif/design:

Selected motifs were shown in three different placements on both kurti material and sarees as per the latest trends followed.

Sculpture

Identified motif

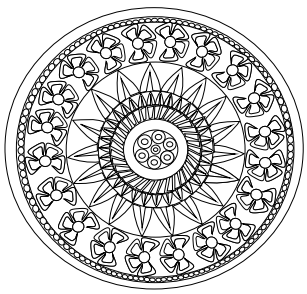


Developed motif

Figure 3.21. Tree motif.

Sculpture

Identified motif

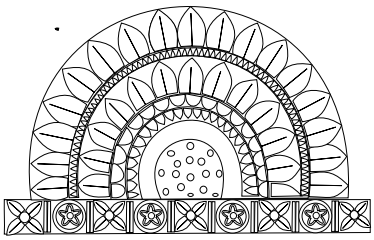


Developed motif

Figure 3.22. Triratna motif.

Sculpture

Identified motif

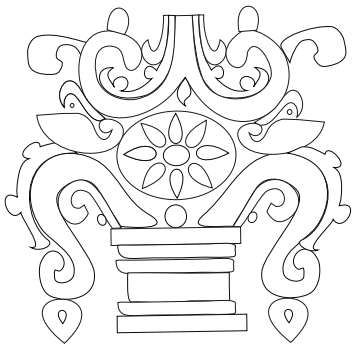


Developed motif

Figure 3.23. Lotus motif.

Sculpture

Identified motif



Developed motif

Figure 3.24. Triratna motif.

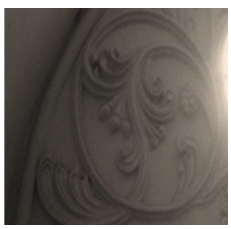
Sculpture

Identified motif

Developed motif

Figure 3.25. Animal motif- lion.

Sculpture



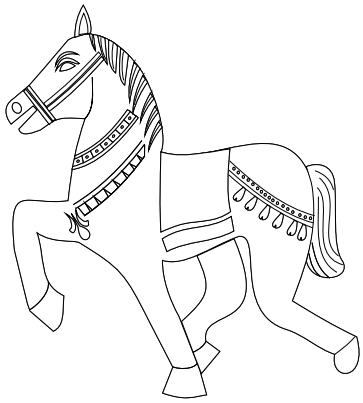
Identified motif

Developed motif

Figure 3.26. Stylized motif.

Sculpture

Identified motif

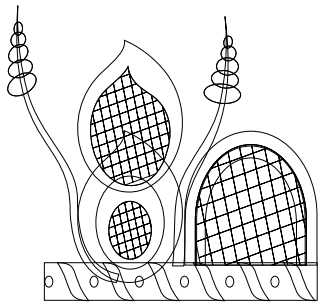


Developed motif

Figure 3.27. Animal motif-horse.

Sculpture

Identified motif

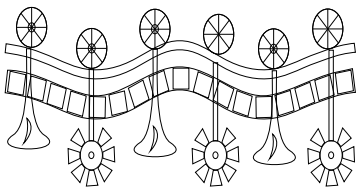


Developed motif

Figure 3.28. Border motif -1.

Sculpture

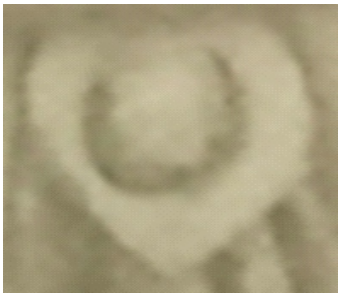
Identified motif



Developed motif

Figure 3.29. Hair not motif.

Sculpture



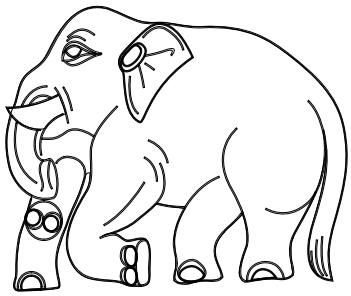
Identified motif

Developed motif

Figure 3.30. Border motif -2.

Sculpture

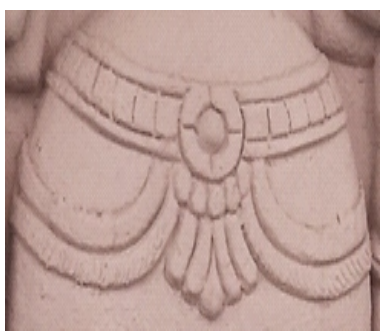
Identified motif



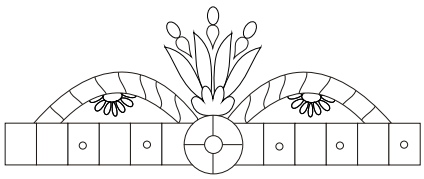
Developed motif

Figure 3.31. Animal motif Elephant.

Sculpture



Identified motif

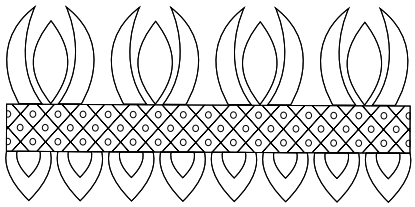


Developed motif

Figure 3.32. Dome slab motif.

Sculpture

Identified motif

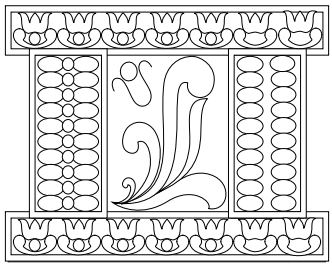


Developed motif

Figure 3.33. Border motif-3.

Sculpture

Identified motif

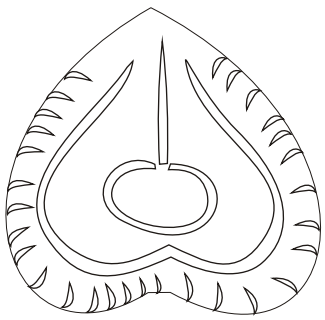


Developed motif

Figure 3.34. Stylized motif.

Sculpture

Identified motif



Developed motif

Figure 3.35. Triangle motif.

Sculpture

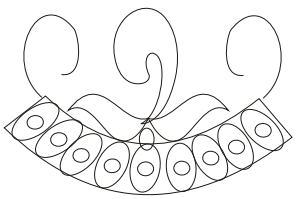
Identified motif

Developed motif

Figure 3.36. Elephant head motif.

Sculpture

Identified motif



Developed motif

Figure 3.37. Border motif- 4.

Sculpture

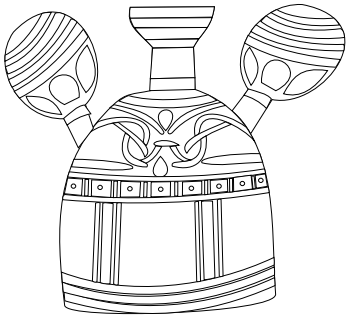
Identified motif

Developed motif

Figure 3.38. Purnakumba motif.

Sculpture

Identified motif

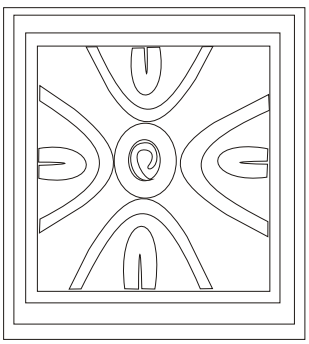


Developed motif

Figure 3.39. Border motif-5.

Sculpture

Identified motif



Developed motif

Figure 3.40. Border motif-6.

3.8 Selection of colour ways and placement of designs:

The developed colour ways were shown to the experts and their preferences were sought using preferential choice index to select suitable colour ways of fabric Kalamkari painting. On the basis of preferences obtained through average were calculated and ranks were assigned to the developed colour ways. As per assigned ranks, one most preferred colour way of each preferred design placement on saris and Kameez was selected for Kalamkari painting.

Similarly with the selected colour way, design placement was done in three different areas over the garment. Placement of design was again evaluated by the same panel of judges for final rendering of design on the garment.

3.9 Kalamkari Painting:

"Kalam" refers to a pen used in painting where as "Kari" in urdu means craftsmanship involved, hence called "Kalamkari", it has come a long way since it was started around 3000 years, there were many trial and errors in the beginning of kalamkari.

3.9.1 Tools used in Kalamkari:

a. Kalamkari Magam:

Wooden frame also known as kalamkari magam is an adjustable wooden frame on which the fabric is attached at one end it is then stretched slightly to the other end, secured and locked using a wooden stick. This allows the artist to drawn and paint neatly. Generally wooden frame is meant for thin fabrics whereas for thick fabrics, the fabrics are laid on the ground and worked. Artisans used wooden table of 18x24x60 inches for their work. Sometimes they also used blankets and other cloth to keep semi finishes items and also items under processing.

b. Charcoal pencil:

For sketching design outlines on the fabric, burnt tamarind stick was used. Tamarind twigs are burnt and when they are half burnt and blackened, fire is extinguished with sand which cools it and forms a charcoal pencil (Figure 3.41).

c. Kalamkari pen:

The pen is made of split bamboo. Two types of pens are used one for outlining and the other for colour filling. One is a sharp-tipped one for outline drawing; the other has a broad, round tip and is used for filling in with mordant. The broad-tipped kalam has a fibrous edge. For both the pens, in the middle of the pen wool or jute yarn is tied around in the form of a ball rolled on the stick in a particular pattern and a thread is tied around the cotton cloth to secure the cloth at the required place. Instead of a cotton cloth many times a lump of cotton is also tied to the bamboo stick allowing more absorption of colour mostly this is used in the inside areas of the fabric which has to be painted. Cotton cloth acts as filler when dipped in dye and helps to draw on to the fabric. The pen after dipping in the required dye is gently squeezed to remove excess and while drawing, the cotton ball fabric is squeezed gently for the colour to flow in the area, which is being painted (Figure 3.42 to 3.44).

3.9.2 Preparation of colours:

Mostly used colours are Red, yellow, blue both light and dark shades, Green, pink colour is used rarely because it is more expensive. Natural vegetable colours are used in painting (Figure 3.45).

a. Black colour:

The basic black dye used by the kalamkari craftsman is an iron liquor prepared known as Kaseem in a mud pot. Palm and cane jaggery powder are mixed together and allowed it to dissolve in the water, after which iron fillings are dropped. The solution is stirred once in a few days. The solution takes about twenty days to mature when it is decanted and taken for painting. For preparation 10 l of water, 2 kg of rusted iron filings and 300 gm of cane jiggery and 150 gm of palm jiggery is added and left for 20 days for proper maturation. This solution when drawn on myrabolan treated cloth turns into a permanent black. It is later stored in a drum or a closed container.

When the iron acetate is applied to treated cloth, a chemical reaction takes place between the iron acetate and the myrobalan solution, causing the kaseem to first appear as a dull, brownish Gray, and after a few seconds reach a deep black colour.

Figure 3.41. Charcoal twigs.

Figure 3.42. Sharpening the bamboo stick.

Figure 3.43. Wrapping cotton cloth on the bamboo stick.

Figure 3.44.Wrapping the thread in diagonal pattern.

Figure 3.45. Kaseem.

b. Yellow colour (Myrabolan):

The flower of myrobalan of 1 kg is ground to powder form and to this 1500 gm of water is added and boiled for 1 hr Later, the liquid is filtered to remove solid matter. This solution is mixed with 50 gm patika or alum to get yellow colour. The solution is stirred and then cooled. For a dark shade of yellow, the solution is left for a week.

c. Golden yellow colour:

The upper part of the pomegranate fruit (rind) is dried, finely powdered and mixed with water, stirred and then boiled to high temperatures where it becomes a fine paste and it is then stored. It is also mixed with alum to obtain light yellow colour. About 200 gm of rinds are powdered and boiled in 3 l of water. Once cooled, about 8-10 gm of alum is added to the solution. After a week's time, fine paste is then squashed by hand and yellow colour is produced. The pomegranate rind solution can then be painted directly onto cloth, creating a dullish yellow colour.

d. Blue colour:

This is often called as neelimandu or aquamarine, is made from about 10 gm of commercially produced ultramarine blue dye lumps dissolved in water. It is applied to the cloth on unpainted portions where a blue colour is desired, or it is painted over existing yellow portions which turn in to green colour.

Once dried, the cloth is then washed lightly in water and dried. Based on the existing method of using ultra marine blue, the colour is not very fast, therefore the cloth is washed carefully.

e. Red and Maroon:

Chavalikodi root and Surulipatta bark (madder plant) is added to boiling water. Alum or Phitkari-painted cloth is submerged in the boiling water for about 40 min. The cloth is then removed, rinsed with cold water and let dry. For a darker shade of red or multiple shades of red in a single piece, the entire process is repeated until desired colours are obtained.

3.9.3 Desizing of cloth:

The fabric selected for the products were first soaked in water for nearly half a day, beaten against stone to remove starch and dirt present in the fabric. Following this, in a large vessel, the fabric is soaked in myrobalan (Myroblan is locally called as

Figure 3.46. Desizing of fabric.

Figure 3.47. Ingredients for pretreatment of fabric.

Figure 3.48. Mixing of myrobalan powder with milk to make in to dilute solution.

Figure 3.49. Dipping of fabric in the solution.

Figure 3.50. Tracing design on the fabric with charcoal powder.

karakhaya pindi), powder or paste mixed with water along with fresh buffalo milk for 10 to 15 min until the fabric absorbs well and then the fabric is dried in open fields under direct sunlight. Approximately for a saree of 6.5m, 150 gms of myrobalan powder and 2 l of milk is used. For good absorbency, the washed cloth is folded loosely to permit easy penetration of myrobalan. The cloth is slowly dipped into the solution. It is then opened up part by part and soaked again and pressed down with the hands. This type of pressing helps greater absorption. The myrobalan nut is rich in tannin and it not only serves to develop the black colour of kaseem but also acts as an excellent fixing agent for the other natural dye which is subsequently used (Figure 3.46 to 3.49).

The process of opening, folding and twisting the cloth is repeated again, but this time the twisting is done in the opposite direction. The squeezing motion helps to spread the fat content of the buffalo milk. The fat holds the colours on the surface and prevents colour from spreading. This effect on the fabric lasts for one month. This treatment helps from spreading the colour when the outline is drawn on the fabric.

3.9.4 Tracing the outlines:

Artisans make themselves comfortable on the floor while drawing outlines using a scholar's writing desk, they stretch the fabric and clip it on both ends which makes it easier for the artisan to draw. Master draws the outline/ design on the butter sheet or tracing paper and small holes are pierced along the borders on the sheet. The tracing sheet is then kept on the fabric and black powder is sprinkled along the borders, which forms an outline on the fabric below. Kalamkari pen is one the oldest and tradition way of kalamkari painting.

Only experienced artisans are preferred to draw the outlines as it has to be elegant and precise, it takes usually three months for a trainee to learn to draw the outlines and it takes almost fifteen days to learn to fill colours in the fabric. Burnt tamarind stick is used to drawn the outlines of the fabric; however experienced artisans directly draw outlines with black colour (kaseem karam) using kalamkari pen (Figure 3.50).

3.9.5 Painting on Fabric:

After the outlines on the fabric are drawn using kaseem karam / black using the Kalamkari pen, the fabric is stretched full length on the ground or on the kalamkari maggam (wooden frame), and then the colouring filling process starts (Figure 3.51 to

3.60). On a single cloth up to ten artisans take up separate spaces to fill colour in different areas. Karaka pooh (maroon) and alum is mixed together to form a solution, alum is basically colourless but also acts as an highlight to the colour when painted, it also is a natural mordant which makes the colour stick firmly to the fabric. The areas, which are to be filled in red/ maroon, are first painted and then left to dry under diffused sunlight for 1 to 2 days until the fabric absorbs the colour completely. The fabric is washed in a rhythmic manner making sure that excess alum is removed, flowing water is best suitable, as the excess alum and colour removed from end should not stick to the other end of the fabric. Cloth is then dried well under direct sunlight and boiled in water with temperatures of around 80º to 100ºC and dried. The fabric is again soaked in pure milk and dried. Milk acts as wax, which prevents colour from spreading on the fabric when other colours are applied later on. The fabric is then painted with vibrant colours using kalamkari pen, different colours such as grey, yellow, golden and blue are painted. Alum is used in all colours because it possess a mordant quality. Wet cotton is gently pressed on the coloured area to remove excess colour. Finally the cloth is soaked in lukewarm water to remove excess alum and colour, it is again washed in flowing water to remove impurities and then ironed which is ready to be sent to the customer. Kalamkari painting on sarees can take up to 50 days to complete depending on the design and pattern. Running designs are much common in the present times however every master kalamkari artist have their own style and creativity to implement various styles of designs and motifs.

