

**SHRIMATI INDIRA GANDHI COLLEGE**  
(Nationally Accredited at 'A' Grade (3<sup>rd</sup> cycle) by NACC)  
(Affiliated to Bharathidasan University)  
Tiruchirappalli-620002



**DEPARTMENT OF  
FASHION TECHNOLOGY & COSTUME DESIGNING**



**STUDY MATERIAL FOR  
“PATTERN MAKING & GRADING”**

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## **PATTERN MAKING & GRADING**

### **UNIT-I : Fabric Preparation & Layout Planning:**

Preparing the fabric for cutting, Importance of grain in fabric cutting and garment construction. Methods of straightening fabric grain.

Lay Planning: Introduction, Rule to remember in pattern layout. Types of layout. Transferring pattern markings, stay stitching, ease stitching.

### **UNIT-II: Drafting and Draping:**

Draping: Preparation of Paper Pattern, Advantages of paper pattern. Pattern drafting with personal measurements. Principles for pattern drafting. Preparing draft for basic bodies, sleeves and skirt pattern.

Drafting: Definition, types of dress form, preparation of adhesive paper dress form, Draping technique. Draping basic blocks (bodies, sleeve and skirt).

### **UNIT – III Flat pattern techniques:**

Definition, Pivot method, slash and spread method, measurement method. Creating styles through dart manipulation and relocation of darts.

### **UNIT – IV Commercial pattern and pattern grading:**

Commercial Pattern: Definition, merits and demerits, development of commercial pattern.

Pattern Grading: Definition, Grading techniques, selecting a grading system, grading techniques, their advantages and disadvantages. Computer grading. Grading procedure. Grading of basic block using draft grading system.

### **UNIT – V Pattern Alteration and Garment fitting & Assembling:**

Pattern Alteration: Method of Identifying pattern alteration. General principles for pattern alteration. Common pattern alteration in fitted body pattern.

Garment fitting and assembling: Standards for a good fit, checking for good fit, Solving fitting problems and remedies.

**Text Books:**

1. Amaden Gewford, Fairchild Fashion Draping, Connje publication, Inc 2005.
2. Hilary Campbell, Designing Patterns, Om Book services, New Delhi 2003.
3. Helan Joseph-Pattern Making for Fashion Design, Armstrong Pearson Education, Delhi 2000.
4. Sandra Betzina, Fast Fit, the Taunton press, Inc New York London,2003.

## **PATTERN MAKING AND GRADING**

### **UNIT – I**

#### **PART – A**

#### **TWO MARKS**

#### **1. What is pattern layout?**

Manner in which the patterns are laid out on the fabric for cutting process is called “Pattern layout”.

#### **2. What are the common methods of folding the cloth for laying the pattern?**

- Lengthwise centre fold
- Off centre lengthwise fold
- Crosswise centre fold
- Off centre crosswise fold
- Double fold
- Combination fold
- Open fold.

#### **3. What are the three rules to remember in pattern layout?**

- Press the fabric as well as the pattern pieces flat before laying the pattern on the fabric.
- Use a large table or any hard flat surface for accommodating your work.
- If an open layout is used, place the fabric right side up on the table. For the other entire layout fold the fabric right sides facing and wrong sides out.

#### **4. What are the steps involved in preparing the fabric for cutting?**

- Checking each end of the fabric to see whether it is straight along a crosswise yarn. If it is not cut, cut it along the crosswise yarn. This process is called Straightening (or) Evening the ends.

- Checking the fabric to see whether it is grain perfect. Straighten the drains, if the fabric is off grain.
- Shrinking the fabric if it has not been pre-shrunk by treatments like “Sanforising”.
- Pressing the fabric and removing all creases.

**5. Write a short note on Lengthwise centre fold layout.**

In this layout the fabric is folded down the middle parallel to the selvedge so that the selvedges come together. This is the most frequently used fold.

**6. Explain – Off centre lengthwise fold layout.**

This is used when narrow pieces have to be cut on fold. To ensure that the fold is parallel to the selvedge, mark point measuring the required distance from the selvedge at regular intervals and fold along the marking.

**7. What is crosswise centre fold layout?**

This is suitable for materials that are too narrow to accommodate the width of the pattern piece when folded lengthwise.

**8. Explain – Off Centre Cross wise fold Layout.**

When only a part of the material is required to cut pattern piece that are too wide for lengthwise fold layout, this type of fold is used.

**9. Explain about the Double fold layout.**

This is used when many pattern pieces that are not too wide must be cut on fold. For garments with no opening for front and back sections, this type of fold can be used provide the cloth is wide enough to accommodate the patterns when folded this way.

**10. Explain about the Open Layout.**

In this type of layout, the fabric is not folded at all. This is used especially for designs which require right and left halves to be cut separately.

**11. How will you transfer pattern markings?**

To transfer pattern markings, the common methods employed for marking fabrics are:

- Use of tracing wheel and carbon paper
- Contrasting colored tailor's chalk
- Color pencil.

