Human body is made up of curves which makes it necessary to introduce or exclude fabric as per requirement to give it proper fitting. There are various techniques with which fullness can be introduced in garments to meet the body requirement for comfortable clothing. From these various techniques, all the techniques cannot be used for all types of figures, because they are not suitable for all. The main objective of the present study was to find out the most suitable technique for a figure with wide hips, for which the literature reviewed has been presented in the following sub-heads:

2.1 Historical review

2.2 Theoretical review

2.3 Research review

1 Historical review:

Clothing was the next after agriculture and building, to acquire economic importance. The hair of
domesticated animals superseded skins, cotton and linen
superseded leaves, grassmatting and the rougher
vegetable fibres, palm, aloe, hemp etc. With the
introduction of an artificial dressmaterial the savage of
evolution came to an end. (Bhushan, 1958)

Individuality, adoptability and faith in co­
existence are the attributes of Indian costumes. Inspite
of the plurality of patterns, inspite of the strong
local and regional indentity, a certain fundamental
unity runs through all the vast and varied array of our
dresses. This unity in diversity due to a common bond of
a common heritage, is as much a character of our
sartorial culture as of our style of living.

This is the expression of our culture and the
story of the salwar kameez in all its splendid finery.
From its humble beginning, the salwar kameez still
retains its original fluidity. This is on account of how
the salwar kameez has evolved down the ages from the
beginning of the Persian era to the present age.

Aesthetically dress serves two purposes - it helps
to enhance the beauty of the human form and conceals
what is not shapely or beautiful by intelligently
designing artificial folds, lines and curves on the
clothes.
Historical events have been of great significance in changing the style of our dresses. The invasion of Alexander introduced the Hellenic touch. The Muslim influence gifted us the sherwani and churidar pyjamas, the kameez and salwar. (Godwin, 1994).

Between 1000 and 1500 A.D. the throne of Delhi was tossed from one dynasty to another and in the disturbed conditions it became necessary to protect women. After the Mughal emperor, Akbar, had ruled for four decades, there appeared a change in the dressing style. The main elements of the costume were the coat, the turban and the trousers. Over a full sleeved garment was worn the half sleeved long coat. The coat was fitted tightly at the waist and then like a skirt reached below the knees. Shah Jehan’s reign (1628 - 1658), the dress was lengthened, and later in the 18th century the skirt became full and was gathered into a high waist almost under the armpits.

Nur - Jehan, the glamorous and talented wife of the latter, is said to have evolved many new patterns. (Bhushan, 1958). Wives of noblemen and officials and high ranking ladies bewitched with the magnetic influence and beauty of the mughal style, adopted the
Mughal jama (Kameez) with flowing skirt the tight trousers and the orhni.

Aurangzeb continued to dress magnificently like his royal ancestors. During his reign the skirt of the jama was widened and lengthened. The 18th century saw the story of a disintegrated Mughal empire moving steadily towards its final collapse and the rise of the British power. Even the costumes of Shivaji copied the Mughal style in its main features.

The jama now increased its outlandish proportions with the waistline rising up to the chest and the long skirt brushing the ground. The trousers became baggy. As the century advanced, the trousers were made close fitting so as to give a feel of the muscular power of the limbs. In places far away from the Rajput and Muslim courts, the difference between Hindu and Muslim costumes was reduced to the minimum. In Kashmir, women of both communities dressed alike. In Punjab, the women whether Hindu or Muslim, had a common style of trousers or skirt accompanied by a full sleeved long shirt. In Bengal both the communities dressed in the same manner.
In the last quarter of the eighteenth century, three types of female costumes indicate the Muslim influence, the Rajput influence and the future trend. In the first type a long frock like garment was worn with an opening in the front held by two clasps. A shirt was worn under this and a veil accompanied it. The second type comprised a skirt, a bodice and a diaphenous veil. In the third type the lady wore the second type but with a longer piece of orhni which was used not only to cover the head but also a part of the back, the orhni was tucked in the centre front in the skirt, taken over the right thigh, on the head and back. This is a great significance in the history of Indian costumes.

In the declining days of the Mughal empire, men wore heavy coats and the lower garment was a pair of loose but straight pyjama. Even Raja Ram Mohan Roy adopted the Muslim dress although he came from an orthodox family. (Godwin, 1994).