3.10 Costing of the designed items:

The cost of the each kameez and sarees was calculated by adding the cost of fabric, colours cost, painting and labour charge.

3.11 Assessment of consumer acceptability for prepared products:

3.11.1 Pretesting:

To find out the consumer opinion about the samples, subjective evaluation was conducted. An evaluation schedule was prepared and it was pre tested by the faculty and post graduate students of Apparel and Textile department. Pretesting was done to remove any ambiguity in the schedules and to check whether the elicited responses fulfilled the research objectives. The revised final schedule was prepared after pre testing.

Figure 3.51. Drawing design using kaseem.

Figure 3.52. Washing of fabric.

Figure 3.53. Beating the fabric against the stone.

Figure 3.54. Boiling of fabric.

Figure 3.55. Treating the fabric with milk.

Figure 3.56. Squeezing of excess milk from the fabric.

Figure 3.57. Preapared Kalamakri colours.

Figure 3.58. Fixing outline saree on to the maggam.

Figure 3.59. Filling the outline with colours using kalam.

Figure 3.60. Painted Kalamkari dress materials.

3.11.2 Final evaluation of samples:

The evaluation of finished garments was done by a panel of 30 consumers, using the final evaluation schedule, which was pretested in (Appendix – III). The panel consisted of staff, post graduate students, under graduate students of College of Home Science, Acharya N.G. Ranga Agricultural University, Guntur, who are well versed in the designing aspect.

The sarees and kameez materials were draped on the dress form to show the overall effect of the product and for convenience of consumers to evaluate the characteristics of each article. The consumers were requested to look into the characteristics of suitability of the design for the type of garment, suitability of the base fabric for the selected design, suitability of the motifs/border designs to the end use, suitability of the kalamkari painting technique for motifs/design, colour combination in motifs/border designs, quality of workmanship and overall appearance and cost factor.

3.12 Statistical analysis:

To find out the consumer acceptance, statistical analysis was done. Frequency scores and percentages were calculated for each designed item and required inferences were drawn.

Chapter IV

RESULTS AND DISCUSSION

This chapter deals with research findings of the study with relevant discussion. The finding of the study has been presented in the form of tables, and figures wherever necessary. Dress material was developed based on the present trend of the youth. As youngsters prefer using kurti in their daily wear, designing for dress material was done suitable for kurti. Saree designs were rendered differently to attract the consumers of the present day. Final garments were displayed on the appropriate dress forms, for consumers to understand the final look it offers when worn on the body. This chapter has been discussed under following heads and sub heads:

4.1 Survey on Amaravathi sculpture

4.2 Selection of Motifs

4.3 Selection of colour ways for the selected motifs on dress Material

4.4 Selection of colour ways for sarees

4.5 Selection of design placement for the selected motifs on dress material

4.6 Selection of design placement on sarees

4.7 Consumer evaluation

4.7.1 Consumer evaluation of Kameez –I

4.7.2 Consumer evaluation of dress material –II

4.7.3 Consumer evaluation of Kameez -III

4.7.4 Consumer evaluation of Kameez material -IV

4.7.5 Consumer evaluation of Kameez -V

4.7.6 Consumer evaluation of Saree -I

4.7.7 Consumer evaluation of Saree -II

4.7.8 Consumer evaluation of Saree –III

4.7.9 Consumer evaluation of Saree –IV

4.7.10 Consumer evaluation of Saree –V

4.8 Description of Designed material

4.1 Survey on Amaravathi sculpture:

Thought to have been a great Mahayana Buddhist centre, Amaravati was an important and flourishing trade centre from the 4th-2nd century BC. Visited archaeological museum in Amaravathi town of Guntur district to collect sculptural designs. As photography was strictly prohibited in the museum, leaflet containing little information about the excavated item of Mahachaitya was collected. Copies of the original relief from the stupa were found at 'Lotus Pandal' where photography was allowed. These reliefs were also photographed. Some sculptural designs from the internet were also collected.

4.2 Selection of Motifs:

The ancient Sculptures of Amaravathi were carved with different types of motifs and designs. Overcrowded human forms, animal and plant motifs were observed in the collected pictures. A total of forty motifs were drawn from the collected sources keeping the suitability to dress material and sarees. Based on the products, the collected motifs were divided into two categories of 20each such as motifs suitable for dress materials and motifs suitable for sarees. The division of motifs was done on the basis of textile products and considering the product type.

These collected motifs were modified by smoothening, blending, rotating and applying geometrical transformations to suit the need. These modifications were done using Corel DRAW 11 software. The modified motifs were evaluated by the panel of 30 judges on the basis of suitability to render them on products like dress materials and sari using Kalamkari painting technique. The results of evaluation of motifs for each category are presented in the Table 4.1 and Table 4.2.

The collected motifs were evaluated and averages were calculated and in turn ranks were assigned accordingly. It is evident from the Table 4.1 that the motif no. 19 got highest average value 19.0 and it was assigned rank I followed by motif no. 20, 5, 2 and 1 with average 18.7, 18.5, 18.4 and 18.1 and were given ranks II, III, IV and V. The lowest average value was recorded for two motifs (3 and 8) and they were assigned with Rank XV. Motifs 9 and 16 got the same ranking of 7 while 4, 7 and 14 numbered motifs were ranked rank 8. However the five motifs which scored highest averages were selected for rendering in three colour ways and three design placement on dress materials. The selected motifs are given in (Figure 4.1 to 4.5).

Table 4.1 Averages and ranks of motifs selected for dress material.

N=30

Motif No.	Average	Rank
1.	18.1	V
2.	18.4	IV
3.	15.6	XV
4.	17.1	VIII
5.	18.5	III
6.	16.5	X
7.	17.1	VIII
8.	15.6	XV
9.	17.5	VII
10.	16.8	IX
11.	16.2	XIII
12.	16.3	XII
13.	17.6	VI
14.	17.1	VIII
15.	16.2	XIII
16.	17.5	VII
17.	16.1	XIV
18.	16.4	XI
19.	19.0	I
20.	18.7	II

Among 20 motifs selected for sarees, it is clear from the evaluation results shown in the Table 4.2 that the motif no. 2 got highest average among all the selected motifs i.e, 19.5 and it was designated with Rank I. Similarly, motif no's. 3, 4, 7 and 11 got the next highest average values and were assigned with ranks II, III. IV and respectively. It is shown that the motif no. 18 got the least average value of 14.2 and was given rank XIX. The first five motifs which were ranked with highest averages were selected for design placement on saree's and the selected motifs are given in (Figure 4.6 to 4.10).

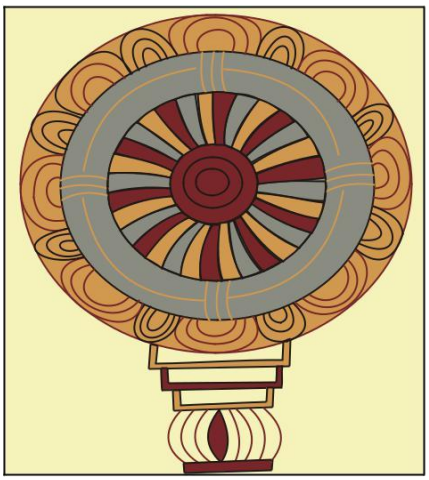


Figure 4.1. Flaming pillar motif.

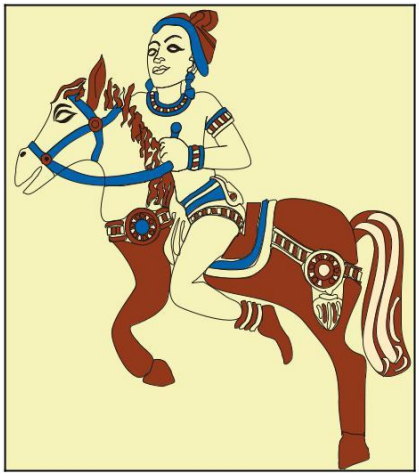


Figure 4.2. Animal motif - horse.

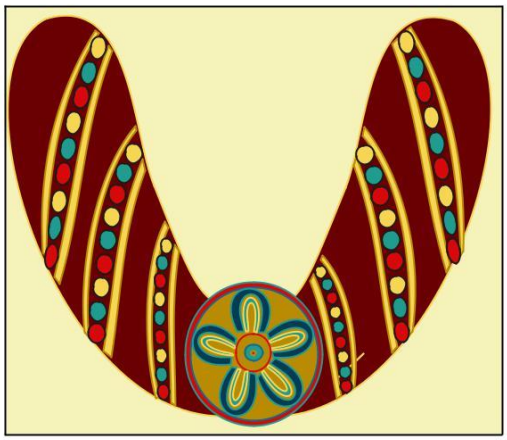


Figure 4.3. Garland motif.

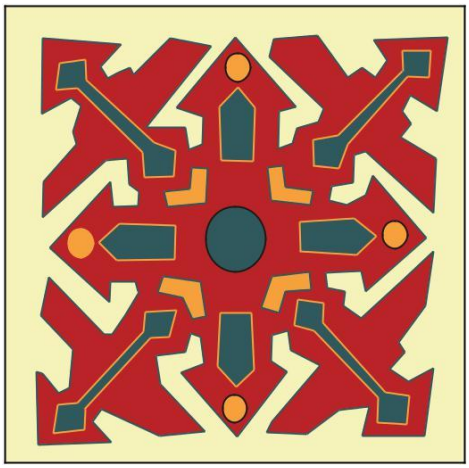


Figure 4.4. Geometrical motif.

Figure 4.5. Tree motif.

Selected motifs for dress materials

Figure 4.6. Triratna motif.

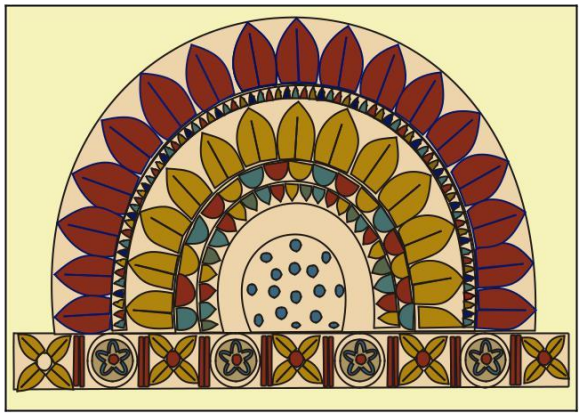


Figure 4.7.Lotus motif.

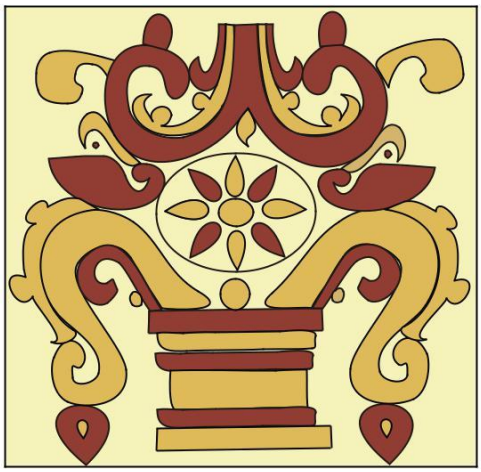


Figure 4.8. Triratna motif –I.

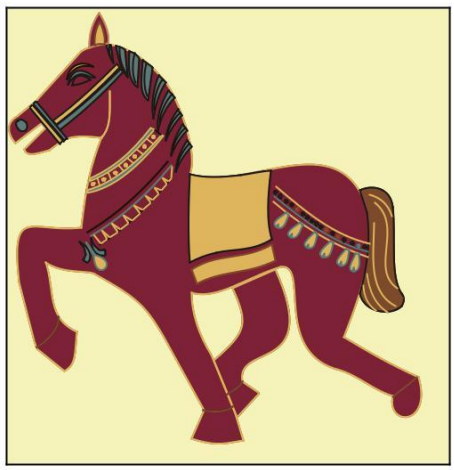


Figure 4.9. Animal motif -Horse.

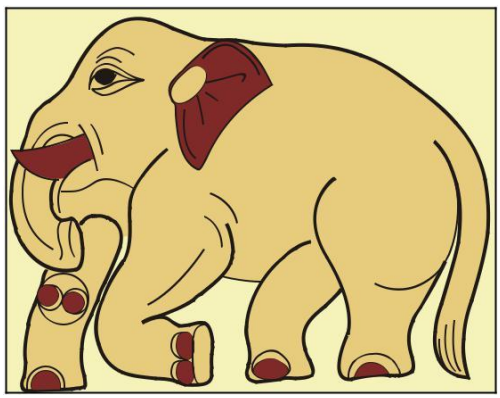


Figure 4.10. Animal motif -elephant.

Selected motifs for sarees

Table 4.2 Average rating and ranks of motifs selected for sarees.

N=30

Motif No.	Average	Rank
1.	17.8	XI
2.	19.5	I
3.	19.4	II
4.	19.3	III
5.	18.1	IX
6.	18.6	VII
7.	19	IV
8.	17.8	XI
9.	16.2	XVII
10.	17	XIII
11.	18.8	VI
12.	17.9	X
13.	16.8	XIV
14.	17.2	XII
15.	16	XVIII
16.	18.2	VIII
17.	18.8	VII
18.	14.2	XIX
19.	16.5	XVI
20.	16.7	XV

4.3 Selection of colour ways for the selected motifs on dress material:

The first five ranked motifs from each category were rendered 3 different colour ways considering the colours used in Kalamkari painting work. The colour ways for the motifs were developed with the help of Corel DRAW 11 software and were evaluated by the above panel of 30 judges (Figure 4.11 to 4.15). The results of evaluation for colour ways are presented in the table 4.3 and table 4.4.

Table 4.3 Selection of colour ways in motif developed for dress material.