**12. List out the types of grain.**

- ❖ On Grain
- ❖ Off Grain
- ❖ Straight Grain
- ❖ Bias Grain
- ❖ True Bias Grain

**13. Define Selvedge.**

Selvedge is the finished edge of the fabric which runs lengthwise. Selvedge is woven differently with extra yarns and stronger yarn than the rest of the fabric.

**14. What is meant by True Bias?**

True Bias makes a 45° angle with lengthwise and crosswise yarns.

**15. Define – On grain.**

A fabric in which the crosswise yarns run exactly at right angles to lengthwise yarns and which has right-angled corners is said to be on grain or grain perfect.

**16. Define – Off grain.**

A fabric in which the crosswise yarns are not running exactly at right angles to lengthwise yarns is referred to as off grain fabric. This happens because the fabric has been pulled out of shape and pressed in that position during finishing at the factory.

**17. Define – Straight Grain.**

Grain refers to the direction of yarns in a fabric. Woven fabrics are made up of lengthwise and crosswise or filling yarns interlaced at right angle to each others. These yarns are called the lengthwise and crosswise grains of the fabric. On patterns, lengthwise grain is referred to as straight grain.

**18. Define – Bias Grain.**

Bias grain is any direction on a fabric that does not exactly follow a lengthwise or a crosswise yarn.

**19. Define – With the grain & against the grain.**

A stroke is given to one direction, the thread ravel from the edge of the fabric is known as ‘Against the grain’. If another stroke is given to the fabric in opposite direction the yarn close up compactly is known as ‘With the Grain’.

**20. List out the some of special layouts.**

- Fabrics with lengthwise striped design
- Fabric with bold designs such as plaids and crosswise stripes
- Asymmetric designs
- Fabrics with one way design
- Fabrics with nap and pile.

**21. What is the importance of grain lines in pattern?**

Straight grain lines on patterns must be kept parallel to the fabric selvedge. To ensure this, measure and adjust the pattern so that both ends of the straight grain line are the same distance from the selvedge and pin the pattern to the fabric along the grain line arrows.

**22. Define lay planning.**

Lay planning is defined as the planning the pattern layout according to the fabric economically and neatly.

**PART - B****FIVE MARKS****1. What are the rules for pattern layout?**

- Press the fabric as well as the pattern pieces flat before laying the pattern on the fabric.
- Use a large table or any hard flat surface for accommodating your work.
- If an open layout is used, place the fabric right side up on the table. For the other entire layout fold the fabric right sides facing and wrong sides out.
- Make a trail layout
- Straight grain lines on patterns must be kept parallel to the fabric selvedge.
- Leave enough space between patterns.
- The patterns must be placed in an economical way.

**2. What are the different types of Pattern Layouts?**

- ❖ The manner in which the patterns are laid out on the fabric for cutting process is called “Pattern layout”.
- ❖ Decide the best way to fold your cloth. Some of the common foldings that can be used are
  - Lengthwise centre fold
  - Off centre lengthwise fold
  - Crosswise centre fold
  - Off centre crosswise fold
  - Double fold
  - Combination fold
  - Open fold.



**3. Explain in detail about the Special Layouts.**

The special layouts are as follows,

- Fabrics with lengthwise striped design
- Fabric with bold designs such as plaids and crosswise stripes
- Asymmetric designs
- Fabrics with one way design
- Fabrics with nap and pile.

**4. Explain about the preparation for measuring.****For taking the measurements:**

- Use a good quality measuring tape
- Tape must be sturdy and will not stretch
- Metal end of the tape should be used for stiffness
- Hold the tape parallel to the floor for horizontal measurements and perpendicular for vertical measurements.

**5. Explain the measurements required for ladies garment.****Bodice measurements**

1. Bust
2. Waist
3. Neck
4. Shoulder to bust
5. Distance between bust points
6. Back width
7. Back waist length

**Sleeve Measurements**

1. Upper arm circumference
2. Lower arm
3. Elbow circumference
4. Wrist
5. Sleeve length

**Skirt measurement**

1. Hip
2. Waist to hip
3. Skirt length

**3. Write in detail about the types of Grain.**

- ❖ Grain refers to the direction of yarns in a fabric. Woven fabrics are made up of lengthwise and crosswise or filling yarns interlaced at right angle to each others. These yarns are called the lengthwise and crosswise grains of the fabric.
- ❖ When a garment is worn, the fabric grain lines must fall correctly in the proper place on your figure. The lengthwise grain should be perpendicular to the floor at the centre front and centre back of the garment. In the sleeve, lengthwise yarns should hang vertically from shoulder line to centre of the sleeve hem. The crosswise yarn should be parallel to the floor across bust, waist and underarm of sleeve.

**➤ Types of Grain:-**

- On Grain
  - Off Grain
  - Straight Grain
  - Bias Grain
  - True Bias Grain
- **On Grain:** A fabric in which the crosswise yarns run exactly at right angles to lengthwise yarns and which has right-angled corners is said to be on grain or grain perfect.
  - **Off Grain:** A fabric in which the crosswise yarns are not running exactly at right angles to lengthwise yarns is referred to as off grain fabric. This happens because the fabric has been pulled out of shape and pressed in that position during finishing at the factory.
  - **Straight Grain:** Grain refers to the direction of yarns in a fabric. Woven fabrics are made up of lengthwise and crosswise

or filling yarns interlaced at right angle to each others. These yarns are called the lengthwise and crosswise grains of the fabric. On patterns, lengthwise grain is referred to as straight grain.