In the first two decades of the 20th century a great many changes took place behind the walls of zenanas and vagaries of fashion dictated the width of pyjama legs, the length and fineness of the kurta. (Bhushan, 1958). Its length fluctuated. First it dropped
down to the knees in the 1920’s and then rose up to look like an English frock in the 30’s and again descended to the knees by the 50’s.

Another change in the kameez was brought about by designing it on the lines of the European frock. But not satisfied with this style, a new craze started decreasing its girth to make it cling to the body. In the late 60’s the lower part of the kameez was so tightly worn around the hip line that the wearer could hardly walk with ease. (Godwin, 1994).

Hindus, Muslims, Bengalis, Mahrattas, sikhs, all adopted the universal outdoor dress. (Bhushan 1958). However, the salwar - kameez throughout all this gave a coveted delicacy and spring like smartness to the youthful form while giving a look of freshness, slimness and poise. Though women did not copy the European dress, their liberal attitude helped them to experiment with the regional dress. (Godwin, 1994).

The Indian woman has always had impecable good taste. All that was required was for her to be able to absorb for herself. As soon as she could do that, she selected what was most suited to herself taking it and
making it her own, never leaving the individuality, dignity and beauty that the saree gives her but adding to it fresh influence to make it suitable to changing world conditions. (Bhushan, 1958).

Now of all the styles of dress adopted by women in various countries of the world, none conforms so much to the over all type as the combination of the mantle, the shirt and the baggy trousers of women in the Panjab. The winding drapey of the light sheet of mantle levels down the inequalities of the figure into perfect curves from the head down to the waist, while the tapering fullness of the femoral region is charmingly displayed by the massy convolutions of the shalwar trousers. The tall and magnificent constitution of the sonsy large hipped Punjabi woman helped in the survival of the fashion in that land by sympathetically assiting her dress in its decorative function. (Dar, 1969).

Costume is a cultural visual, a mirror of the times and the people. The dress of people presents a vital clue to their mood and taste, their aesthetic temper, their art and skill to adjust to their social and geographical environment and to the way of living.
It was the Mughal costume that first awakened in the minds of the people, a desire for over clothing. It developed the feeling to appear graceful. The second impact was more on a psychological place. (Godwin, 1994).

Today, salwar-kameez in literally hundreds of styles, has almost become ubiquitous all over the country. With hundreds if boutiques displaying thousands of styles, ladies have a multitude of dresses to select from.

Today the salwar kameez has been revolutionised to an entirely new concept but it however retains its original fluidity. There are different fabrics used for different cuts and styles and which gives the first sign of exclusiveness. (Malkani, 1994).

2.2 THEORETICAL REVIEW :-

The theoretical review has been divided into following parts :-

2.2.1 Importance of fullness and various techniques of introducing fullness.
2.2.1. Importance of fullness and various techniques of introducing fullness:

A fabric has two dimensions which is to be modified into a three dimension structure in order to be worn as a garment. The fabric is to be shaped in order to fit in the body curves. There are various ways by which a fabric can be shaped to fit the body. It can be cut in a curved form, seams can be added, darts, tucks, pleats, gathers, smocking and shirring can be used for this. (Mc. call, 1975). This is known as various techniques of introduction of fullness in garment. The details of various techniques of introducing fullness is as follows:

I) Darts:

A dart is a wedge-shaped area used for shaping a flat piece of fabric to the figure (Bane, 1956). Dart
are placed on the garment that the rounded fullness they produce is at the fullest part of a body curve. For example, hip darts end just above the fullest part of the hip. (Mc. call, 1963). Another example, the under-bust dart takes in some of the fabric at the waistline and causes shaping for the bust. A wide dart will create more shaping; a narrow dart will create less shaping.