N=30

Motif No.	Colour way			Average
	I	II	III	
1	2.8	2.6	3.2	2.86
2	3.06	2.65	2.9	2.87
5	2.56	3.03	2.46	2.68
19	2.9	2.5	2.86	2.86
20	2.8	2.93	2.53	2.75

Selected motifs of 1, 2, 5, 19 and 20 were ranked I to V by the respondents. For each motif when 3 colour ways were done, it was found that choice of colour way

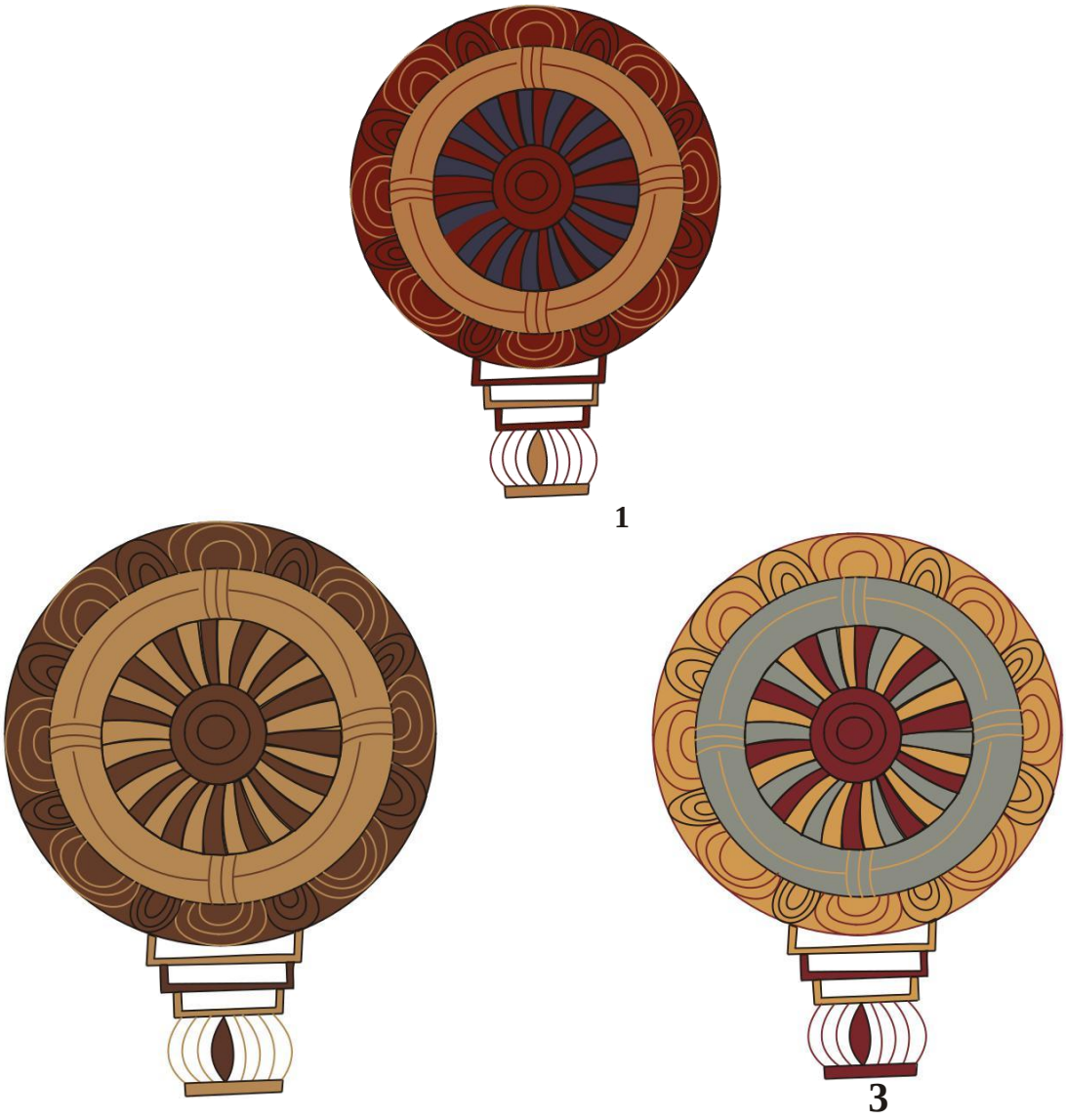
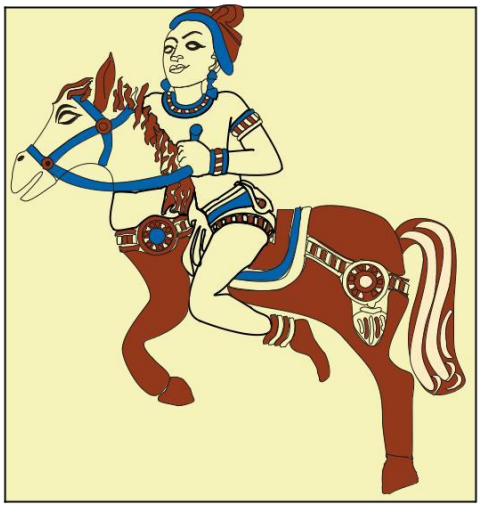
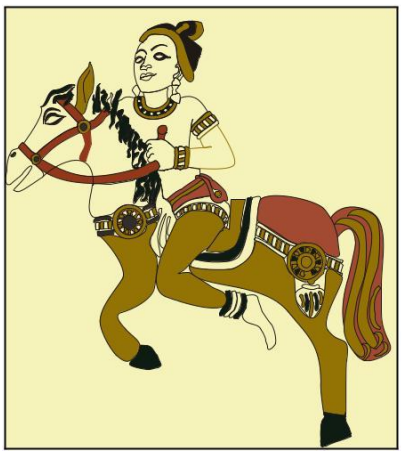


Figure 4.11. Developed colour ways for selected motif - dress material.



1



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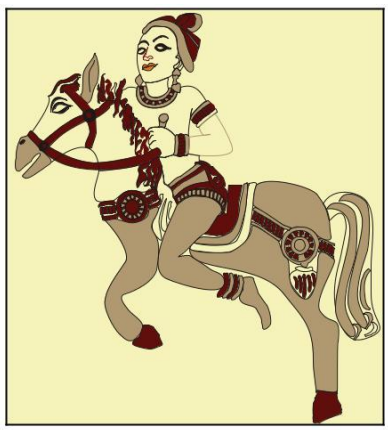
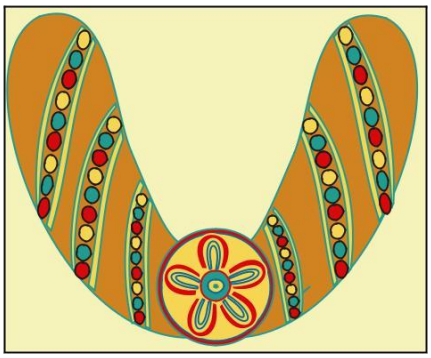


3

Figure 4.12. Developed colour ways for selected motif- dress material .

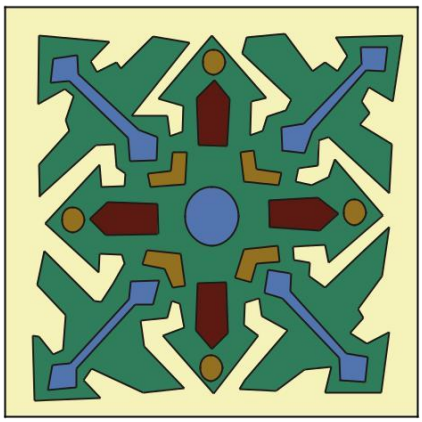


1

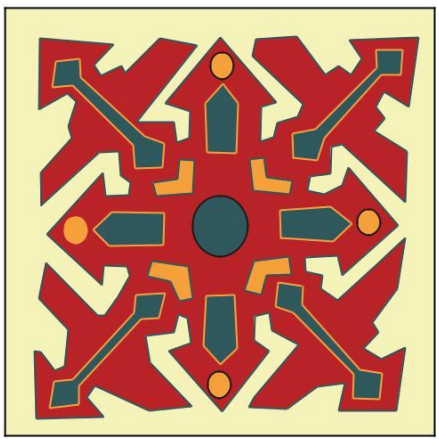
2

3

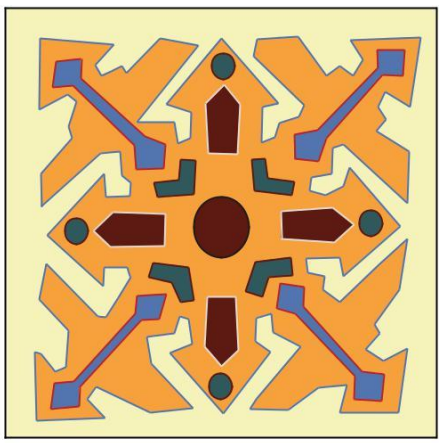
Figure 4.13. Developed colour ways for selected motif- dress material.



1



2



3

Figure 4. 14. Developed colour ways for selected motifs - dress material.

1

2

3

Figure 4.15. Developed colour ways for selected motif - dress material.

changed for each motif. In motif 1 the third colour way was selected while for motif 5 and 20, the second colour way and for motif 2 and 19 the first colour way was chosen. The third colour way of motif number 1 received highest rating of average followed by first colour way of motif 2 and second colour way of motif number 5. Motif 2 received highest rating among all selected motifs rendered in colour ways. This was the motif that received rank V among 20 motifs developed for dress material.

4.4 Selection of colour ways for sarees:

As per the selection of motifs by the consumers for sarees, motif numbers 1, 2, 3, 7 and 11 were ranked from I to V respectively. Motifs where further developed into saree design with buti, border and pallu design. Three colour ways were developed using the colours used in Kalamkari painting for each of saree design developed. When these were displayed for choice to a panel of judges the following rating were found to be assigned for each of the selected design.

Table 4.4 Selection of colour ways for sarees.

N=30

Motif No.	Colour way			Average
	I	II	III	
1	3.30	3.13	3.40	3.30
2	2.97	2.73	3.20	2.97
3	2.80	2.90	3.13	2.94
7	3.10	2.63	2.93	2.89
11	2.97	2.80	2.67	2.81

As seen from the above table it is apparent that of the five selected motifs which were rendered in three colour ways each, motif 1 which was ranked 1st was the one accepted greatly in all colour ways compared to the other motifs and their colour ways. In motif 1, 2 and 3 the third colour way was accepted while in motif 7 and 11the first colour way was ranked to be the best combination. Unlike the colour way influence on motif in dress material, in saree design the first three ranked motifs played a lead role in colour ways too showing that motif selection and colour way has a prominent role in sarees (Figure 4.16 to 4.20).

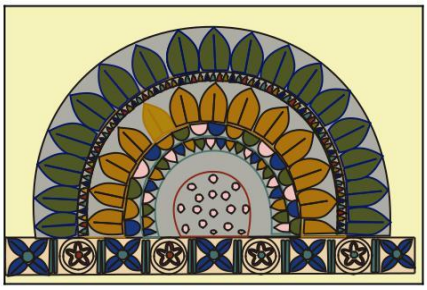
1

2

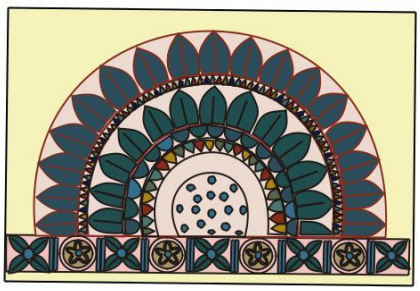
3

Figure 4.16. Developed colour ways for selected motif- Saree.

1

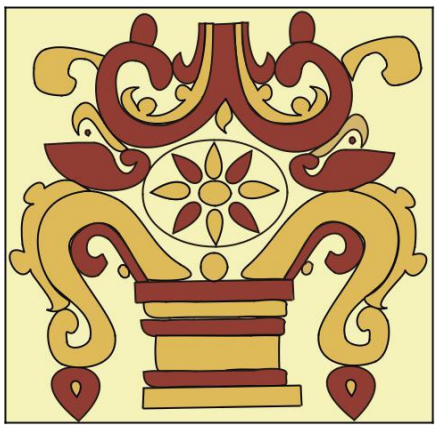


2

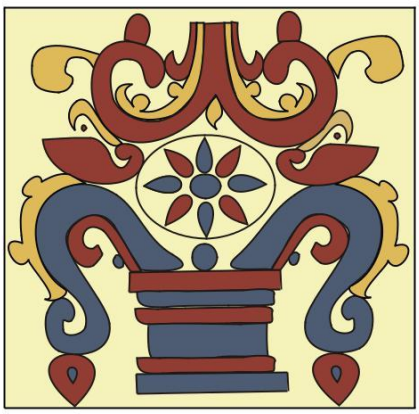


3

Figure 4.17. Developed colour ways for selected motif- Saree.



1



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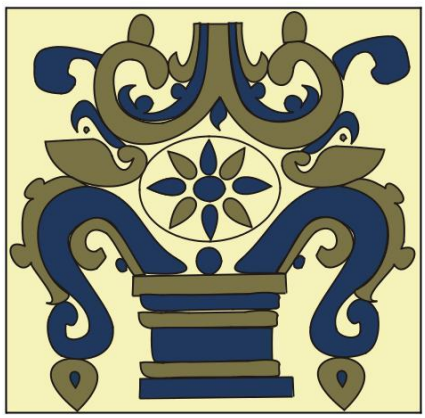
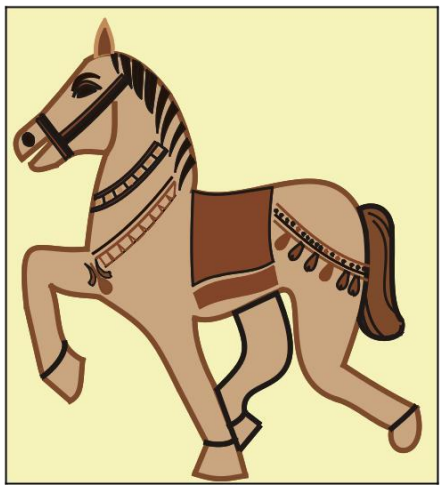


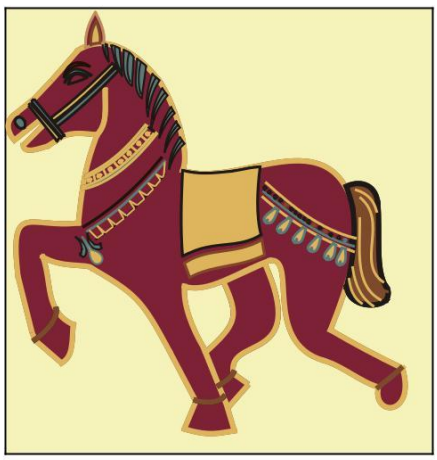
3

Figure 4.18. Developed colour ways for selected motif - Saree.



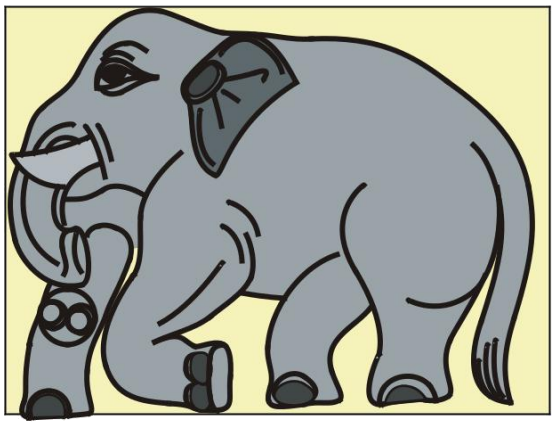
1

2

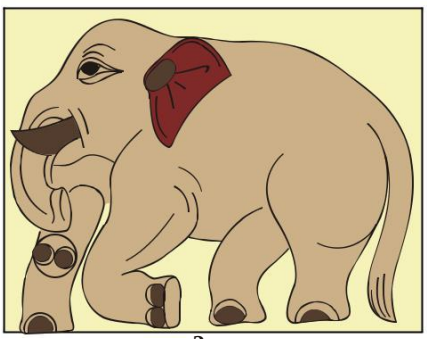


3

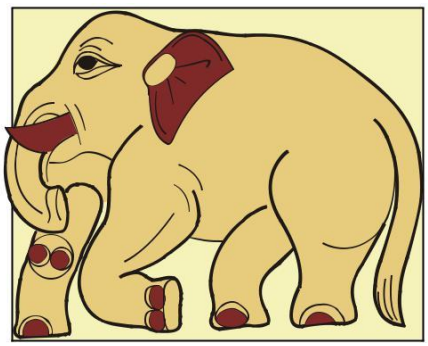
Figure 4.19. Developed colour ways for selected motif - Saree.



1



2



3

Figure 4.20. Developed colour ways for selected motif - Saree.

4.5 Selection of design placement for the selected motifs on dress material:

As evident from table 4.4, the third placement of motif with motif number 5 was rated higher, followed by motif number 19 and 1. The third colour way in the motifs 1, 5, and 19 was chosen by consumers to be the best placement way followed by motif 2 in first style of placement and motif number 20 in second placement style. Motif 1 and 20 received the same amount of rating though the placement styles were different. With regards to colour combination and placement of motif, fifth ranked motif by consumers was given higher averages in terms of motif placement by the same consumers on dress materials. It can therefore conclude that the colour combination and placement of motif has a great role to play in choice a design / motif for a particular apparel product. The selected design placements are given in (Figure 4.21 to 4.25).

Table 4.5 Selection of design placement for motif developed for dress material.