- **Bias Grain:** Bias grain is any direction on a fabric that does not exactly follow a lengthwise or a crosswise yarn.
- **With the grain & Against the grain:** A stoke is given to one direction, the thread ravel from the edge of the fabric is known as 'Against the grain'. If another stoke is given to the fabric in opposite direction the yarn close up compactly is known as '**With the Grain**'.

### **PART - C**

#### **TEN MARKS**

1. Explain in detail about the layouts.
2. Explain in detail about the different types of special layouts.
3. How to arrange the pattern in most economical way?
4. Explain in detail about transferring pattern markings.
5. Explain the following in detail
  - Combination Layout
  - Open Layout
  - Double Layout
  - Crosswise centre fold layout
  - Lengthwise centre fold layout

**UNIT – II****PART - A****TWO MARKS****1. Define Pattern Making.**

It is the method of making any draft of a garment according to particular body measurements.

**2. Methods of Pattern Making.**

There are three methods of pattern making. They are,

- Drafting
- Draping
- Placement Method or Flat Pattern Method

**3. Define Drafting.**

It may be defined as a system of drawing patterns on a paper with mechanical precision on the basic of body measurement.

**4. What is mean by Draping?**

Draping is the manipulation of fabric on a three dimensional form by a designer to obtain perfect fit and harmony between the fabric and design of the garment and the silhouette of the individual.

**8. Define – Pattern.**

A pattern can be defined as a model of the various components of a garment. It can be made of paper or plastic. Normally papers are used to make the patterns.

**9. Explain the importance of Paper Pattern.**

- ❖ Basically, patterns are acting as a time saving device. If we have cut a pattern that can be used all garments of the same size can be cut with the same

pattern. By this, we will save precious time, by avoiding the drafting process on each and every fabric,

- ❖ And also, it is easy to draft straight away on the fabric. With the help of the paper pattern, making process can be done quickly.

#### **10. What are the types of paper pattern?**

- ❖ Commercial Pattern
- ❖ Personal Pattern

#### **11. What are the Principles for Pattern Drafting?**

- ➔ Before drafting the patterns, check the measurements clearly and read the procedures and instructions carefully.
- ➔ Make a rough diagram before drafting.
- ➔ Before drafting, we have to decide the amount of ease allowance to be given at the required portions.
- ➔ The places of darts and Pleats should be clearly marked.

#### **12. List out any 4 important Pattern Details.**

- ➔ Name of the style.(Ex.-Gent's shirt , Skirt etc.,)
- ➔ Name of the each piece of pattern(Ex- Front, Sleeve etc.,)
- ➔ Size of the garment (Ex – Small, Medium & Large)
- ➔ Number of pieces to be cut with each pattern piece.

#### **13. What is Draping?**

Draping is nothing but the real material is draped on the dummy or models is called as Draping.

#### **14. What is tearing?**

- Muslin cloth should cut a reasonable amount of extra fabric for ease, seam allowance.
- Selvedge should form the edge of muslin for draping.

**15. What is Blocking?**

- Before draping muslin may have to be reshaped.
- To reshape muslin, pull the edges diagonal with the fabric squared.

**16. What is pressing?**

- Press in the direction of warp & weft.
- Apply steam is followed by a Dry Iron.

**17. What is marking?**

- Mark all muslin with a well-sharpened Pencil.
- Armhole-Dot armhole ridge from should seam to plate screw level.

**18. What is Trueing?**

- Muslin is drawing the lines that exact dimensions of the finished pattern.
- Remove the muslin from the dress form and remove all the pins.
- Note the all pins.
- To true the armhole is Neckline.
- Add seam allowance to neckline and shoulder seam and trim away the excess muslin.

**19. What are draping techniques?**

These are the techniques by which the fabric undergoes certain processes before draping. The draping techniques have several steps. They are

**(i) Preparation of muslin for draping**

- a) Tearing
- b) Blocking
- c) Pressing

**(ii) Draping steps**

Next to drape the neckline

**(iii) Marking****(iv) Trueing**

**20. Write the tools required for pattern drafting.**

The mechanical tools that are required for pattern drafting are

- (i) Sharp pencil
- (ii) Inch tape
- (iii) Eraser
- (iv) Tissue paper
- (v) Necessary body measurements (or) Standard measurements
- (vi) L types scales
- (vii) French curves

**PART – B**  
**FIVE MARKS**

**1. Briefly explain about the methods of Pattern Making.**

- It is the method of making any draft of a garment according to particular body measurements.
- Methods of Pattern making –
  - Drafting - It may be defined as a system of drawing patterns on a paper with mechanical precision on the basic of body measurement.
  - Draping - Draping is the manipulation of fabric on a three dimensional form by a designer to obtain perfect fit and harmony between the fabric and design of the garment and the silhouette of the individual.
  - Placement Method or Flat Pattern Method - The basic pattern may be modified to develop patterns for varies styles by a technique called “Flat Pattern Technique”.