Darts can be classified as functional or decorative; and some darts serve both purposes. Functional darts are those darts necessary for fitting the body curves. Decorative darts may serve this functional purpose as well as add significance to the design. Any dart placed in a unusual manner or any dart which is stitched on the outside of the garment can be classified as decorative (Bane, 1956).

i) Simple darts :-

Fold the dart on the foldline marking, right sides of fabric together, matching stitching line together, matching stitching line markings accurately. Stitch, beginning at the wider edge. (Mc. call, 1963).

ii) Edge Stitched darts :-

These are marked and tacked in the same way as simple darts, but after folding a line of tacking it is
made from the top to the point. A line of machine stitching is then made close to the fold, on the wrong side, the dart is pressed to one side and stitched across the top. When the tacking stitches are removed the dart has the appearance of a small pleat. (Howared)

iii) Double - Pointed dart :-

Begin stitching at either point, taking several stitches directly on the fold at both points. Fasten thread ends. Cut several small clips to the line of stitching in the center section of the dart to allow it to spread and lie flat.

iv) The dart tucks :-

The dart tuck is often referred to as a "released dart" because fullness is released at the wider end. It is often used in blouses to give shaping at the waistline and fullness at the lower edge.

v) Slash - Gathered dart :-

Slash - Gathered dart gives added fullness and shaping (Mc. Call, 1963).
II) Gathers:

Gathers may be recognized as soft folds of cloth originating in a seamline. Gathers are represented by a group of uneven lines that originate from a seamline. (Hollen, 1972).

This is an easy and decorative way of distributing fullness over a given area. In dressmaking, gathers are often used on bodices with shoulder or waist yokes, on full skirts set into waist bands or hip yokes.

When gathering by machine loosen the top tension. Machine the rows of gathering with the right side of the single material uppermost. Gather by pulling up the single machine thread from the wrong side of the garment. (Tower, 1954).

Gathering stitches must be perfectly even in length. If an uneven stitch is used, the resulting gathers will be uneven and unattractive. The best way to ensure even gathers is to stitch by machine. Machine stitching is most quicker to do, too and it is very seldom that hand stitches are necessary. However, hand stitches are needed when very heavy fabrics must be drawn up into a very small area for in that case a
longer stitch than is possible on the machine is required. If hand stitches are used, greatest care is to be taken to make them even. (Bane, 1956).

III) Pleats :-

A pleat is a fold of material stitched through treble thickness of fabric. Pleats are usually designed in a garment to give extra width. They are therefore stitched part way down the garment for flatness, and are then allowed to go free. The extra material for width of pleat may be carried up to the waist to ensure a good hang, but if the material is at all thick this makes bulk over the abdomen. In this case it is better to cut out the garment with the pleat the required length. All calculation for pleat allowance should be made in the pattern before cutting out the garment (Tower, 1954).

Pleats form folds in the fabric and give fullness and shape to a garment. Unpressed pleats are those which do not have the pleat crease line pressed in place and are used to create a rather soft effect. Pressed pleats have the crease line firmly pressed in position the entire length of the pleat.

Mc.-Call (1963), has described the various effects created by the direction pleats are turned :-
i) Side or Knife pleats :-

This type of pleat is the simplest pleat to form. The folded edges either face in one direction around the garment or the direction is reversed only at the center front and center back pleat.

ii) Box pleats :-

A box pleat is formed by two side pleats which turn toward each other on wrong side forming a panel on the right side of the fabric.

iii) Inverted pleats :-

A pleat formed by two side pleats which turn toward each other on the right side forming a panel on the wrong side of the fabric.

iv) Inside stitched - Down pleats :-

Stitching gives a smooth flat fit over hipline. Measure down from waistline to fullest part of hip. Mark this position on each pleat on inside of skirt. Pleats are basted in place and then stitched from inside of skirt along bust line, from hipline to waistline.

v) Outside stitched - Down pleats :-

This gives a more tailored look than the inside stitching. Pleats are basted and pressed in desired
Side or Knife Pleats

Box Pleats

Inverted Box Pleats
According to Mc. Call (1963), there are several methods of tucking depending on the effect desired -

i) Corded tucks :-

Give additional decoration to a garment since they have the added dimension of thickness of the cord used. The tuck must be wide enough to encase the cord securely. The cord is placed on the wrong side of the fabric at center of tuck and the tuck is stitched.

ii) Shell or Scalloped tucks :-

This is very decorative tuck made by hand. First of all a straight tuck is marked and creased. On the line of stitching, the position for the shell tucks is marked at even distances. Then the tuck is sewed with small running stitches to the first dot. An over hand stitch is taken the dot and the thread is pulled tightly.

iii) Cross tucks :-

This type of tucking is done on the fabric piece before the garment is cut. On the length wise grain the tucks are measured, marked, stitched and pressed in one direction. Then on the crosswise grain the tucks are measured, marked, stitched and pressed in one direction.
iv) Released tucks :-

These tucks are often used to give shaping to a garment as well as for decorative effects. Usually they are folded and pinned on the marking lines with the right side of the fabric together. Stitching is done, starting at the bottom of the tuck to the top. For reinforcement, pivoting, is done at the top of the stitching straight out to the fold line. Back stitch and clip thread.