N=30

Motif No.	Design placement			Average
	I	II	III	
1	2.50	2.43	3.10	2.68
2	2.93	2.73	2.57	2.74
5	2.60	2.53	3.50	2.88
19	3.13	3.13	3.17	3.14
20	3.07	3.10	3.03	3.07

4.6 Selection of design placement on sarees:

Among the designs selected for sarees, motif 1 and 3 were on par with each other and gained lower ratings compared to motif number 2 and 7. Motif 11 showed better performance than 1 and 3. Placement showed influence on the selection of design. Design developed out of motif 2 and 11 and placed on saree had the same ratings of 3.20 for one of the placements (Figure 4.26 to 4.30).

On an average, motif number 11 which ranked 5^{th} position among the group almost earned higher ratings over the other four motifs. It is clear that the effect of placing the motif has a greater influence on the selection process and it can even become the first choice in accepting a product. Among this group, animal motif was greatly chosen by the panel of judges as their first choice.

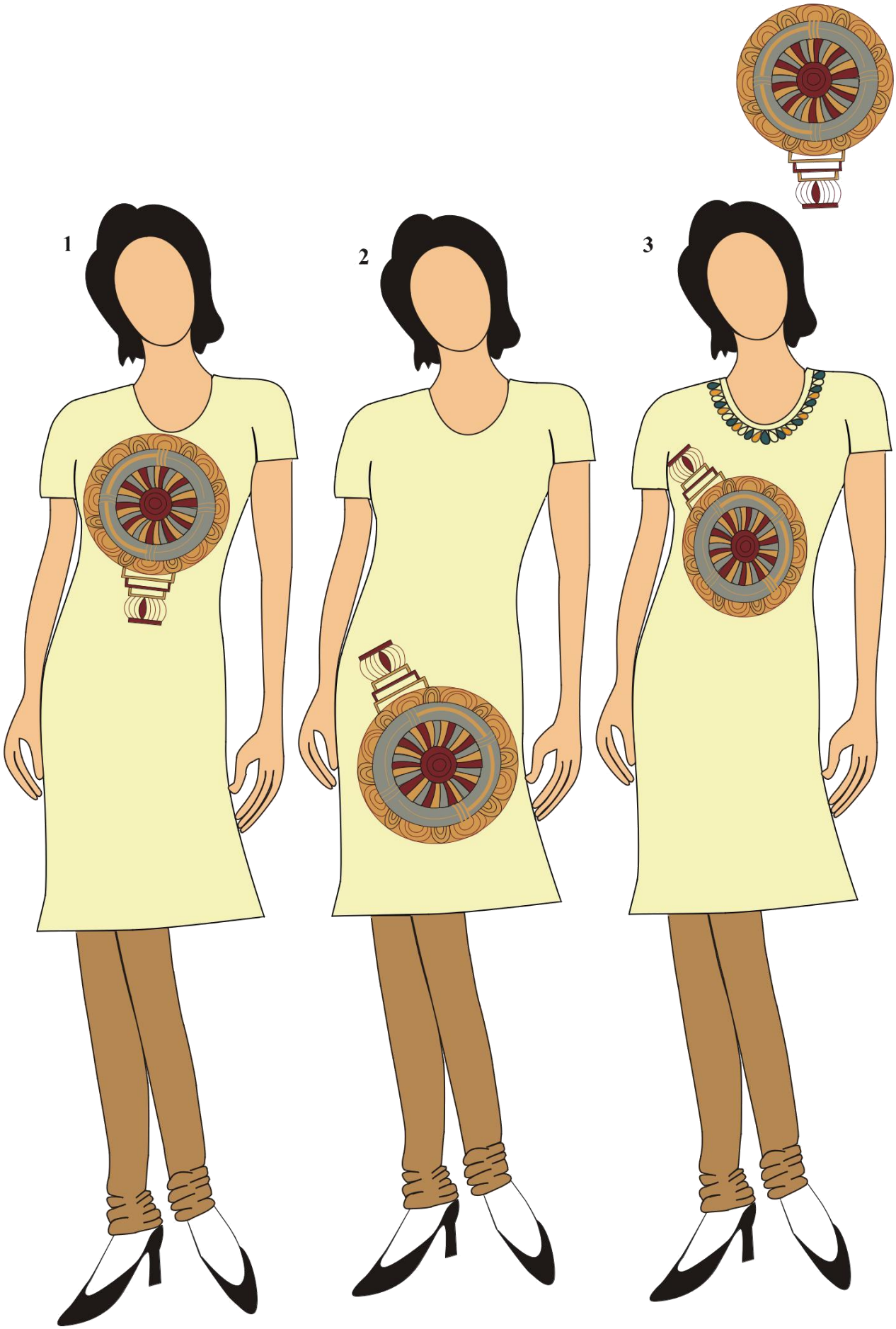


Figure 4.21 Placement of motif on kameez material - I.

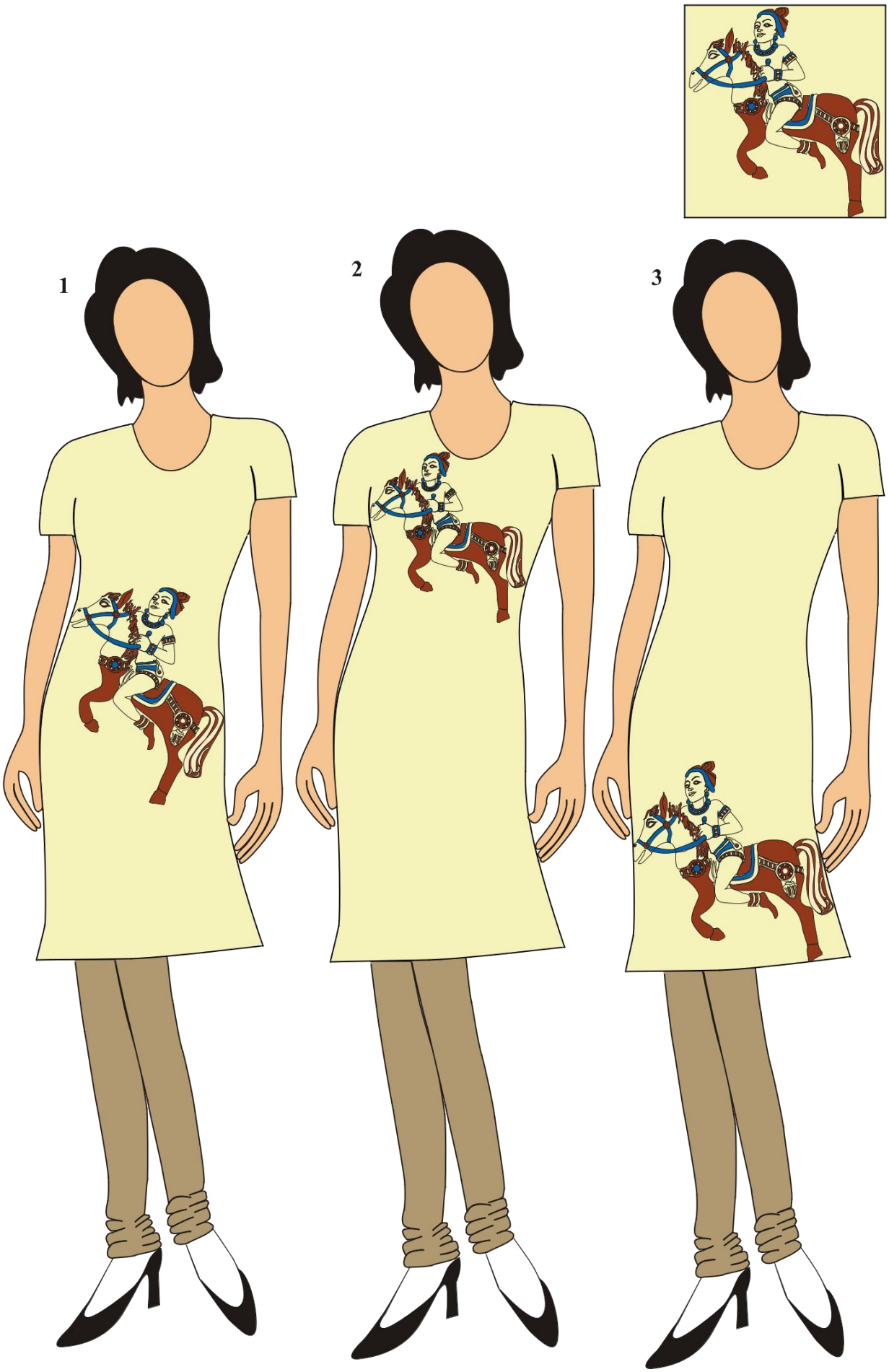


Figure 4.22 Placement of motif on kameez material - II.

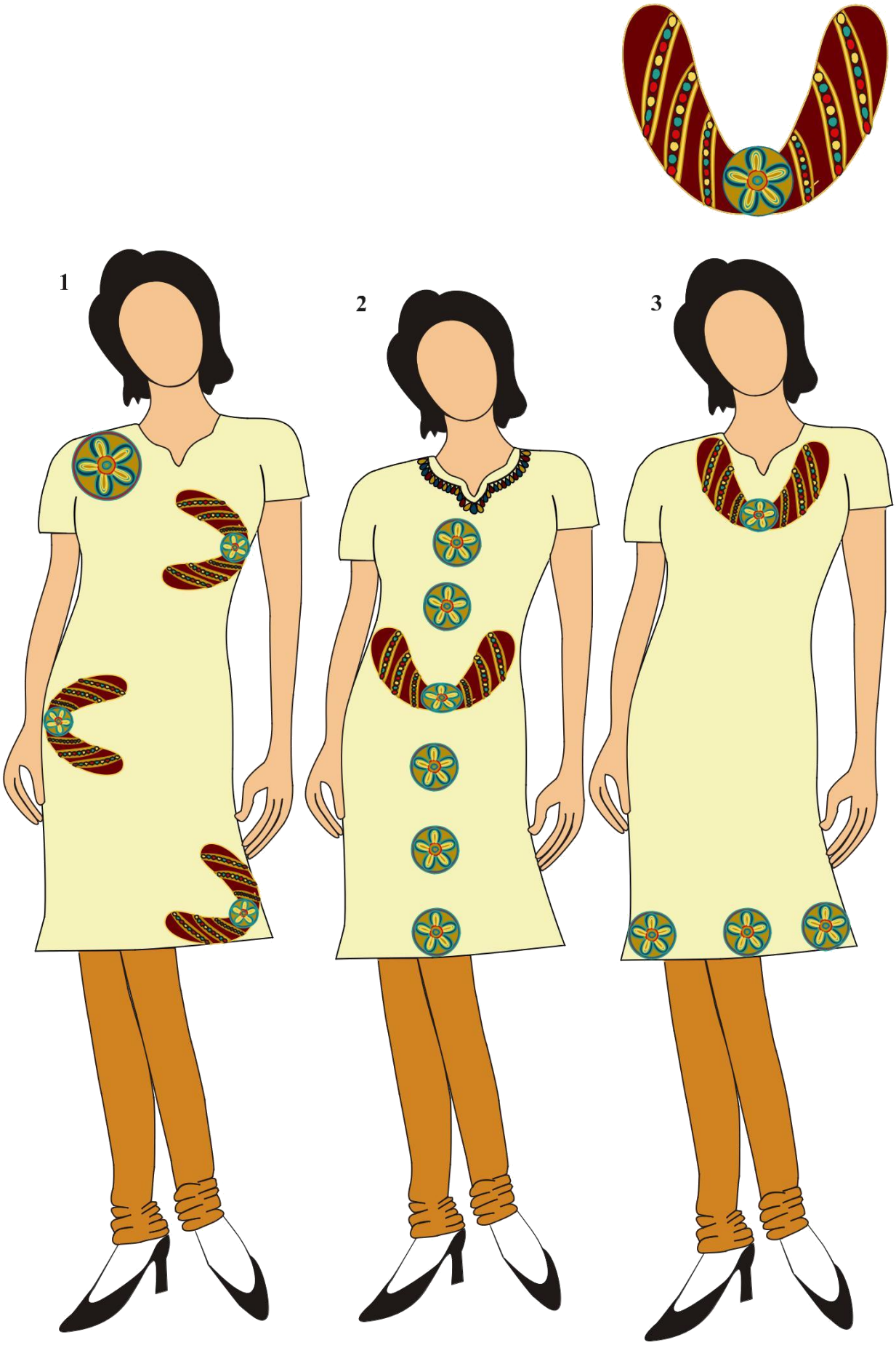


Figure 4.23 Placement of motif on kameez material - III.

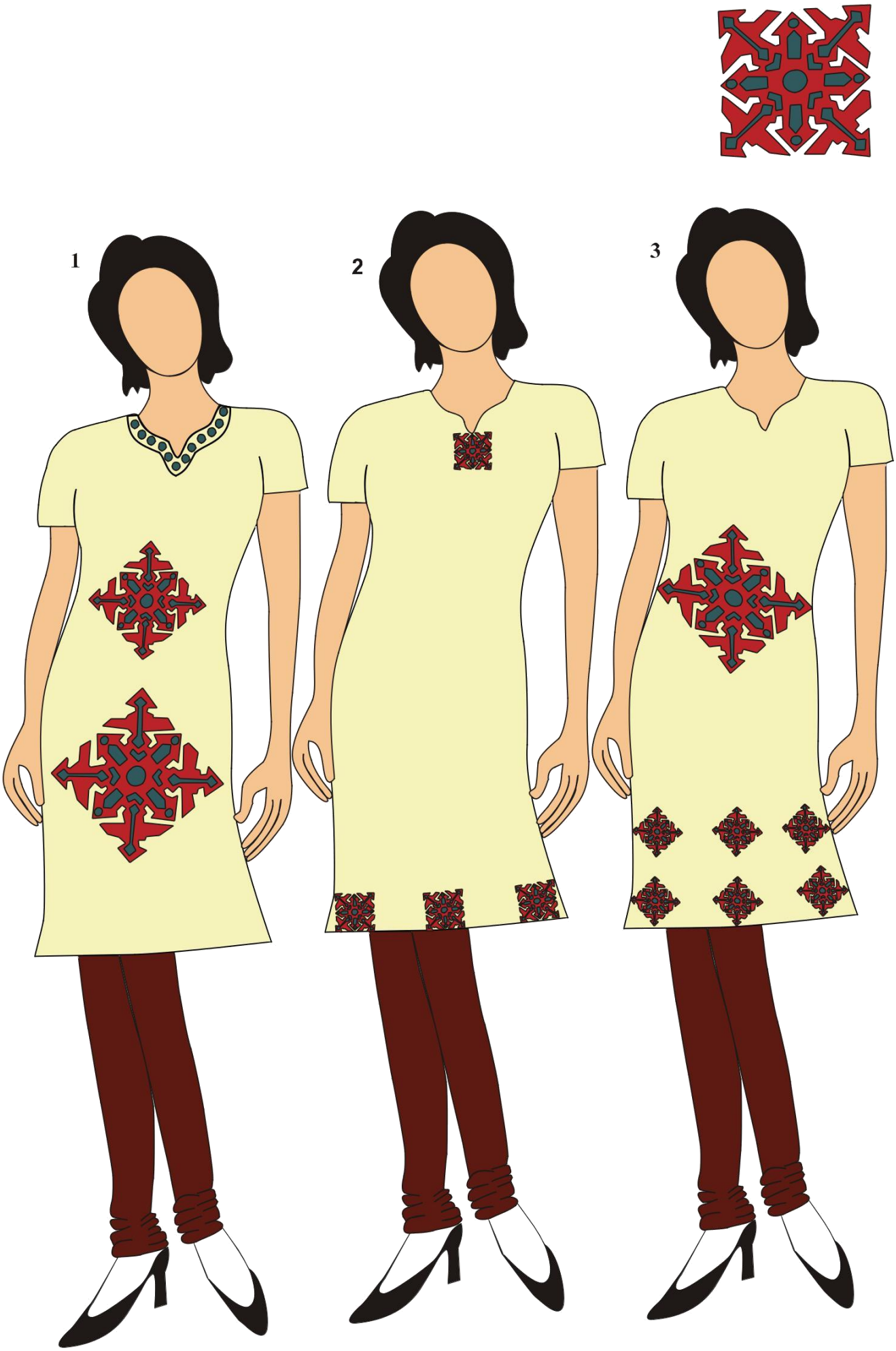


Figure 4.24 Placement of motif on kameez material - IV.