## 2. Briefly explain about the types of paper pattern

A pattern can be defined as a model of the various components of a garment. It can be made of paper or plastic. Normally papers are used to make the patterns

### ➤ Types of Paper Pattern:

- a) **Commercial Pattern** - They are also referred to as 'Ready-Made Patterns'. Patterns prepared on the basis standard measurements are called as commercial pattern or ready made patterns.
- b) **Personal Pattern** - Patterns drafted using personal or one's individual measurements are called Personal Patterns. They are also referred to as individual Patterns.

## 3. Explain in detail about the personal pattern.

- Patterns drafted using personal or one's individual measurements are called as Personal Patterns. They are also referred to as individual Patterns.
- **Advantages -**
  - ➔ If we know pattern cutting, we can make patterns ourselves, which will give good fitting rather than ready-made patterns.
  - ➔ It is very economical.
  - ➔ We can create our own designs.

## 4. Briefly explain about the importance of Pattern Details.

- A pattern can be defined as a model of the various components of a garment. It can be made of paper or plastic. Normally papers are used to make the patterns
- Name of the style.(Ex.-Gent's shirt , Skirt etc.,)
- Name of the each piece of pattern(Ex- Front, Sleeve etc.,)
- Size of the garment (Ex – Small, Medium & Large)
- Number of pieces to be cut with each pattern piece.



**5. Explain Draping Techniques. Explain their steps.**

- These are the techniques by which the fabric undergoes before draping.

The draping techniques have several steps. They are

(i) Preparation of muslin for draping

d) Tearing

e) Blocking

f) Pressing

(ii) Draping steps

Next to drape the neckline

(iii) Marking

(iv) Trueing

**PART – C****TEN MARKS**

1. Explain in detail about Pattern Making.
2. Briefly explain about the preparation of paper pattern.
3. Explain about the Principles of Patten Drafting.
4. What are the steps in drafting the Children's Pattern?
5. List out the importance of Pattern Details.
6. Explain in detail about types of dress forms.

**UNIT – III****PART - A****TWO MARKS****1. Define Flat Pattern Technique.**

The basic pattern may be modified to develop patterns for various styles by a technique called “Flat Pattern Technique”.

**2. What are the methods of Flat Pattern Technique?**

- Pivot
- Slash & Spread
- Measurement methods.

**3. Explain the Slash & Spread Method.**

By this method we can shift, split and combine the needed darts towards the required style of the garment.

**4. What is meant by Dart Manipulation?**

Dart Manipulation can be accomplished through the pivotal method or slash method. The pivotal method is recommended where single darts are to be repositioned.

**5. What is meant by Dart?**

Darts are V-Shaped stitched folds, formed of the material to be picked up at given depth and which taper to a point. They are structural lines needed to a shape and fit.

**6. What are the Types of Darts?**

There are three types of Darts. They are,

- Single Dart
- Double Dart
- Decorative Dart

**7. Pivoted Method.**

This is one of the methods used to the Dart Manipulation. In this pivotal method dart is transferred from one place to other through Bust point or Neck point or pivotal point.

**8. What is Under Arm Dart?**

Under Arm Dart is the dart which is placed two inches down from the armhole pit in the under arm seam lines.

**9. What is meant by French Dart?**

French dart also comes in the under arm seam line. French dart is generally located 3” to 2” up from the waist line.

Some other Darts are:

- Centre Front dart
- Neckline dart
- Armhole dart

**10. What are the Transferring Darts in pivotal method?**

- Back shoulder dart to back neck
- Front shoulder dart to front neck
- Front shoulder dart to front armhole
- Front shoulder dart to under arm
- Front shoulder dart to centre front
- Front shoulder dart to French dart
- Front shoulder dart to waist double dart
- Double dart to French dart

**11. What is Slash and Spread method?**

Dart manipulation introduced the slash and spread pivotal transfer pattern making technique, to transfer the dart excess from one location to another for design variation. It is the beginning of the pattern manipulating process. It requires both artistic and technical skills to manage and control the pattern throughout the development process.

**12. How to convert dart into partial yoke?**

A yoke is a segment of a garment usually placed at the shoulders, above the waist line or below the waist line.

**PART – B**  
**FIVE MARKS**

**1. Write short note on Darts.**

- Darts are V-Shaped stitched folds, formed the material to picked up at given-depth and which taper to a point. They are structural lines needed to a shape and fit.
- There are three types of Darts. They are,
  - Single Dart
  - Double Dart
  - Decorative Dart
- Under Arm Dart is the dart which is placed two inches down from the armhole pit in the under arm seam lines.
- French dart also comes in the under arm seam line. French dart is generally located 3” to 2” up from the waist line.