V) Pin tucks :-

These are very fine tucks which should not be more than the size of a large pinhead in width. They may be arranged in groups or evenly spaced, but they should always be very neatly made and sewn with tiny running stitches (Howard)

V) Princess - Line :-

The princess garment is fitted with seams. Long gores, which may extend from shoulder to hem, can be shaped to achieve infinite variations in silhouette. Traditionally, the "Princess" suggests a close-fitting bodice with a flared skirt, but the princess cut may also be used to develop garments with slim lines or with wide tent-like flares. The princess seam may originate
at any point of the garment above the bustline, passing within an inch or so of the apex, and usually extending to the hem.

Princess styling is adoptable to all sorts of garments, such as kameez, frock, jackets, coats, lounge wear, and swin suits. (Jaffe & Relis, 1973).

According to Hollen (1972), the basic princess dress has no waistline seam and all fitting darts have been converted to on vertical seamline. The basic princess dress can be made directly from the princess bodice and six-gore skirt.

The princess dress is the panel bodice continued to full dress length, with more or less width at the hem, according to the style.

Bray (1964), has described the classical method and the present day method of making a princess dress. The classical method was to place the yard stick along each side of the lower part of the waist darts and side seams, touching in each case point waist and hip and then, along the rule so placed, to draw the skirt seams down to their full length. This gave differently sloped skirt seams according to the slop - obtained in each
case between waist and hip. Thus where the waist dart was deep, as was often the case, for instance, in the hollow of the back, the outer line of the waist dart was more sloping, so that the skirt seam shot out more and gave more width to the hem. The total hem width, therefore, was dependent on the size of waist darts. The back usually worked out fuller than the front, and this was in keeping with the line of the classical princess dress.

A present day princess dress may have a moderate hem width of 2 - 2.50 yds, or even less or it can be quite full, sometimes very full in the hem, particularly in long dresses. The fullness can be evenly distributed, slightly or much reduced in the front, or concentrated mainly in the back. Because of all these possible variations the most usual method now is to decide on the total hem width, according to style, then plan it on the hem level.

VI) Smocking :-

This is a decorative method for taking in fullness. Smocking consists of fabric folds decoratively stitched together at regular intervals to create a patterned effect. The folds may be pulled in when the
stitching is done, or the fabric may be first gathered into fold and then smocked. The decorative stitches may be cable, wave stem or a combination of these stitches (Reader digest, 1976). Some kinds, such as honeycomb smocking can be done without previously gathering the material (Doangaji & Deshpande, 1986).

The evenness of the gathering is ensured by making several rows of dots align with the fabric grain on the right side. Taking small stitches under dots, baste along each row. Dots will appear at tops of folds to indicate smocking stitch points. (Reader digest, 1976).

Doangaji & Deshpande (1986), point out that they should be evenly spaced, one eight inch apart being the best spacing for most materials. They may be a quarter of an inch apart for heavier materials. Because of the fullness required materials of light or medium weight, such as voiles, linen, georgette, organdie, lawn, crepes are best suited for smocking. The thread used, whether cotton, linen or silk, should be of medium weight and firmly twisted. As a rough guide fabric, before smocking, should measure about three times the required finished length but it depends on the space between the dots, the firmness of the particular stitches used, and
the work tension which varies from person to person. In
dressmaking, it is important to complete smocking before
the garment is sewn together. (Golden Hands, 1972).

VII) Godets :-

A section of fabric set into a skirt area is
called a Godet. Godets may be set into seams to
introduce more movement; they may be set in or upon a
slit made in the area; or they may be set over an area
which has been cut away from the body of the garment
(Pepin, 1942).

The triangular godet is really an area of a circle
whose radius is the length of the godet. The curve of
the arc supplies the hemline.