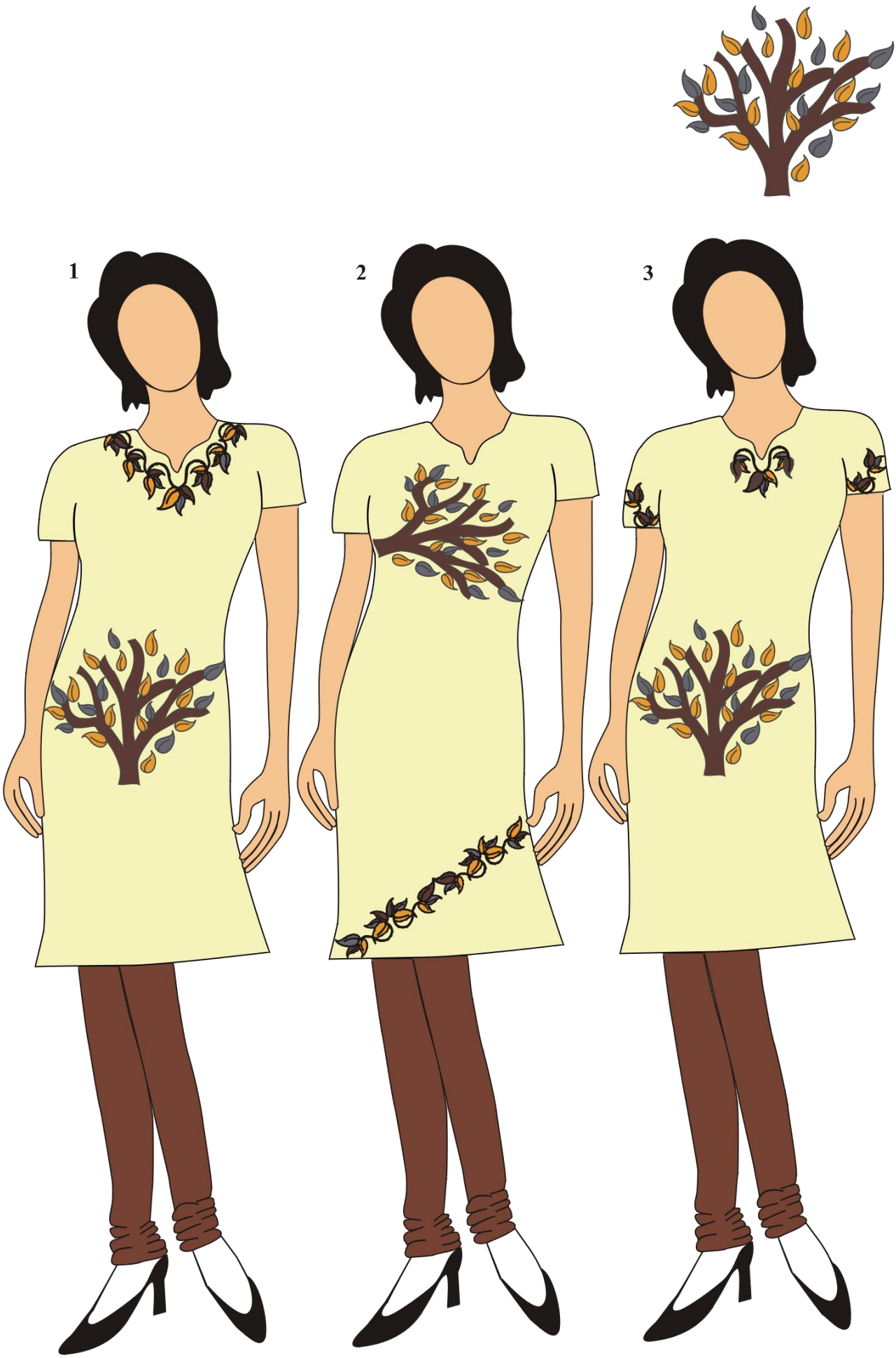


Figure 4.25 Placement of motif on kameez material - V.

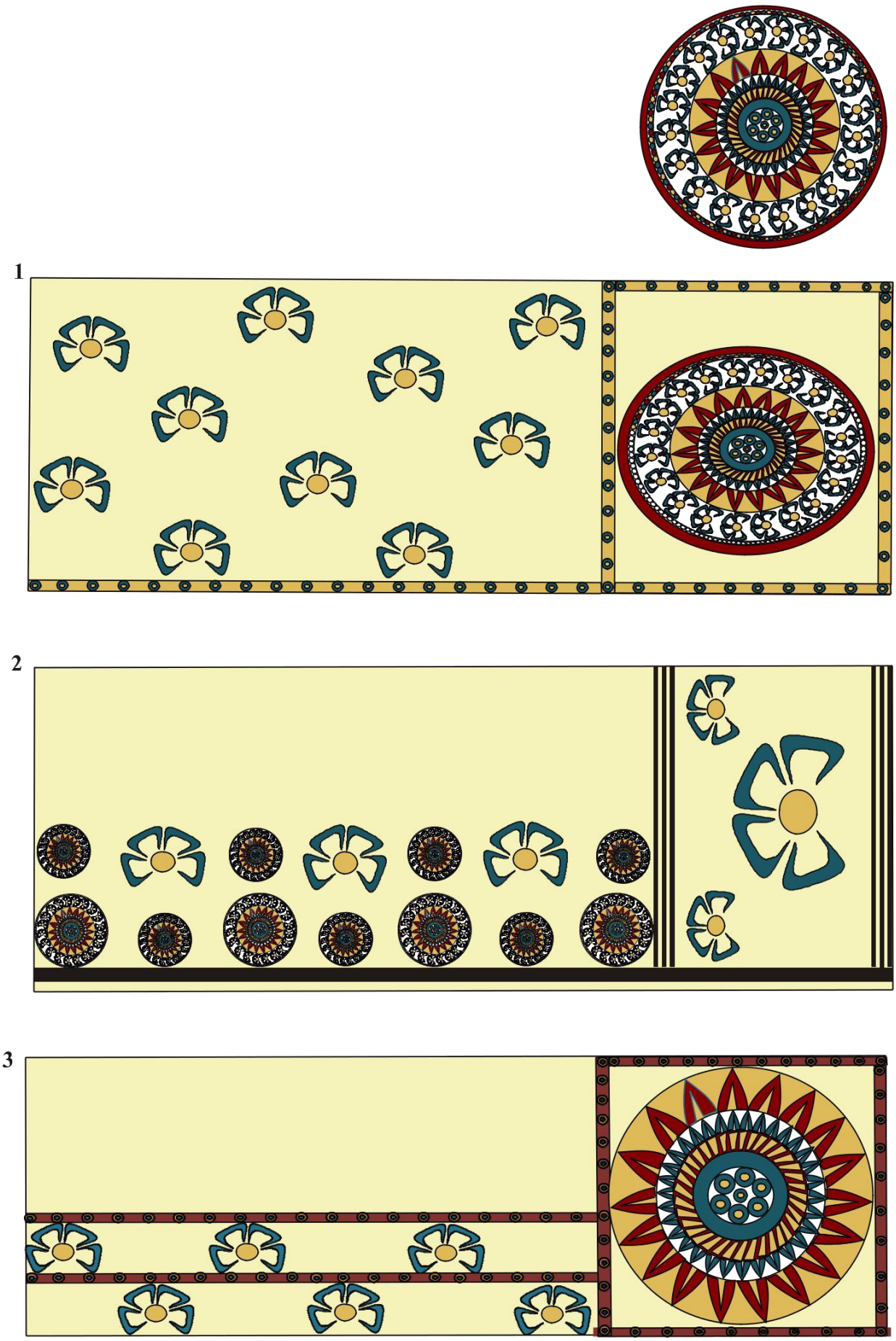
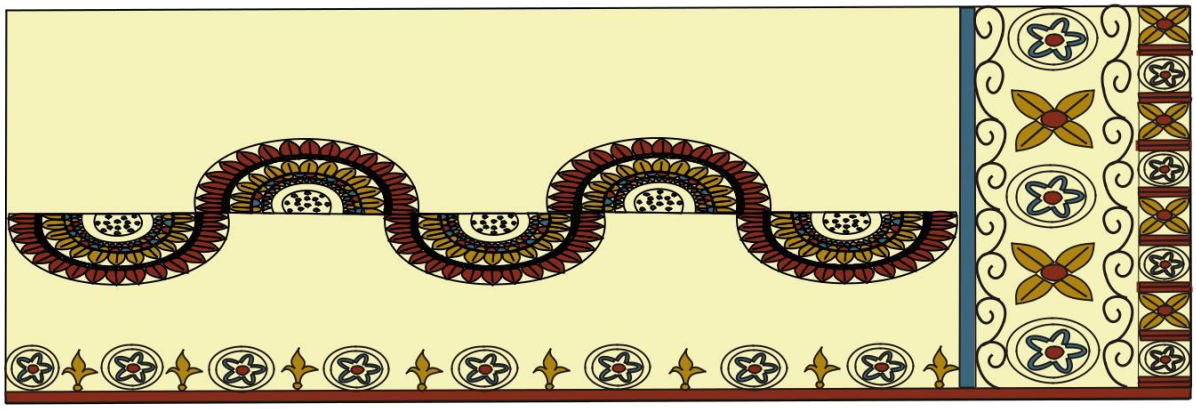
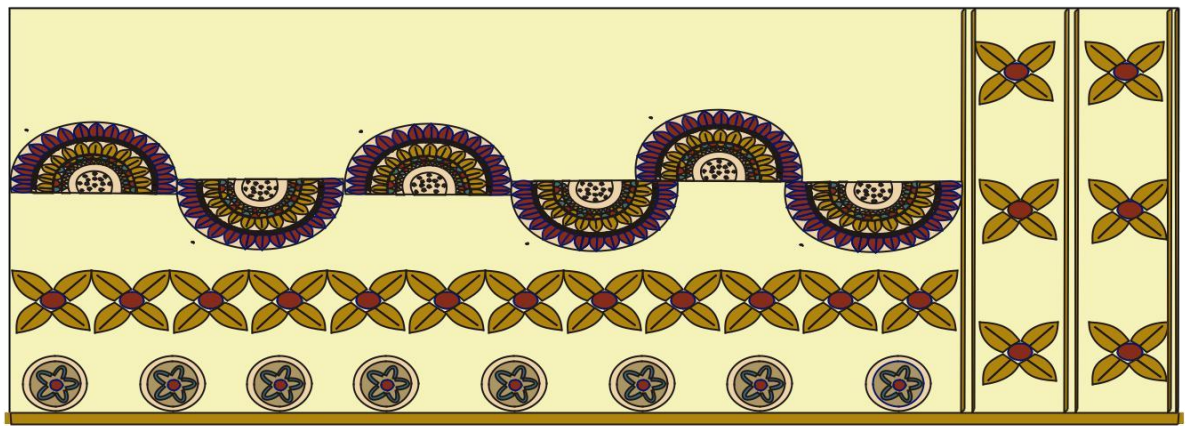


Figure 4.26 Placement of motif on saree - I.

1



2



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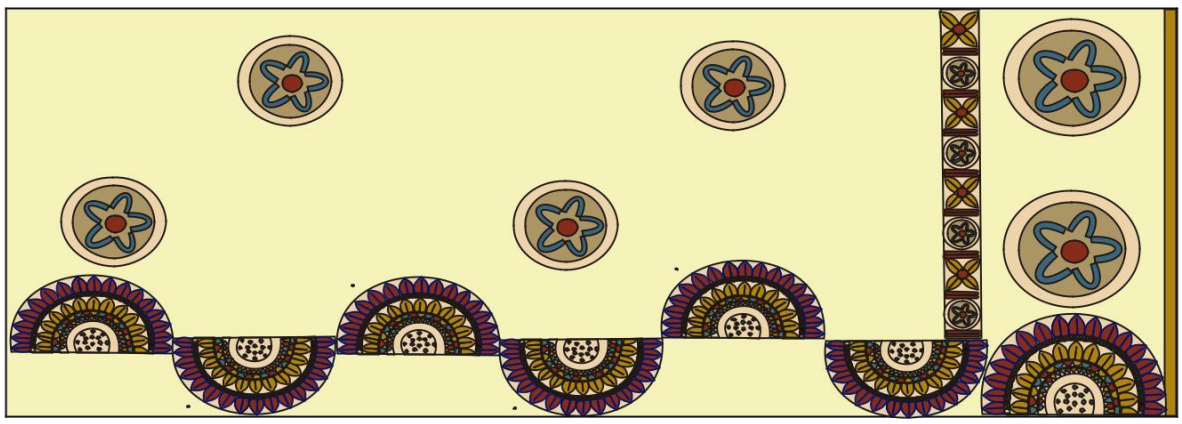


Figure 4.27 Placement of motif on saree - II.

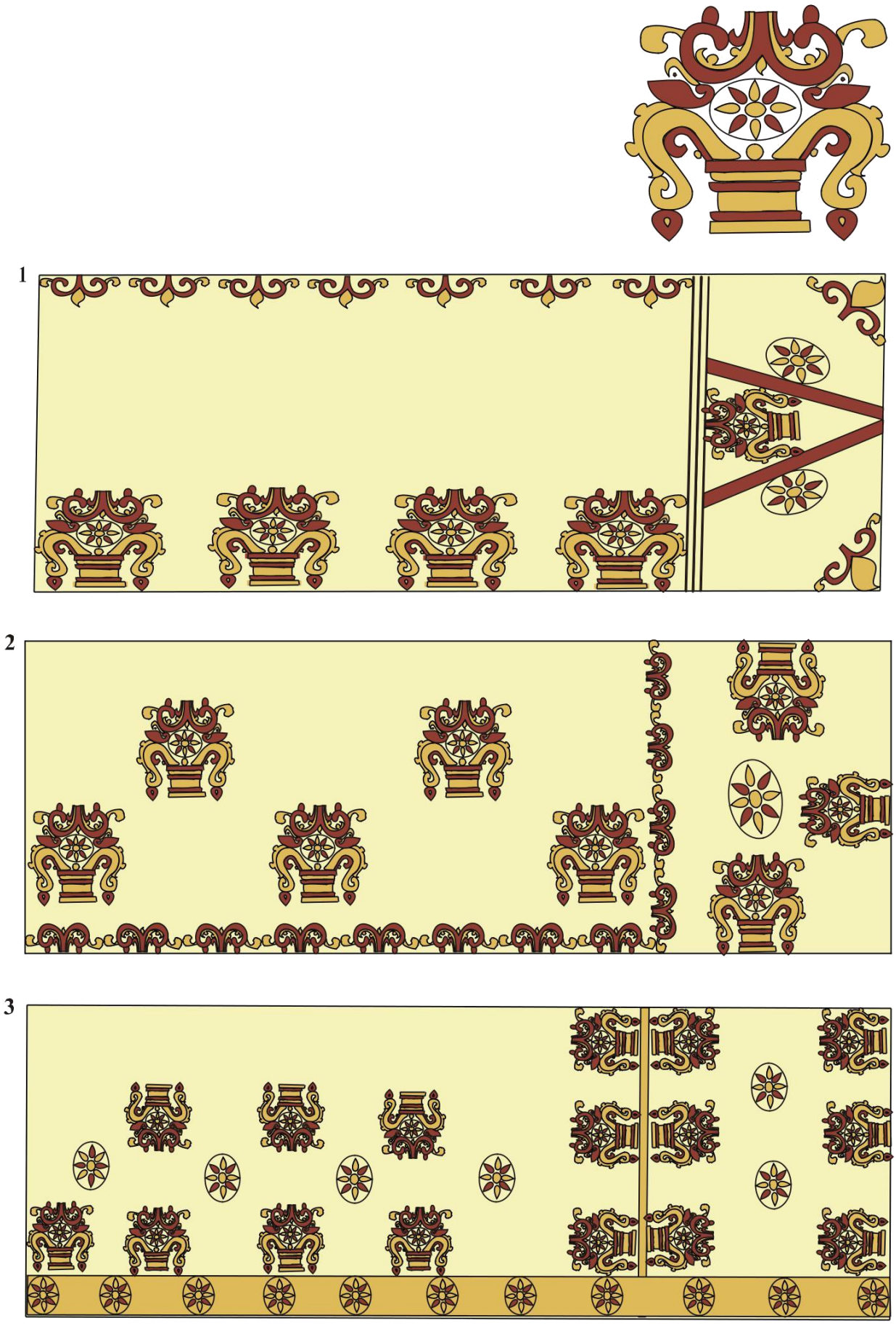


Figure 4.28 Placement of motif on saree - III.