Some other Darts are:

- Centre Front dart
- Neckline dart
- Armhole dart

**2. Write short notes on converting dart into seam.**

- Darts are V-Shaped stitched folds, formed the material to picked up at given-depth and which taper to a point. They are structural lines needed to a shape and fit.
- Dart Manipulation can be accomplished through the pivotal method or slash method. The pivotal method is recommended where single dart is to be repositioned.
- In this style the decorative seam is formed from the armhole to waist line, dividing the front bodice into panel.
- Conspicuous – Ex- Lace, Ruffles or bias binding.
- Inconspicuous – After finishing the seams, no stitches are visible on the right side.
- General dart manipulation steps.

**3. Explain the methods of Dart Manipulation.**

- Darts are V-Shaped stitched folds, formed the material to picked up at given-depth and which taper to a point. They are structural lines needed to a shape and fit.
- Methods –
  - Slash & Spread Method
  - Pivotal Method
- **Slash & Spread Method:** Dart manipulation introduces the slash and spread pivotal transfer pattern making technique, to transfer the dart excess from one location to another for design variation. It its the beginning of the pattern manipulating process. It requires both artistic and technical skills to manage and control the pattern throughout the development process.

- **Pivotal Method:** This is one of the methods used to the Dart Manipulation. In this pivotal method dart is transferred from one place to other through Bust point or Neck point or pivotal point.

#### 4. How to Transferring the darts using pivotal method?

- Darts are V-Shaped stitched folds, formed the material to picked up at given-depth and which taper to a point. They are structural lines needed to a shape and fit.
- **Methods :** 1.Slash & Spread Method , 2.Pivotal Method
- In pivotal method the dart transformation is as follows,
  - i. Back shoulder dart to back neck
  - ii. Front shoulder dart to front neck
  - iii. Front shoulder dart to front armhole
  - iv. Front shoulder dart to under armhole
  - v. Front shoulder dart to centre front
  - vi. Front shoulder dart to French dart
  - vii. Front shoulder dart to waist double dart
  - viii. Double dart to French dart

### PART – C

#### TEN MARKS

1. Explain Relocating of darts with neat sketch.
2. Briefly explain about the dart manipulation.
3. Explain slash pattern technique with neat sketch.
4. Explain the following
  - i. Convert dart into seam
  - ii. Convert dart to partial yoke
  - iii. Pivotal method with neat sketch.
  - iv. Slash and spread method with neat sketch.
  - v. Incorporating darts into a seam.

**UNIT – IV****PART-A****TWO MARKS****1. What are the advantages of Commercial Pattern?**

- ❖ Commercial Patterns save our time and effort.
- ❖ If our measurements suit a particular size, it would be simpler to buy a commercial pattern than drafting one our selves.
- ❖ If we do not have knowledge in cutting by using the readymade patterns we can make a garment with good fitting.

**2. What are the disadvantages of Commercial Pattern?**

- ❖ Readymade patterns do not give good fit without some pattern alterations, if our measurements do not have the same proportions as the standard figure.
- ❖ Pattern alterations are more complicated process than drafting patterns.
- ❖ Moreover commercial patterns are expensive.

**3. Define Personal Pattern.**

Patterns drafted using personal or once individual measurements are called as Personal Patterns. They are also referred to as individual Patterns.

**4. What are advantages of Personal Patten?**

- If we know pattern cutting, we can make patterns ourselves, which will give good fitting rather than ready-made patterns.
- It is very economical.  
We can create our own designs.

**5. What is grading?**

Grading is a method of enlarging or reducing pattern of a particular size, proportionately to some other sizes.

**6. What are the general rules or principles of grading?**

- We can make patterns of other sizes without pattern of a particular size by Grading.
- The basic pattern should be without seam allowance.
- Using a 32” size pattern, the patterns of sizes 34”,36”,38” & 40” can be prepared.
- For a 2” increasing bust size, the increase needed in width measurement on the half pattern is  $\frac{1}{4}$ <sup>th</sup> this ie.,  $\frac{1}{2}$ ”.

**7. Types of Grading.**

Grading can be classified into the following two broad systems.

- Three Dimensional Grading
- Two Dimensional Grading

**8. What are the advantages of three dimensional systems?**

- It is the only way the front bodice suppression and the bust point can be controlled.
- Minimize the mistakes in calculating grade increments.
- Facilities any change in suppression.
- The draft can be graded by the pattern technician and then handed over its an assistance to be spiked off and cut into sizes.

**9. What are the disadvantages of three dimensional grading systems?**

- It requires a good working knowledge of pattern cutting.
- It requires more of the pattern technical time.

**10. Write about Two dimensional Grading systems.**

- A two dimensional grading system only grades a pattern for girth and height.
- It can produce loose fitting garment or semi drape garment.



- However a very loose fitted garment such as a shirt or blouse with a limited size range of say 10-12-14, may be safely graded using a two dimensional system.

### **11. What are the advantages of two dimensional grading systems?**

- It requires little knowledge of pattern cutting.
- Basic instructions are easy to learn and follow.