When a godet is inserted into a seam, it is
pointed at the top were the godet is to be set into a
slash, it could be rounded instead. The center of the
godet is generally at the straight grain. For design
purpose it could be bias.

Godets may be as flared as required. For a flare
within a flare at times, a godet is set into the slash
of a godet. (Margolis, 1971).
Pepin (1942), points out that the fullness produced by the godet must first be dependent upon the fabric being used and secondly upon the length of the skirt itself.

VIII) Umbrella:

An umbrella garment is cut on a bias giving full fitting at the waist and flaring below it. There are 2 types of umbrella cutting: (i) Full umbrella and (ii) Half umbrella.

The full umbrella requires a large width of fabric varying with the length of the skirt. Full umbrella is cut on bias and is a full circle having no seams. The fabric is folded on bias by holding one end of the fabric and folding the fabric width onto the selvedge. The bias or crosswise grainline are four folds of cloth now, in the form of a triangle. If the fabric is only 36 inches wide, a half umbrella can be made with seams at the side or at the centre front and back, joining the two half circles to form a full circle.

For the half umbrella, the fabric is folded only once on the bias. The fabric is in two layers. (Thornes, 1993).
IX) Shirring :-

A decorative effect can be achieved with several rows of shirring; the use of a contrasting thread on the right side of the garment is effective. In areas where the shirring must be controlled, a stay is achieved by use of a piece of fabric or twill tape attached by hand to the wrong side of the shirred area.

For a flexible close fit elastic thread is used in shirring. The elastic thread is wound on the bobbin with easy tension, and then the bobbin case is threaded with reduced tension. This method precludes the necessity of drawing up the bobbin thread. Multiple rows are stitched to achieve the desired width of shirring, prevent unraveling. Some adjustment of the elastic thread may be needed, but care should be taken not to reduce elasticity (Relis, 1978).

Perry (1942), draws the attention towards knotting of thread ends. According to him all the thread ends should be knotted and, in addition, stitched over the knots in a seam or encased in a narrow pin tuck.
X) A-Line :-

Fullness with an A-Line shape can be given by shaping the side seam of the garment in the shape of alphabet 'A'. The garment will have sloping sides, with the widest part being at the hemline (Thomes, 1993). The flare given in an A-Line dress depends on the slope that is given.

2.2.2 Selection of material for a dress :-

The fabric used is the most important consideration in the design of dress. It affects both style and function. The same style will not always look the same in different fabrics. The color, texture, yarn and weave of the fabric affects the hang or full drape of the dress. One flared dress may look much fuller and wider than another cut in the same way because one fabric is heavier and more bulky than the other. The material should be suited to the pattern and have enough body so that the dress will hold its shape (Esther, 1967).

Fabric should be selected to suit the type of person and also the figure. Soft fabrics such as voile, silk, chiffon and crepe drape into gentle folds and are ideal for the women (Thomes, 1993).
Harriet & Jimmy, point out that the straight-draped, soft hanging silhouette is one that depends on soft material which hangs naturally in straight, vertical folds; light weight materials which work up but when there is some texturing by the use of gathers, shirring, somcking, knife pleating or when unpressed pleats are allowed to fall softly from hip to hem.

According to Thomas, (1993) firmly woven fabrics feel crisp and smooth. They flatter a heavy figure, giving a smooth line without adding bulk. Heavy fabrics such as tweed, velvet, corduroy and brushed cotton add bulk to the body. Pure silk is the finest and most luxurious of fabrics. There is a certain amount of resilience in the yarn which lends itself to a perfect fit.

2.2.3 Color and figure :-

Color draws the eye to garment and can enhance the natural coloring of the wearer, influence the apparent size of the body, and also draw the eye to a desired focal point. (Kallal, 1985). Color, well used, is a powerful and beautiful design element that enriches all clothing. (Davis, 1987).
According to Perry (1970), the degree of brightness or dullness can also effect size appearance. Brighter color make the figure look larger, while duller colours make it look smaller. Bold contrasting colors will create an impression of greater size; a more subtle colour scheme will appear more compact.

In Readers digest (1976),it has been explained that bright or intense colors always make a figure appear larger than the same colors subdued (i.e. with gray added). If want to look slimmer, use bright as accents rather than in large areas or as an entire garment.