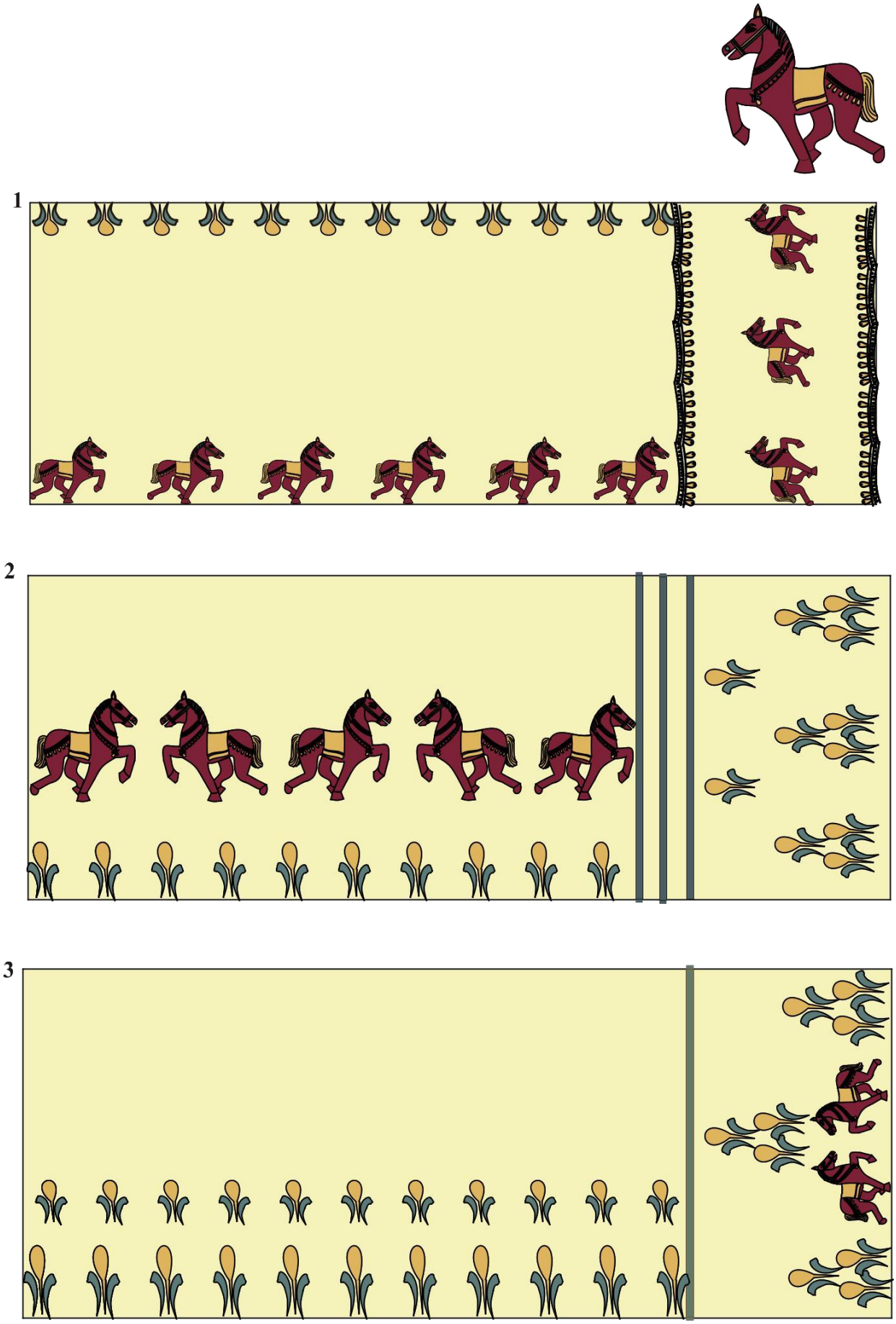
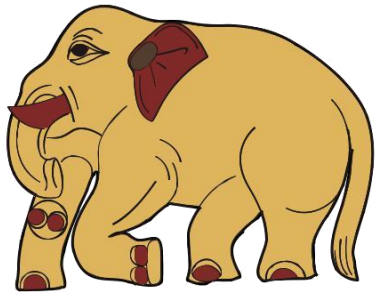
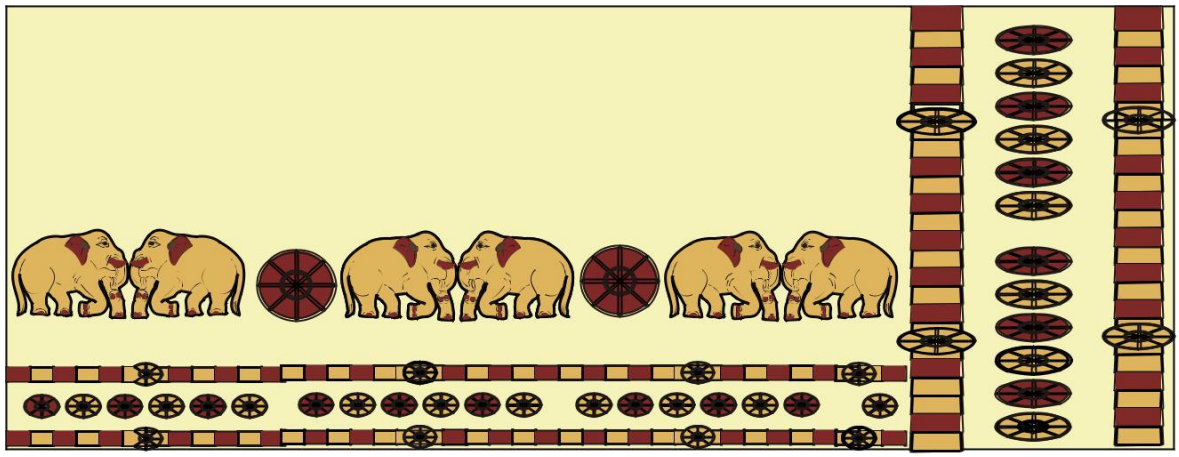


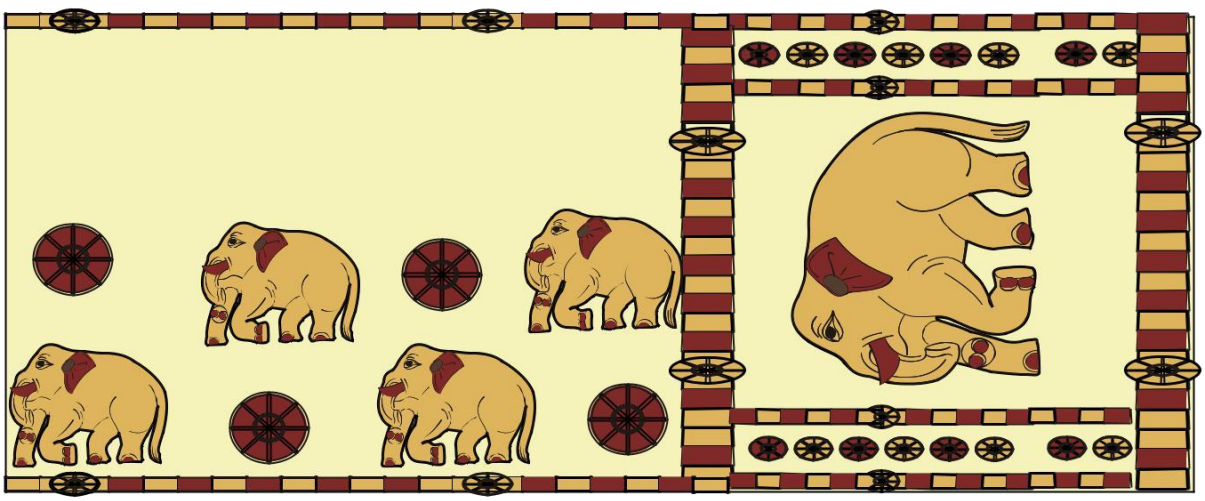
Figure 4.29 Placement of motif on saree - IV.



1



2



3

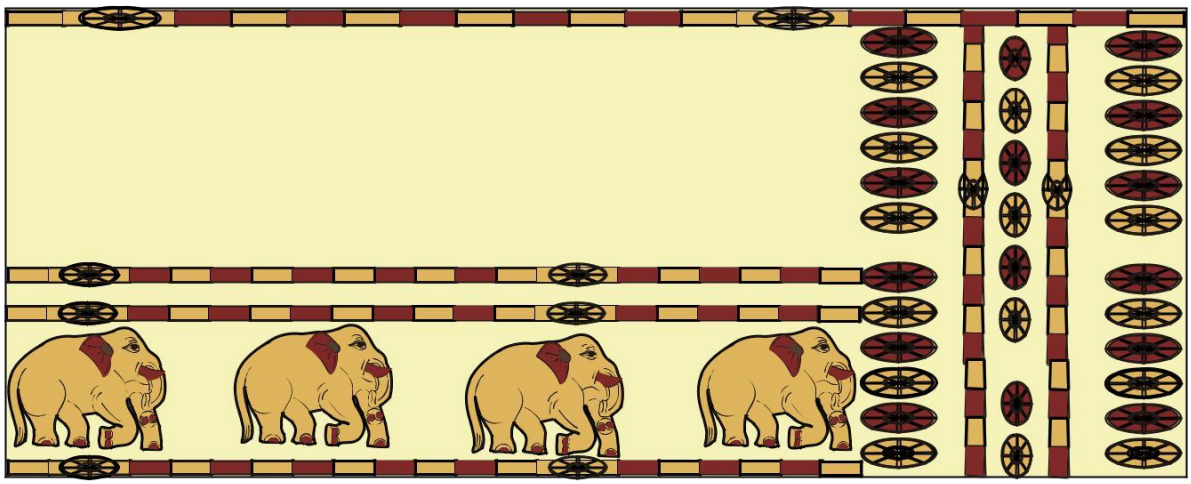


Figure 4.30 Placement of motif on saree - V.

Table 4.6 Selection of design placement for sarees.

N=30

Motif No.	Design placement			Average
	I	II	III	
1	2.87	2.70	2.77	2.78
2	3.20	2.67	3.00	2.96
3	2.87	2.70	2.60	2.72
7	3.13	3.00	2.37	2.83
11	2.90	2.93	3.20	3.01

4.7 Consumer evaluation:

4.7.1 Consumer evaluation of Kameez –I

It is evident from Table 4.7 that, consumers have opted for "Strongly Agree" for most of the attributes used in evaluating the final product. Parameters, like 'use of Kalamkari technique in rendering the design is apt' 'placement of the design is well taken care' and 'motif/design used is in scale with the garment' were agreed by more than 50 per cent of the consumers.

As indicated by the results, the strongly agreed parameter by maximum number of consumers was "overall appearance of the product is appealing or unique", whereas the least majority of the consumers strongly agreed with the parameter, "Motif/design used is in scale with the garment". About 70 per cent of consumers have strongly agreed that the product developed has a very good appearance and unique.

As seen from table 4.7, more than 73 per cent of consumers agreed that, the cost of designed Kameez material is "appropriate" both in terms of designing as well as cost of finished materials. The image of the final product is given in (Figure 4.31).

Colour combination used in the design was rated to be agreed strongly by more than 50 per cent of the consumers. With regards to marketability of the product, it was found that more than 95 per cent of consumers agreed that the designed products will have good market. Cent per cent of consumers accepted the fabric used in designing to be appropriate. More than 75 per cent consumers felt the cost of material to be appropriate.

Table 4.7 Consumer evaluation of designed kameez material I

N=30

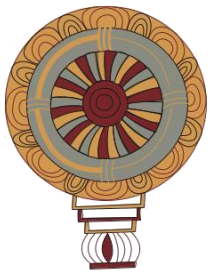
S. No	Parameter/ Criteria	Strongly agree		Agree		Disagree	
		N	%	N	%	N	%
1.	Use of sculptural design on garment is appropriate	13	43.3	13	43.3	3	10
2.	Use of Kalamkari technique in rendering the design is apt	13	43.3	16	53.3	1	3.3
3.	Fabric selected is suitable for the end use	16	53.3	14	46.6	0	0
4.	Placement of design is well taken care	12	40.0	13	43.3	5	16.6
5.	Colour combination used is appropriate	16	53.3	10	33.3	4	13.3
6.	Motif/design used is in scale with the garment	9	30.0	18	60.0	3	10.0
7.	Quality of workmanship is good	16	53.3	11	36.6	3	10.0
8.	Developed product caters to the present trend	14	46.6	12	40.0	4	13.3
9.	There will be good marketability for the products designed	15	50.0	14	46.6	1	3.3
10.	The design is unique and different from ordinary Kalamkari	13	43.3	12	40.0	5	16.6
11.	Overall appearance of the product is appealing or unique	20	66.6	7	23.3	3	10.0
		High		**Appropriate**		**Low**	
	Cost factor	**N**	**%**	**N**	**%**	**N**	**%**
1.	Cost of designed dress material	6	20.0	22	73.3	2	6.6

4.7.2 Consumer evaluation of dress material –II

It is noticeable from the Table 4.8 that, all the parameters were rated "Strongly Agree" followed by "agree". As shown in figure 4.31, it is evident that the design adopted from sculptural motif was accepted for the kameez dress material.

It is obvious from the findings that, the maximum number of consumers strongly agreed with the parameter, "developed product caters to the present trend" and "there will be good marketability for the products designed'. The Parameters "Use of Kalamkari technique in rendering the design is apt" and "colour combination used is appropriate" were shown as least "strongly agreed" parameter as given in the results.

Selected motif



Rendered design

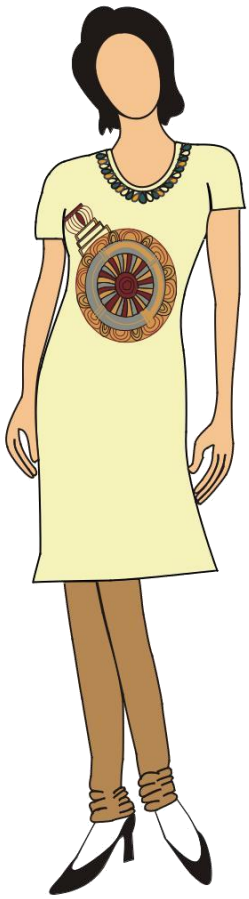


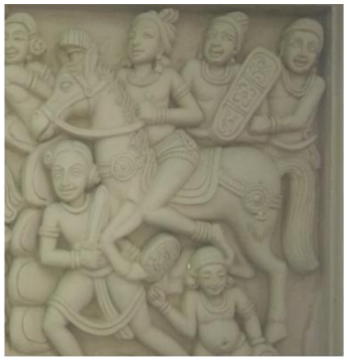
Figure 4.31. Finished design on Kameez material -I.

Table 4.8 Consumer evaluation of designed kameez material II.