### **12. How to grade the back body?**

Take the 32" size back bodice pattern (without seam allowance) and trace its outline on a larger sheet of paper. Extend the centre back line A,A1 by one inch and mark four points at 1" intervals.(These represent bust sizes 32" to 40" at 2" intervals.

### **13. How do you grade the sleeve pattern?**

Take the sleeve pattern of bust size 32" and AB is outline on a sheet of paper. Extend the line AB one inch beyond B to B1. Between A, A1 and B, B1 mark points ½ inch intervals.

### **14. How do you grade the collar?**

- Take 32" size collar and trace its outline on a large sheet of paper.
- Here AA1=BB1=1" by marking 4 points at ¼" intervals similarly DD1=CC1=1" by making 4 points at ¼" interval.
- 

### **15. What is computer aided designing?**

Any part of the design process that can utilize the computer as a tool is called computer aided designing

**16. Write about the computer application in pattern making.**

Pattern, blocks or slopes that are stored in the computer can be manipulated by operator using the same flat pattern techniques used in the hand-drafting. Pattern can be drafted quickly.

**17. Write about computerized marker-making.**

A matter is the arrangement of all the pattern parts for a particular style in the optimal configuration for maximum fabric utilization using computer.

**18. Write the rules on grading in computer designing.**

1. Select the grading points and click on Save, so as to save the grading values.
2. Click on Open to apply a grade to the newly created piece with grading points.

**19. Write about computer aided marker planning.**

Cad systems are widely used in sample rooms when large numbers of new sample markers have to be produced continuously. Most of these systems have two alternative modes of operation and the choice between them is dictated by the amount of time available for planning and the accessibility of the system. Two modes of operations are

- Interactive
- Automatic.

**20. What are the hints for arrange the pattern in most economical way?**

- Lay the pattern pieces close together.
- Wider end of large pieces should be place at the cut edges.
- Try different layout till you find one that requires minimum length of cloth.

Start cutting only after all the pattern pieces is placed.

**21. What is mean by Commercial Pattern?**

They are also referred to as 'Ready-Made Patterns'. Patterns prepared on the basis of standard measurements are called commercial pattern or ready made patterns.

**22. What are main parts of commercial pattern?**

A commercial pattern has three main parts,

- Envelope
- Instruction Sheet
- Pattern Tissue

**23. What are the details contained in the envelope?**

The envelope which contains the other two components is printed with

- Photograph or illustrations of the garments, plus the information that is required to select.
- Appropriate size of the pattern and purchase the correct amount of fabric.

**24. Why the commercial patterns are done on tissue paper?**

Commercial patterns are usually done on tissue paper. Since tissue paper is not bulky, it allows many pieces of patterns to be packed compactly in an envelope.

**PART – B****FIVE MARKS****1. Write the short note on back body grading.**

- Grading is a method of enlarging or reducing pattern of a particular size, proportionately to some other sizes.
- We can make patterns of other sizes without pattern of a particular size by Grading.
- The basic pattern should be without seam allowance.

- Using a 32” size pattern, the patterns of sizes 34”, 36”, 38” & 40” can be prepared.
- For a 2” increasing bust size, the increase needed in width measurement on the half pattern is  $\frac{1}{4}$ <sup>th</sup> this i.e. 1/2”.
- Take the 32” size back bodice pattern (without seam allowance) and trace its outline on a larger sheet of paper. Extend the centre back line A, A1 by one inch and mark four points at 1” intervals. (These represent bust sizes 32” to 40” at 2” intervals).

## 2. Explain in detail about the types of grading.

- Grading is a method of enlarging or reducing pattern of a particular size, proportionately to some other size.
- Grading can be classified into the following two broad systems.
  - Two Dimensional Grading
  - Three Dimensional Grading
- **Two Dimensional Grading :-**
  - A two dimensional grading system only grades a pattern for girth and height.
  - It can produce loose fitting garments or semi-drape garments.
- **Three dimensional grading:-** Which not only increases a pattern for size but also increases or decreases suppression in the following areas,
  - Bust to shoulder
  - Hip to waist
  - Elbow to wrist

It can be produced tight fitting or close fitting garment. Ex- Swimming & Sports wear.

### 3. What are the Principles of Grading?

- Grading is a method of enlarging or reducing pattern of a particular size, proportionately to some other sizes.
- We can make patterns of other sizes without pattern of a particular size by Grading.
- The basic pattern should be without seam allowance.
- Using a 32" size pattern, the patterns of sizes 34", 36", 38" & 40" can be prepared.
- For a 2" increasing bust size, the increase needed in width measurement on the half pattern is  $\frac{1}{4}$ <sup>th</sup> this i.e.  $\frac{1}{2}$ ".
- The pattern has to be lengthening by  $\frac{1}{4}$ " at shoulder level and  $\frac{1}{4}$ " at centre back.
- Both the neck and shoulder have to be widened by  $\frac{1}{8}$ " and armhole by  $\frac{1}{4}$ ".

### 4. What are the advantages & disadvantages of Two Dimensional Grading System?

- Two Dimensional Grading System:-
  1. A two dimensional grading system only grades a pattern for girth and height.
  2. It can produce loose fitting garments or semi-drape garments.
- **Advantages :-**
  1. It requires little knowledge of pattern cutting.
  2. Basic instructions are easy to learn and follow.