A dark color recedes, reducing apparent figure size; a light color advances, creating the opposite impression. Warm colors - reds, yellows and oranges - especially in bright or untempered tones, make a figure seen larger. Cool colors - blues, greens, violets of comparable brightness or intensity have a slimming effect.

2.2.4 Texture and figures :-

Fabric texture is created by inherent fiber characteristics, yarn ply and twist and the fabric construction. Texture relates to both the visual and the
textile senses (Kallal, 1985). Fabric hand powerfully influences apparent figure size, either creating illusions or emphasizing reality. It refers to how fabric behaves in the space surrounding the body: how it hangs, draps, pleats, extends or folds, how heavy, fine or bulky it is. (Davis, 1987).

According to Perry (1970), textural effects also contribute to an impression of size. Rough, thick textures always seem more bulky to the apparent body size. Shiny, lustrous fabrics reflect more light and thus emphasizing body contours and enlarging the figure.

Kallal (1985), points out that the dull textures absorb light. As a result, they do not enlarge the body size.

In 'Reader’s digest' (1976), it has been explained that pebbly or fluffy textures are bulkier than most smooth ones and so make figures look heavier. A petite person must be especially careful in choosing a rough texture lest it be overwhelming. A stiff fabric in an unbroken garment line will conceal the figure but make it seem large.
2.2.5 Line and figure

It is probably the lines in clothes that cause to appear different from time to time. The most important line in clothes is the outline of figure or silhouette. When people look at a person from a distance, they see the outline rather than the details of clothes. When they come closer, they see other lines in clothes.

Line are formed by the details, decorations, and trimmings on clothes. For example, scollaps, tucks and darts all form definite lines. Gathers, ruffles and the combination of different materials also form lines; also braid, stitching, and applique form lines (Carson, 1959).

In "Reader’s digest" (1976), it has been explained that the vertical line usually create the illusion of height and slimness. However, when repeated at even intervals, they can cause the figure to appear both wider and shorter, because the eye is drawn alternately from side to side.

The unbroken straight lines of a princess dress will add to height (Carson, 1959).
Horizontals tend to cut height, especially when used to divide a figure in half. One horizontal, however, used above or below the middle, makes a focal point of the smaller area, seeming to lengthen the longer one.

Diagonals may contribute to height or width, depending on their length and angle. A long diagonal creates a feeling of tallness. A short diagonal gives the impression of width and draws attention to the area in which it occurs.

Curves produce the same effects as straight lines of similar length and placement, but more subtly. The visual impact is softer, more graceful. A curve also adds roundness and a look of greater weight wherever it occurs on the figure.

There are some general principles regarding use of line:

(i) The larger, wider, or more repetitious a line, the greater its influence in the total design.

(ii) Folds (pleats for example) create lines, but at the same time add bulk.

(iii) The more lines there are in a fabric design (for example a print) the fewer lines there should be in the garment. (Reader's digest, 1976).
2.2.6 Design and figure :-

The space divisions and their relationships within a design are termed proportions. These divisions may be defined by inner design lines or result from the ways in which color and texture are used. They always affect apparent height and figure size. (Readers' digest, 1976).

Prints are first and foremost combinations of colors, and the same rules apply to them as to solids. Garment line should be also considered while selecting prints. Plaids, stripes, and many others prints have lines of their own, they should be selected in such a way that they flatter the figure. It is most important to relate the print to the figure. Placement of prints can be done to attract or distract attention to plus and mini points of the figure. (Perry, 1970).

In 'Readers' digest (1976), it has been explained that as a small print on a large figure, or a large print on a small one, creates too great a contrast to be pleasing. These results can be modified, however, by choosing subdued and subtle print tones instead of ones that contrast.
Contrasting solids divide the figure horizontally at the point where colors meet.

A plaid may have various effects on a figure, depending on its space divisions and color contrasts. In general, the wider the spaces between vertical bars, and or the greater the color contrast, the more enlarging the effect. For proper scale, a large person should wear a large design. To modify the impression of size, select a plaid made in muted colors and with minimal contrast.

Strips running vertically can make a figure look wider than similar stripes horizontally arranged, though the opposite is often assumed. The reasons: spacing between lines; amount of contrast in color divisions.