N=30

S.No	Parameter/ Criteria	Strongly agree		Agree		Disagree	
		N	%	N	%	N	%
1.	Use of sculptural design on garment is appropriate	16	53.3	14	46.6	0	0
2.	Use of Kalamkari technique in rendering the design is apt	14	46.6	15	50.0	1	3.3
3.	Fabric selected is suitable for the end use	16	53.3	14	46.6	0	0
4.	Placement of the design is well taken care	18	60.0	8	26.6	4	13.3
5.	Colour combination used is appropriate	14	46.6	15	50.0	1	3.3
6.	Motif/design used is in scale with the garment	18	60.0	11	36.6	1	3.3
7.	Quality of workmanship is good	18	60.0	12	40.0	0	0
8.	Developed product caters to the present trend	21	70.0	5	16.6	4	13.3
9.	There will be good marketability for the products designed	21	70.0	7	23.3	2	6.6
10.	The design is unique and different from ordinary Kalamkari	16	53.3	14	46.6	0	0
11.	Overall appearance of the product is appealing or unique	18	60.0	9	30.0	3	10.0
		High		**Appropriate**		**Low**	
	Cost factor	N	%	N	%	N	%
1.	Cost of designed kameez material	10	33.3	20	66.6	0	0

As seen from the above table, more than 66 per cent of consumers agreed that, the cost of designed kameez material is "appropriate" both in terms of designing as well as cost of finished materials. The image of the final product is given in (Figure 4.32). Overall rating for kameez material II is higher than kameez material I.



Selected motif

Rendered design

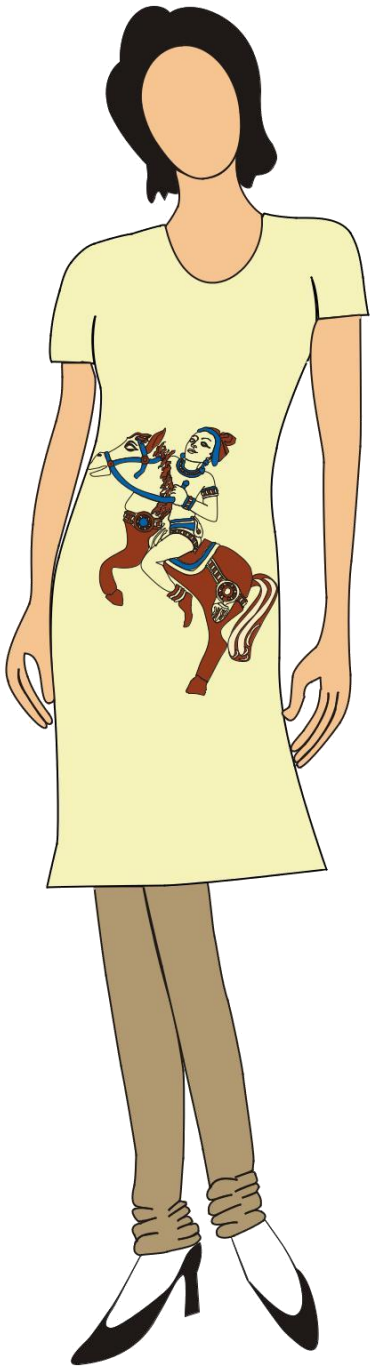


Figure 4.32. Finished design on Kameez material -II.

4.7.3 Consumer evaluation of Kameez -III

It is evident from Table 4.9 that, most of the parameters rated "Strongly Agree".

Table 4.9 Consumer evaluation of designed kameez material –III.

N=30

S.No	Parameter/ Criteria	Strongly agree		Agree		Disagree	
		N	%	N	%	N	%
1.	Use of sculptural design on garment is appropriate	17	56.6	11	36.6	2	6.6
2.	Use of Kalamkari technique in rendering the design is apt	10	33.3	17	56.6	3	10
3.	Fabric selected is suitable for the end use	14	46.6	13	43.3	3	10
4.	Placement of the design is well taken care	9	30.0	15	50.0	6	20
5.	Colour combination used is appropriate	16	53.3	12	40.0	2	6.6
6.	Motif/design used is in scale with the garment	16	53.3	10	33.3	4	13.3
7.	Quality of workmanship is good	15	50.0	13	43.3	2	6.6
8.	Developed product caters to the present trend	11	36.6	14	46.6	5	16.6
9.	There will be good marketability for the products designed	15	50.0	15	50.0	0	0
10.	The design is unique and different from ordinary Kalamkari	15	50.0	12	40.0	3	10.0
11.	Overall appearance of the product is appealing or unique	15	50.0	13	43.3	2	6.6
		High		**Appropriate**		**Low**	
	Cost factor	**N**	**%**	**N**	**%**	**N**	**%**
1.	Cost of designed kameez material	6	20.0	19	63.3	5	16.6

Adoption of sculptural design on dress material was found to be strongly supported by the consumers. This rating was higher than the first two kameez materials.

All the consumers have agreed (100 per cent) that the product has good marketability. Design rendered in terms of colour combination, workmanship, uniqueness and overall appearance were rated 50 per cent and above by the consumers. Consumers opined that placement of design is not much taken care though it was their choice to be one of the best placement before embellishing the garment with Kalamkari.

As it is shown, more than 63 per cent of consumers agreed that, the cost of designed Kameez material is "appropriate" both in terms of designing as well as cost of finished materials. The image of the final product is given in (Figure 4.33).

Selected motif

Rendered design

Figure 4.33. Finished design on Kameez material -III.

4.7.4 Consumer evaluation of Kameez material -IV

It is apparent from the results given in Table 4.10 that, out of ten, six parameters rated as "Agree" followed by "strongly agree", The strongly agreed parameters were use of sculptural design on garment, placement of the design, quality of workmanship and good marketability for the products designed.

As shown in the results, the strongly agreed parameters by maximum number of consumers was "Use of sculptural design on garment is appropriate", whereas the least majority of the consumers strongly agreed with the parameter, "Use of Kalamkari technique in rendering the design is apt".

Table 4.10 Consumer evaluation of designed kameez material IV.

N= 30

S. No	Parameter/ Criteria	Strongly agree		Agree		Disagree	
		N	%	N	%	N	%
1.	Use of sculptural design on garment is appropriate	17	56.6	11	36.6	2	6.6
2.	Use of Kalamkari technique in rendering the design is apt	8	26.6	21	70	1	3.3
3.	Fabric selected is suitable for the end use	13	43.3	15	50	2	6.6
4.	Placement of the design is well taken care	15	50	8	26.6	7	23.3
5.	Colour combination used is appropriate	13	43.3	15	50	2	6.6
6.	Motif/design used is in scale with the garment	11	36.6	15	50	4	13.3
7.	Quality of workmanship is good	16	53.3	12	40	2	6.6
8.	Developed product caters to the present trend	14	46.6	16	53.3	0	0
9.	There will be good marketability for the products designed	16	53.3	13	43.3	1	3.3
10.	The design is unique and different from ordinary Kalamkari	13	43.3	17	56.6	0	0
11.	Overall appearance of the product is appealing or unique	14	46.6	15	50	1	3.3
		High		Appropriate		low	
	Cost factor	N	%	N	%	N	%
1.	Cost of designed kameez material	8	26.6	22	73.3	0	0
(Values in parenthesis indicates per centages)		(N = Number of Respondents)					

All the consumers considered the design to be in line with the trend of the day and has uniqueness and is different from ordinary Kalamkari fabrics available in the

Selected motif

Rendered design

Figure 4.34. Finished design on Kameez material -IV.

market. Overall appearance of this kameez material is rated lower than kameez materials I to III. This kameez material received a similar rating to kameez material- I in terms of cost factor (Figure 4.34).

4.7.5 Consumer evaluation of Kameez -V

Table 4.11 Consumer evaluation of designed Kameez material V.

N=30

S. No	Parameter/ Criteria	Strongly agree		Agree		Disagree	
		N	%	N	%	N	%
1.	Use of sculptural design on garment is appropriate	22	73.3	6	20	2	6.6
2.	Use of Kalamkari technique in rendering the design is apt	18	60	12	40	0	0
3.	Fabric selected is suitable for the end use	17	56.6	10	33.3	3	10
4.	Placement of the design is well taken care	13	43.3	15	50	2	6.6
5.	Colour combination used is appropriate	20	66.6	8	26.6	2	6.6
6.	Motif/design used is in scale with the garment	18	60	10	33.3	2	6.6
7.	Quality of workmanship is good	17	56.6	12	40	1	3.3
8.	Developed product caters to the present trend	18	60	12	40	0	0
9.	There will be good marketability for the products designed	15	50	14	46.6	1	3.3
10.	The design is unique and different from ordinary Kalamkari	19	63.3	10	33.3	1	3.3
11.	Overall appearance of the product is appealing or unique	18	60	9	30	3	10
		High		Appropriate		Low	
	Cost factor	N	%	N	%	N	%
1.	Cost of designed kameez material	8	26.6	18	60	4	13.3
(Values in parenthesis indicates per centages)		(N = Number of Respondents)					

It is appropriate from the results given in Table 4.11 that, all the factors evaluated, for the designed kameez material has scored “strongly agree” ranking except the parameter, about placement of the design. This material received higher ranking of above 60 per cent in almost seven parameters out of 11 mentioned. Use of sculptural motif on garment was ‘strongly agreed’ for this material over all other four materials. This parameter was followed by colour combination used. The motif selected was rated

Selected motif

Rendered design

Figure 4.35. Finished design on Kameez material -V.

5th rank in the preliminary evaluation but all the parameters after rendering and display attracted higher ratings for almost all parameters.

It is noted that, majority of consumers i.e, 60 per cent agreed that, the cost of designed Kameez material is "appropriate" both in terms of designing as well as cost of finished materials. The image of the final product is given in (Figure 4.35).

4.7.6 Consumer evaluation of Saree -I

Table 4.12 Consumer evaluation of designed Saree I.

N= 30

S. No	Parameter/ Criteria	Strongly agree		Agree		Disagree	
		N	%	N	%	N	%
1.	Use of sculptural design on garment is appropriate	16	53.3	14	46.6	0	0
2.	Use of Kalamkari technique in rendering the design is apt	16	53.3	12	40	2	6.6
3.	Fabric selected is suitable for the end use	8	26.6	22	73.3	0	0
4.	Placement of the design is well taken care	10	33.3	18	60	2	6.6
5.	Colour combination used is appropriate	18	60	9	30	3	10
6.	Motif/design used is in scale with the garment	13	43.3	15	50	2	6.6
7.	Quality of workmanship is good	15	50	15	50	0	0
8.	Developed product caters to the present trend	8	26.6	20	66.6	2	6.6
9.	There will be good marketability for the products designed	11	36.6	18	60	1	3.3
10.	The design is unique and different from ordinary Kalamkari	10	33.3	14	46.6	6	20
11.	Overall appearance of the product is appealing or unique	20	66.6	9	30	1	3.3
		High		Appropriate		Low	
	Cost factor	N	%	N	%	N	%
1.	Cost of designed Saree	11	36.6	19	63.3	0	0

It is clear from the results given in Table 4.12 that, out of ten, six parameters rated as "agree" followed by "strongly agree". The strongly agreed parameters were, use of sculptural design on garment, use of Kalamakari technique, colour combination used and overall appearance of the product.

Selected motif

Rendered design

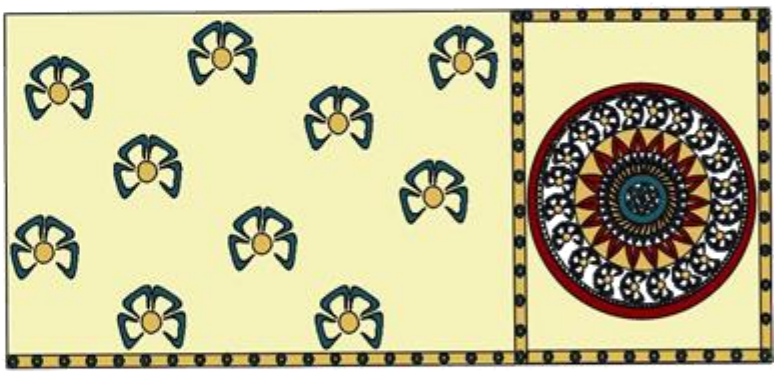


Figure 4.36. Finished design on saree -I.

As shown in the results, the strongly agreed parameter by maximum number of consumers was about overall appearance of the product. More than 60 per cent of consumers very strongly rated for colour combination and overall appearance of the product. More than 60% of consumers agreed about fabric suitability, placement of design, marketability and they also rated that developed product will cater to the present trend.

It is noted that, majority of consumers i.e., 63.3 per cent agreed that, the cost of designed saree material is "appropriate" both in terms of designing as well as cost of finished materials. The image of the final product is given in (Figure 4.36).

4.7.7 Consumer evaluation of Saree -II

Table 4.13. Consumer evaluation of designed Saree II.

N=30

S. No	Parameter/ Criteria	Strongly agree		Agree		Disagree	
		N	%	N	%	N	%
1.	Use of sculptural design on garment is appropriate	17	56.6	12	40	1	3.3
2.	Use of Kalamkari technique in rendering the design is apt	17	56.6	10	33.3	3	10
3.	Fabric selected is suitable for the end use	8	26.6	20	22.6	2	6.6
4.	Placement of the design is well taken care	15	50	9	30	6	20
5.	Colour combination used is appropriate	16	53.3	10	33.3	4	13.3
6.	Motif/design used is in scale with the garment	16	53.3	14	46.6	0	0
7.	Quality of workmanship is good	15	50	13	43.3	2	6.6
8.	Developed product caters to the present trend	10	33.3	15	50	5	16.6
9.	There will be good marketability for the products designed	19	63.3	9	30	2	6.6
10.	The design is unique and different from ordinary Kalamkari	14	46.6	13	43.3	3	10
11.	Overall appearance of the product is appealing or unique	18	60	7	23.3	5	16.6
		High		Appropriate		Low	
	Cost factor	N	%	N	%	N	%
1.	Cost of designed Saree	10	33.3	20	66.6	0	0

Selected motif

Rendered design

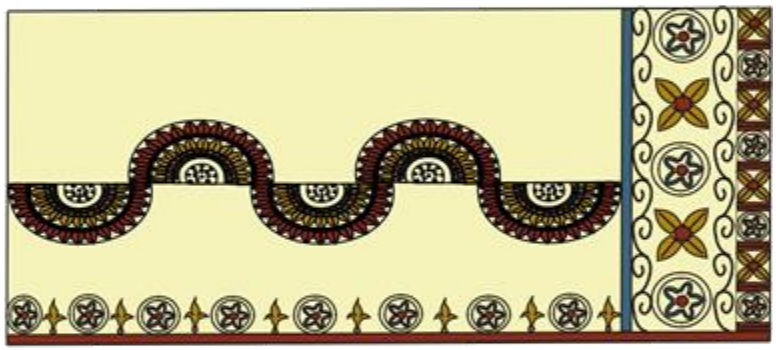


Figure 4.37. Finished design on saree -II.

It is clear from the results given in Table 4.13 that, all the parameters rated as "strongly agree", except the parameter about product catering to the present trend. Consumer strongly agreed to the parameter marketability of the product followed by use of sculptural design in Kalamkari technique to be appropriate. Parameters, scale of motif in relation of garment and colour combination followed the above mentioned ones. Consumer opined that products will have high marketability through the motif selected for the design was ranked second in the preliminary evaluation, in terms of product parameters it received high ranking than the first design. Only 50% of consumers have 'strongly agreed' to placement of design and quality of workmanship in this saree.

Majority of consumers i.e, 66.6 per cent agreed that, the cost of designed saree is "appropriate" both in terms of designing as well as cost of finished materials. The image of the final product is given in (Figure 4.37).

4.7.8 Consumer evaluation of Saree –III

Colour combination used in this design was strongly appropriate by 60 per cent of consumers like that of designed saree I. It is conspicuous from the findings presented in Table 4.14 that, out of ten parameters, six parameters were strongly agreed by the consumers. The parameter which was strongly agreed by the consumers were use of c olour combination and least strongly agreed parameter was "Fabric selected is suitable for the end use". It is observed that the parameters "There will be good marketability for the products designed" and "The design is unique and different from ordinary Kalamkari" obtained same average value 43.3, thus these parameters were balanced for "strongly agreed" and "agreed" by consumers.

It is observed that, majority of consumers i.e, 60 per cent agreed that, the cost of designed saree is "appropriate" both in terms of designing as well as cost of finished materials. The image of the final product is given in (Figure 4.38).