### 5. What are the advantages & disadvantages of Three Dimensional Grading System?

- Three dimensional grading:- Which not only increases a pattern for size but also increases or decreases suppression in the following areas,
  - a. Bust to shoulder
  - b. Hip to waist

## c. Elbow to wrist

It can be produced tight fitting or close fitting garment. Ex - Swimming & Sports wear.

➤ **Advantages:-**

- It is the only way the front bodice suppression and the bust point can be controlled.
- Minimize the mistakes in calculating grade increments.
- Facilities any change in suppression.
- The draft can be graded by the pattern technician and then handed over its an assistance to be spiked off and cut into sizes.

➤ **Disadvantages:-**

- It requires a good working knowledge to pattern cutting.
- It requires more of the pattern technical time.

**6. How to increase the marker efficiency percentage?**

- Lay the pattern pieces close together.
- Wider end of large pieces should be placed at the cut edges.
- Try different layout till you find one that requires minimum length of cloth.
- Start cutting only after all the pattern pieces are placed.
- If pattern pieces to be kept on fold are narrow, fold the material just wide enough to accommodate them. This will leave all the excess material together on one side.
- Make duplicates for pattern pieces that have to be used twice and use them for making the trial layout.

**7. Write a short note on computer aided pattern making.**

- Any part of the design process that can utilize the computer as a tool is called computer aided designing.

- Pattern, blocks or slopes that are stored in the computer can be manipulated by operator using the same flat pattern techniques used in the hand-drafting. Pattern can be drafted quickly.

### **8. Write about computer aided marker planning.**

Cad systems are widely used in sample rooms when large numbers of new sample markers have to be produced continuously. Most of these systems have two alternative modes of operation and the choice between them is dictated by the amount of time available for planning and the accessibility of the system. Two modes of operations are

- Interactive
- Automatic.

### **9. Explain in details about the Commercial Pattern.**

#### **Commercial Pattern:**

They are also referred to as 'Ready-Made Patterns'. Patterns prepared on the basis of standard measurements are called as commercial pattern or ready made patterns.

- ❖ A commercial pattern has three main parts,
  - ➔ Envelope
  - ➔ Instruction Sheet
  - ➔ Pattern Tissue

#### **Advantages**

- Commercial Patterns save our time and effort.
- If our measurements suit with a particular size, it would be simpler to buy a commercial pattern than drafting one ourselves.
- If we not have knowledge in cutting, using the readymade patterns we can make a garment with good fitting.

**Disadvantages**

- Readymade patterns do not give good fit without some pattern alterations, if our measurements do not have the same proportions as the standard figure.
- Pattern alterations are more complicated process than drafting patterns.
- Moreover commercial patterns are expensive.

**10. What are the main parts of Envelope?**

A commercial pattern has three main parts,

- ❖ Envelope
- ❖ Instruction Sheet
- ❖ Pattern Tissue
- ❖ The envelope which contains the other two components is printed with Photograph or illustrations of the garments, plus the information that is required to select.
- ❖ Appropriate size of the pattern and purchase the correct amount of fabric.

**PART - C****TEN MARKS**

1. Write a short note on Market efficiency
2. Explain in detail about the computer aided fashion designing.
3. Explain about the computer aided pattern making.
4. Write a short note on computer aided lay planning.
5. Explain about the computerized cutting machine.



**UNIT –V**  
**PART - A**  
**TWO MARKS**

**1. What are the standards for a good fit in garment?**

The factors which determine whether a garment has good fit or not are ease, line, grain, set and balance. These factors are referred to as “Standards for a good fit”.

**2. Define Pattern Alteration.**

If a garment is cut after the pattern is altered to fit our figure. There is no danger of wasting expensive fabric and spoiling the garment.

**3. Write any one specific fitting problem in a blouse and their remedies?**

**Cause:** Shoulder seam is too short.

**Problem:** End of shoulder seam does not reach arm joint. If sleeve has been attached, the sleeve cap rides up.

**Remedy:** Lengthen the shoulder seam (Mark the correct length and draw new armhole curve).

**4. What are the General Principles for pattern alteration?**

- ❖ As far as possible make changes within the pattern by slashing and spreading or slashing and lapping.
- ❖ Pattern can also be altered by redrawing the edges of the pattern. But the first method is by far the best in altering paper patterns.
- ❖ To preserve the original grain line, make all slashes and folds parallel or perpendicular to the grain line.
- ❖ Where there are darts, make changes between the tip of the dart and the outside edge.

**5. How to Increase the shoulder slope by pattern alteration method?**

Alteration for sloping shoulders:

Slash the pattern as you did for decreasing the shoulder slope. Lower the entire armhole section, overlapping along the crosswise slash and pin finally draws the new shoulder seam line.

**6. Define – Ease.**

Ease is the difference between the actual body measurement and the garment measurement at any given point. This amount varies with fashion, types of garment and personal taste.