2.2.7 Types of figures :-

The purpose of analyzing figure is to determine if and where figure deviates from the standard average. The following figure series illustrates body characteristics that cause fitting problems.
<table>
<thead>
<tr>
<th>Type of Figure</th>
<th>Measurements of figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>i) Average figure</td>
<td>5'5&quot; height 36&quot; bust; 28&quot; around waist; 37&quot; around hips.</td>
</tr>
<tr>
<td>ii) Tall figure</td>
<td>More than 5'5&quot; height.</td>
</tr>
<tr>
<td>iii) Short figure</td>
<td>Less than 5'5&quot; height.</td>
</tr>
<tr>
<td>iv) Top-heavy</td>
<td>If bust is large in proportion to waist and hips.</td>
</tr>
<tr>
<td>v) Wide-hip</td>
<td>Hip measurement is large in proportion to waist and bust.</td>
</tr>
<tr>
<td>vi) Long neck</td>
<td>Length of the neck is more than average length.</td>
</tr>
<tr>
<td>vii) Short neck</td>
<td>Neck length is less than average length.</td>
</tr>
<tr>
<td>viii) Sloping shoulders</td>
<td>Shoulders slops too sharply than naturally sloping shoulders.</td>
</tr>
<tr>
<td>ix) Narrow shoulders</td>
<td>Hip width exceeds shoulder width.</td>
</tr>
<tr>
<td>x) Wide shoulders</td>
<td>Shoulder width exceeds hip width.</td>
</tr>
<tr>
<td>xi) Thin arm</td>
<td>Flesh closer to skeletal structure than average.</td>
</tr>
<tr>
<td>xii) Fleshy arm</td>
<td>Bulges between shoulder tip and elbow.</td>
</tr>
<tr>
<td>xii) Thick waist line</td>
<td>Waist is large in proportion to bust and hips.</td>
</tr>
<tr>
<td>xiv) Sway back</td>
<td>Figure has a flat sopt at the center back just below the waist line.</td>
</tr>
</tbody>
</table>

McCall's(1951) & Armstrong(1987)
2.3 Research Review :-

Mc Call, (1963) describes women having a great variety of shapes. Many women have almost indentical measurements, still proportions are so varied that their figures appear to be entirely different. One may seen tall and slender, another fairly plump; yet bust, waist and hip measurements of both are the same.

Mc Call's patterns have been designed to suit seven different groups of figures varying in height and contour. The seven group include: Pre-teen, Teen, Juniour, Missess, Women's, Junior petite and Half size. These figure types correspond to different age groups as suggested by the name itself.

Similarly simplicity Pattern company has also classified women into seven figure types according to their bust girth, waist girth, hip girth and back waist length. These figure types are Missess, Miss petite, Junior, Junior petite, Young, Junior teen, Women and Half size.

O'Brien, (1941) reports on the study of "Women's Measurements for Garment and Pattern Construction".
Conducted by the Bureau of Home Economics in the United States of America during the year 1939-40. The main purpose of this study was to provide measurement which could be used for improving fit of women's garments and patterns. The weight and fifty-eight measurements of 14,898 women living in the United States were taken.

This study included not only measurement of a large group of women, but also detailed statistical analysis of the results to provide data from which the garments and pattern industry could develop a system of sizes satisfactory to consumers and all branches of trade. While analysing, special attention was given to a few important measurements from which all others can be predicted. An important finding of the study was that stature-weight combination would be the best basic for classifying women's body types for the establishment of a standard system of garment and pattern sizes.

The researcher further reported that horizontal and vertical measurements are highly correlated among themselves. But, many of the correlations of the verticals with the horizontals are very small and some are negative, stature is negatively correlated with girth of waist and of upper arm, although it has a
considerable positive correlation with the girths of the bony parts of the body like elbow, ankle, and even the hips. Shoulder slope is not correlated with any other measurement and shows a negative correlation with most. Correlation among the trunk girths are high and upper body girths are related more closely to the arms and those of the lower body with the legs. Highest correlation in the entire set are the girths of chest and bust, waist and abdominal extension, and hip and sitting spread. The partial correlation between bust and upper arm girth was found to be 0.3960.