Selected motif

Rendered design

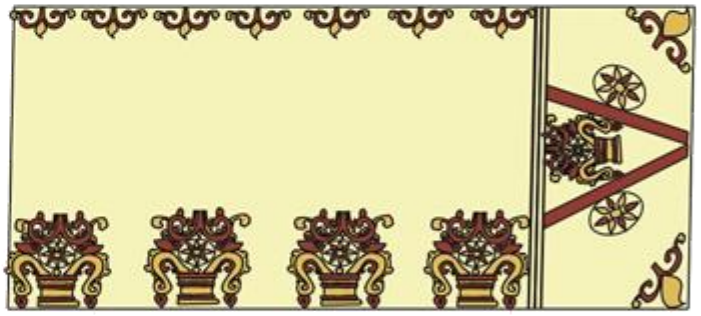


Figure 4.38. Finished design on saree -III.

Table 4.14. Consumer evaluation of designed Saree III.

N = 30

S. No	Parameter/ Criteria	Strongly agree		Agree		Disagree	
		N	%	N	%	N	%
1.	Use of sculptural design on garment is appropriate	16	53.3	14	46.6	0	0
2.	Use of Kalamkari technique in rendering the design is apt	16	53.3	14	46.6	0	0
3.	Fabric selected is suitable for the end use	9	30	18	60	3	10
4.	Placement of the design is well taken care	13	43.3	9	30	8	26.6
5.	Colour combination used is appropriate	18	60	8	26.6	4	13.3
6.	Motif/design used is in scale with the garment	11	36.6	15	50	4	13.3
7.	Quality of workmanship is good	14	46.6	13	43.3	3	10
8.	Developed product caters to the present trend	12	40	16	53.3	2	6.6
9.	There will be good marketability for the products designed	13	43.3	13	43.3	4	13.3
10.	The design is unique and different from ordinary Kalamkari	13	43.3	13	43.3	4	13.3
11.	Overall appearance of the product is appealing or unique	16	53.3	13	43.3	1	3.3
		High		Appropriate		low	
	Cost factor	N	%	N	%	N	%
1.	Cost of designed Saree	6	20	18	60	6	20

4.7.9 Consumer evaluation of Saree –IV

It is apparent from the findings presented in Table 4.15 that, all the parameters were strongly agreed by the consumers except "Fabric selected is suitable for the end use". Quality of workmanship received the highest rating of 70 per cent. Over all other sarees, out of 11 parameters, 6 parameters were accepted as strongly agreed by 60 and above percent of consumers.

The parameter which was strongly agreed by the consumers was "Use of sculptural design on garment is appropriate". All parameters in assessing the designed saree was higher than design saree I to III. It is observed that majority of consumers (80 per cent) agreed that the cost of designed saree is 'appropriate' both in terms of designing as well as cost of finished materials. The final product in shown in (Figure 4.39).

Selected motif

Rendered design

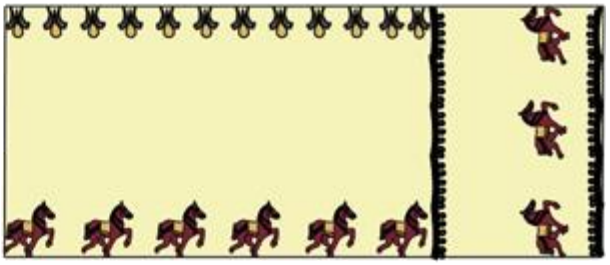


Figure 4.39. Finished design on saree -IV.

Table 4.15. Consumer evaluation of designed Saree IV.

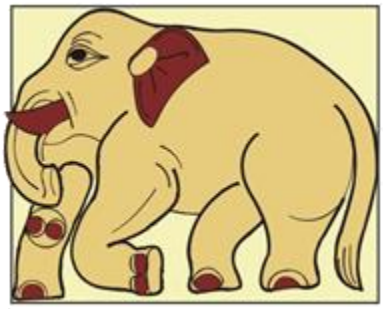
N = 30

S.No	Parameter/ Criteria	Strongly agree		Agree		Disagree	
		N	%	N	%	N	%
1.	Use of sculptural design on garment is appropriate	22	73.3	7	23.3	1	3.3
2.	Use of Kalamkari technique in rendering the design is apt	18	60	10	33.3	2	6.6
3.	Fabric selected is suitable for the end use	14	46.6	16	53.3	0	0
4.	Placement of the design is well taken care	20	66.6	6	20	4	13.3
5.	Colour combination used is appropriate	19	63.3	11	36.6	0	0
6.	Motif/design used is in scale with the garment	17	56.6	13	43.3	0	0
7.	Quality of workmanship is good	21	70	7	23.3	2	6.6
8.	Developed product caters to the present trend	14	46.6	13	43.3	3	10
9.	There will be good marketability for the products designed	18	60	12	40	0	0
10.	The design is unique and different from ordinary Kalamkari	18	60	12	40	0	0
11.	Overall appearance of the product is appealing or unique	17	56.6	11	36.6	2	6.6
		High		**Appropriate**		**Low**	
	Cost factor	**N**	**%**	**N**	**%**	**N**	**%**
1.	Cost of designed Saree	2	6.6	24	80	4	13.3

4.7.10 Consumer evaluation of Saree –V

It is obvious from the findings presented in Table 4.16 that all parameters were strongly agreed by the consumers except the product catering to the present trend. More than 50 per cent of consumers rated all parameters to be strongly in conformation of the parameters about the product. The highest being colour combination and design suitability followed by technique used and quality of workmanship used in the design. This designed sarees received higher rating than all five through the motif selected was ranked V in the preliminary selection (Figure 4.40).

Selected motif



Rendered design

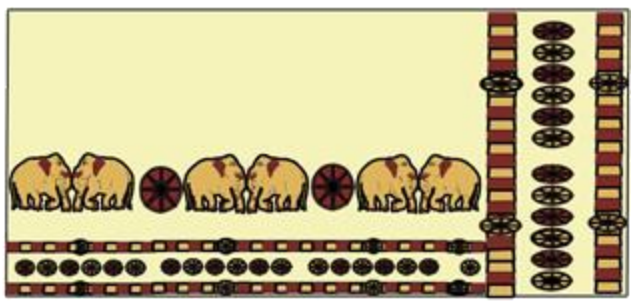


Figure 4.40. Finished design on saree -V.

Table 4.16 Consumer evaluation of designed Saree V.

N = 30

S. No	Parameter/ Criteria	Strongly agree		Agree		Disagree	
		N	%	N	%	N	%
1.	Use of sculptural design on garment is appropriate	26	86.6	4	13.3	0	0
2.	Use of Kalamkari technique in rendering the design is apt	23	76.6	6	20	1	3.3
3.	Fabric selected is suitable for the end use	17	56.6	12	40	1	3.3
4.	Placement of the design is well taken care	16	53.3	14	46.6	0	0
5.	Colour combination used is appropriate	26	86.6	3	10	1	3.3
6.	Motif/design used is in scale with the garment	21	70	5	16.6	4	13.3
7.	Quality of workmanship is good	23	76.6	5	16.6	2	6.6
8.	Developed product caters to the present trend	15	50	15	50	0	0
9.	There will be good marketability for the products designed	16	53.3	12	40	2	6.6
10.	The design is unique and different from ordinary Kalamkari	22	73.3	7	23.3	1	3.3
11.	Overall appearance of the product is appealing or unique	17	56.6	12	40	1	3.3
		High		Appropriate		low	
	Cost factor	N	%	N	%	N	%
1.	Cost of designed Saree	2	6.6	24	80	4	13.3

It is observed that majority of consumers i.e, 80 per cent agreed that the cost of designed saree is 'appropriate' both in terms of designing as well as cot of finished materials.

As seen from the above, adoption of sculptural design on textiles was well appreciated in all developed products and it was higher in dress material V and saree designs IV and V. Higher rating were received for all products in terms of design serving the present trend and marketability of the product indicating that the objectives in designing products was well received by the consumers.

4.8 Description of Designed material:

The motifs and designs selected for kameez material and sarees were adapted and modified using Corel DRAW. The silhouettes of kameez material were drawn on croqui figures. The developed designs were positioned on them to suit the silhouettes. Placement of designs on the kameez material and sarees were visualised in the Corel DRAW software. The selected designs for kameez material and sarees were painted on myrobalan treated fabric using yellow, maroon, blue colours.

S.No	Particulars	Selected motif	Adapted motif	Colours used	Placement of motif
A	**Kameez Designs**				
1.	I	Flaming pillar motif	Circle motif	Blue, Yellow, Maroon	Centre front Neckline
2.	II	Animal motif	Horse with human figure	Maroon and Blue	Centre front
3.	III	Garland motif	Circle motif	Blue, Yellow, Maroon	Centre front
4.	IV	Geometrical motif	Geometrical pattern motif	Maroon and Blue	Centre front and hem line
5.	V	Tree motif	leaf shape motif	Blue and Yellow	Centre front and neck line
B	**Saree Designs**				
1.	I	Triratna motif	Floral motif	Blue and Yellow	Body, Pallu and Border
2.	II	Lotus motif	Circle motif	Yellow, Maroon and Blue	Border design and pallu
3.	III	Triratna motif	Floral motif	Yellow and Maroon	Border design on either side and pallu
4.	IV	Animal motif	Animal motif-horse and water drop shaped designs	Yellow, Maroon and Blue	Border and pallu
5.	V	Animal motif	Animal motif-elephant and circle and rectangular shaped designs	Maroon and Yellow	Body, border and pallu

Chapter-V

SUMMARY AND CONCLUSION

Amaravati was a seat of Buddhism prior to the rise of Satavahanas, and a stupa and monastery was built there during the reign of Emperor Ashoka. The sculptural wealth of Amaravati is displayed include the typical motifs of the Amaravati art and sculptures. The stupa called the Mahachaitya has a great wealth of sculptures which were excavated and maintained in the musuems. The beauty of sculpture has motivated to adopt it on to textiles. In the era of environmental awareness and protection, it was decided to adopt designs using Kalamkari painting as only natural colours are used in Kalamkari since ages. So, the thesis has been formulated to adopt sculptural motifs from the famous Buddhist stupa by modifying them relevant to the present trend and suitable on sarees and dress materials. Pictures were collected from the "Lotus Pandal" where replication of sculptures are maintained and also from internet.

Total 40 motifs were collected from the sculptures of Amaravathi and they were divided into two categories based on the products to be developed on i.e, dress materials and sarees. They were assigned numbers as 1-20 for dress materials and 1-20 for sarees. The collected motifs were smoothened, blended and rotated to modify using CorelDRAW 11 software. The adopted motifs were evaluated by a panel 30 of judges i.e, Faculty, Ph.D and M.Sc. students of Home Science, ANGRAU. Among the 20 motifs collected for dress materials, the first five ranked motifs were selected for further study. Likewise, among the 20 motifs collected for sarees, five motifs were selected for further study.

The selected motifs for dress materials and sarees were rendered in three different colour ways using the colours sued exclusively in Kalamkari painting and were evaluated by the above panel of judges for selection of one best colour way through a questionnaire. The selected colour way for each motif was used for further study. In turn, the design placement was done on dress materials and sarees. In considering placement of design for dress material, ladies garment- kurti was considered. Each motif was placed on dress materials and sarees in three different placements and were evaluated by the above panel of judges and one among the three

placements for each motif was selected. Total five dress materials and five sarees were finalized through different stages of evaluation and products were painted with Kalamkari painting, which was done at Srikalahasthi.

The selected five dress materials motifs numbers were 19, 20, 5, 2 and 1 were ranked I, II, III, IV and V respectively. Then, among the other 20 motifs for sarees, selected five motifs numbers were 2, 3, 4, 7 and 11 which were ranked as I, II, III, IV and V respectively.

The designed products were evaluated against 11 parameters. Appropriateness of sculptural design and colour combination was rated high for kurti material V over other materials. All the prepared products were evaluated by the judges for different parameters which consumers 'strongly agreed'. As rated, the placement of design was found to be good in dress material III, the color combination was appropriate for dress material V over others. Likewise, the scale of the motif to the garment and quality of workman ship was good for dress material II. And it was recorded that dress material II and V were rated to be in with the present trend. Dress material I was the one which was strongly agreed by consumers that the design developed was unique and different from ordinary Kalamkari designs. Accordingly, it was found that, the cost factor was also appropriate for the designed product.

Similarly, it was recorded that saree V got the overall rating among all the designed sarees. In case of saree IV, it was found that five parameters among 11 were 'strongly agreed' or 'agreed' by the consumers. Overall appearance was the highest rated parameter in case of saree I, while marketability was considered better in case of saree II. It was obvious that, the color combination was rated high for saree III, the appropriateness of sculpture was rated high for saree IV and both motif and color combination was rated high in case of saree V. In the same way with cost of dress material, and sarees were also rated 'appropriate' by 60% - 80% of consumers. As the prepared dress materials and sarees were 'strongly agreed' for most of the parameters of evaluation by the consumers, it can be concluded that the new designs developed have a strong market potential apart from being unique in design.

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APPENDIX – I

Subjective Evaluation for the Motifs

The objective of the evaluation is to elicit information about the consumer acceptability of the displayed motifs Amaravathi Sculptures and Kalamkari Paintings for saree and Dress/Kameez designing.

1. Name of the respondent:
2. Age:
3. Education qualification:

Following the rating scale given below, please rate your preferences for the motifs selected and developed

Very good – 4
Good - 3
Fair - 2
Poor - 1

Motif number	Selection of motif	Relevance of motif	Adoption of motif	Rendering of motif	Design development	Overall rating
1.						
2.						
3.						
4.						
5.						
6.						
7.						
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38.						
39.						
40.						

APPENDIX – II

Preferential Choice Index for Selection of Colour Way and design placement for Kalamkari Painting

Name of the respondent:
Age:
Educational qualifications:

Specific information:

Rank your preference for the developed colour ways of motifs/ designs for development of saris and kameez through Kalamkari painting.

Rating scale

Very good – 4
Good - 3
Fair - 2
Poor - 1

Kameez designs:

Motif /Design No.	Colour ways (Rank)			Design placement (Rank)		
	I	II	III	I	II	III
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						

Saree designs:

Motif /Design No.	Colour ways (Rank)			Design placement (Rank)		
	I	II	III	I	II	III
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						

APPENDIX - III

Suitability of developed designs

1. Name of the Respondent:
2. Education Qualification:
3. General information:
    - Please critically analyse the suitability of the Amaravathi Sculptures kalamkari designs for the following end use by giving relevant scores.
      Rating scale
      Strongly agree-3
      Agree -2
      Disagree -1

Kalamkari Painting on Kameez material:

Rating scale	Motif /Design No				
	1	2	3	4	5
Use of sculptural design on garment is appropriate					
Use of kalamkari technique in rendering the design is apt					
Fabric selected is suitable for the end use					
Placement of the design is well taken care					
Colour combination used is appropriate					
Motif/design used is appropriate for the garment					
Quality of workmanship is good					
Developed product caters to the present trend					
There will be good marketability for the products designed					
The design is unique and different from ordinary kalamkari					
Overall appearance of the product is appealing or unique					

Kalamkari Painting on Sarees:

Rating scale	Motif /Design No				
	1	2	3	4	5
Use of sculptural design on garment is appropriate					
Use of kalamkari technique in rendering the design is apt					
Fabric selected is suitable for the end use					
Placement of the design is well taken care					
Colour combination used is appropriate					
Motif/design used is appropriate for the garment					
Quality of workmanship is good					
Developed product caters to the present trend					
There will be good marketability for the products designed					
The design is unique and different from ordinary kalamkari					
Overall appearance of the product is appealing or unique					

Cost of the product

Kameez material:

S.no	Fabric cost	Designing	Painting	Finishing	Total cost	Opinion of consumers		
						High	Appropriate	low
1.								
2.								
3.								
4.								
5.								

Sarees:

S.no	Fabric cost	Designing	Painting	Finishing	Total cost	Opinion of consumers		
						High	Appropriate	low
1.								
2.								
3.								
4.								
5.								