**7. Define – Line.**

- ❖ Lines to look for in fitting are the basic silhouette seams, circumference seams and design lines.
- ❖ The shoulder seam should be straight across the top of shoulder.
- ❖ The side seam should be straight and must be half way between back and front.

**8. Define – Grain.**

Grain refers to the direction of yarns in a fabric. Woven fabrics are made up of lengthwise and crosswise or filling yarns interlaced at right angle to each others. This yarns are called the lengthwise and crosswise grains of the fabric.

**9. Define – Set.**

A garment is said to have a good smooth set, if it has no undesirable wrinkles. Wrinkles are slanting triangles caused by the garment being slanting triangles caused by the garment being strained over some curve or bulge of the body.

**10. Define – Balance.**

- For a good fit, the garment should look balanced from left to right and front to back.

**PART - B**  
**FIVE MARKS**

**1. Explain the general principle for pattern alteration?**

- ❖ If a garment is cut after the pattern is altered to fit our figure. There is no danger of wasting expensive fabric and spoiling the garment.
- ❖ As far as possible make changes within the pattern by slashing and spreading or slashing and lapping.
- ❖ Pattern can also be altered by redrawing the edges of the pattern. But the first method is by far the best in altering paper patterns.
- ❖ To preserve the original grain line, make all slashes and folds parallel or perpendicular to the grain line.
- ❖ Where there are darts, make changes between the tip of the dart and the outside edge.

**2. How to check the fit of the blouse?**

- The factors which determine whether a garment has good fit or not are ease, line, grain, set and balance. These factors are referred to as “Standards for a good fit”.
- Whether there are any changes needed in length of the bodice, sleeve and shoulder seam.
- Whether it has right amount of ease across bust, under arm, back etc.,
- Whether the seam lines follow the general silhouette of the body.
- Whether the grain lines are falling correctly in the proper places on your figure.
- Whether there are any Wrinkles.

**3. What is the importance of pattern alteration?**

- If a garment is cut after the pattern is altered to fit our figure. So, there is no danger of wasting expensive fabric and spoiling the garment.

- Fitting the garments also will be much easier because there will not be major alterations to be made at this stage.
- Moreover some alterations cannot be satisfactorily made after the garment is cut.
- Hence it is essential that you perfect your pattern by making the necessary alterations before using it for cutting out the actual garment.

#### **4. Explain any four common pattern alterations in a blouse.**

- If a garment is cut after the pattern is altered to fit our figure. So, there is no danger of wasting expensive fabric and spoiling the garment
- The common pattern alteration in a blouse are listed below,
  - Shortening the blouse
  - Lengthening the blouse
  - Lengthening the shoulder seam
  - Shortening the shoulder seam
  - Decreasing the shoulder slope
  - Increasing shoulder slope
  - Decreasing or Increasing the back length & front length

#### **➤ Alteration for sloping shoulders:**

Slash the pattern as you did for decreasing the shoulder slope. Lower the entire armhole section, overlapping along the crosswise slash and pin finally draws the new shoulder seam line.

**PART – C**

**TEN MARKS**

1. Define pattern alteration. Explain the general principle of pattern alteration.
2. Explain specific fitting problems in a blouse and their remedies with neat sketch.
3. Write about the standards for good fitting in details.

**B.Sc Degree Examination  
PATTERN MAKING & GRADING**

**Time : Three Hours**

**Maximum : 75 marks**

**PART A – (10\*2=20)**

**Answer ALL questions**

1. What is Selvedge?
2. Define Grain.
3. Explain “Drafting”.
4. Mention the types of paper patterns.
5. Is it possible to shift the dart into other parts of the bodice without changing the fit of the garment? If yes support.
6. State whether True or False.

While adding extra fullness in the form of pleats, gathers etc, in ladies garments slash and spread method is used.

7. List any two advantages of pattern grading.
8. Define commercial pattern.
9. Of several pattern alteration methods which method is the best method for determining all the pattern alteration needed?
10. How will you decrease the length of sleeve through pattern alteration?

**PART B – (5 \* 5= 25 )**

**Answer ALL questions.**

- 11.(a) How will you transfer the pattern markings in the fabric?  
Or  
(b) Write about the methods of straightening the fabric grain.
- 12.(a) What are the advantages of paper patterns?  
Or  
(b) How will you prepare and draft the basic sleeve pattern?
- 13.(a) How will you shift the side seam dart to the shoulder area by slash and spread method?  
Or  
(b) Diagrammatically explain how will you introduce fullness in a basic skirt using slash and spread method.

14.(a) How will you grade basic sleeve using computer?

Or

(b) Write short notes on pattern grading.

15.(a) How will you check the fit of a blouse?

Or

(b) Write the general principles for pattern alteration.

**PART C – (3\* 10 = 30)**

**Answer ALL questions.**

16. What are the rules to be remembered in pattern layout?

17. Give a detailed account on draping of front bodice.

18. How will you relocate dart, explain with an example.

19. Enumerate computerized grading in detail.

20. Explain how to solve fitting problems in a garment and its remedies.