Kawatra, (1974) studied adoption of basic block to various dress designs suitable for both tall and short thin figures. The main objectives of the study was to determine the relative effect of the different features used for tall and short thin figures. The study was limited to thin figures only. With the help of design principles and physical characteristics of the selected sample, becoming features were combined in groups. Each group had three features in a dress.

The data collected from 50 girls of the clothing and Textiles Department, Faculty of Home science, M.S.University of Baroda, was analysed and it was found
out that the becoming features used for both tall and short thin figures reduced the apparent height of the subject respectively. Her findings showed that the vertical illusion created by full length dress is much more as compared to one by means of panels, tucks, pleats and princess line. She suggested that gathered skirt in case of short and thin adds to fullness more in comparison to tall and thin subject.

The study thus concluded that although becoming features do have the effect on apparent height and apparent width, the degree or the extent varies from feature to feature.

Deshmukh, (1974) conducted a study "To design dress for women between the age of 45 to 65 with three different figure types, being short and stout, medium, tall and thin". She found out the effect of lines on the perception of length and width of garments on the medium figure, and to camouflage the figure defects and to introduce additional good points by selecting right lines, color, design and texture in fabrics as well as in design of dress.
The study was carried out in two parts. In the first part construction of six dresses in striped material, each one having lines running in different directions was made to see whether lines effect the perception of height and width of the persons. The second part consisted in utilizing the findings of the first part of the study for designing and constructing dresses suitable for three different types of women.

The investigator found that vertical lines stress the illusion of lengthening and slenderising where as horizontal lines create just the opposite effect of shortening and widening. The position of the diagonal lines also created lengthening effect. The diagonal lines meeting in the centre and pointing upwards had greater effect of lengthening than that of the diagonal line points downwards. The lines converging towards the centre of the dress and the lines diverging from the centre of the dress, showed more of widening effect.

Bapna, (1985) conducted a study to draft the basic skirt and adapt and design for different figures. The study was limited to the construction of sixteen skirts. Measurements of hundred college going girls were taken and coefficient correlation between the waist and
hip girth was found out on the basis of which the girls measurements were divided into four sizes in relation to their height. She found out eight figure problems namely, small waist line, thick waistline, sway back, prominent abdomen, prominent derriere, small hip curve, small hips and large hips. The skirts designs for construction was selected by fifty girls. Then the opinion on the constructed skirts for minimizing figure irregularities was taken by trying them on the subjects.

It was concluded that small yokes with symmetrical lines on either sides helped in emphasising a slim waistline. Symmetrical lines radiating from the waist to the hips make a thick waist appear slender. Gathers or pleats at centre back, hide a sway back. An umbrella skirt is highly becoming for a figure with a prominent abdomen and small hips. Gored skirts are very suitable for a girl with a prominent derriere or large hips and fully gathered skirts add width to small hips.

Matharod, (1981) conducted a study on the adaptation of the basic sleeve block to various designs for college girls having fat arms.
She found out in her study that full sleeves were most suitable for arms. Kimono sleeve and bell-sleeve made thin arms appear bulky and were therefore most suitable.

Barooah, (1982) did a study on the construction of different types of collars to study their suitability for long necks. For the study she selected girls with long necks after measuring them and comparing the total neck length to 1/3rd of the total face length to adopt the block.

The study concluded that Chinese (Mandarin) collar ranked first, bowtie collar was second, jobat was also considered as suitable collars for long necks. Ruff was rated as least suited collar for long neck.

Sethi, (1989) had undertaken a study on the designing and construction of garments using ruffles for different figure problem of college going girl.

Four different figure problems were selected: Tall and Thin, Short and Thin, Narrow and Drooping shoulder and Hallow chest and Flat bust.
Plain, medium weight poplin was selected for the midi dress and a light weight fabric - cambric was selected for the ruffles on this dress.

She has concluded that midi dress which had a shirred waistline and a double breast bodice forms an horizontal effect, thus broadening and shortening the tall and thin figure. The dress with vertically placed ruffles in the front and circular skirts with vertically placed ruffle at its opening gives enough fullness to the thin figure and vertically placed ruffle increased height.

Midi dress and skirt blouse with number of layers of ruffles place across the chest helps in filling the hollow chest and comouflaged the flat bust very effectively.