

CUET PG 2025 Textile Design Question Paper with Solutions

Time Allowed :1 Hour 30 Mins	Maximum Marks :300	Total Questions :75
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General Instructions

Read the following instructions very carefully and strictly follow them:

1. The examination duration is 90 minutes. Manage your time effectively to attempt all questions within this period.
2. The total marks for this examination are 300. Aim to maximize your score by strategically answering each question.
3. There are 75 mandatory questions to be attempted in the Atmospheric Science paper. Ensure that all questions are answered.
4. Questions may appear in a shuffled order. Do not assume a fixed sequence and focus on each question as you proceed.
5. The marking of answers will be displayed as you answer. Use this feature to monitor your performance and adjust your strategy as needed.
6. You may mark questions for review and edit your answers later. Make sure to allocate time for reviewing marked questions before final submission.
7. Be aware of the detailed section and sub-section guidelines provided in the exam. Understanding these will aid in effectively navigating the exam.

1. With this type of polymerization in fibers the monomers add or join end to end and liberate by-product/s.

- (A) Addition Polymerization
- (B) Condensation Polymerization
- (C) Subtraction Polymerization
- (D) Reduction Polymerization

Correct Answer: (B) Condensation Polymerization

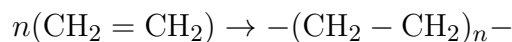
Solution:

Step 1: Understanding the Concept:

Polymerization is a process in which relatively small molecules, called monomers, combine chemically to produce a very large chainlike or network molecule, called a polymer. There are two main types of polymerization: Addition and Condensation.

Step 2: Detailed Explanation:

Addition Polymerization: In this type, monomers add to one another in such a way that the polymer contains all the atoms of the monomer unit. This process usually involves the breaking of a double or triple bond. No other product is formed. For example, the polymerization of ethylene to form polyethylene.



Condensation Polymerization: This type of polymerization involves a reaction between two different functional groups where a small molecule, such as water (H_2O), ammonia (NH_3), or methanol (CH_3OH), is eliminated or "liberated" as a by-product for each bond formed. The key characteristic is the formation of this by-product. For example, the formation of Nylon 6,6 from hexamethylenediamine and adipic acid liberates water molecules.

The question explicitly states that the process **liberates by-product/s**. This is the defining feature of condensation polymerization.

Step 3: Final Answer:

Based on the definition, the process where monomers join and liberate by-products is Condensation Polymerization. Therefore, option (B) is the correct answer.

💡 Quick Tip

In polymerization questions, look for keywords. "By-product," "elimination," or "small molecule liberated" (like water) are direct indicators of Condensation Polymerization. If there's no mention of a by-product, it's likely Addition Polymerization.

2. Copolymer is polymerized from two or more different monomers. The subcategories of copolymers are

- A. Random Copolymer
- B. Block Copolymer
- C. Alternating Copolymer
- D. Graft Copolymer

Choose the correct answer from the options given below:

- (A) A, B and D only
- (B) A, B and C only
- (C) A, B, C and D
- (D) B, C and D only

Correct Answer: (C) A, B, C and D

Solution:

Step 1: Understanding the Concept:

A copolymer is a polymer derived from two or more different species of monomers. The arrangement of these different monomer units along the polymer chain determines the type or subcategory of the copolymer.

Step 2: Detailed Explanation:

The main subcategories of copolymers are defined by the sequence of the monomer units (let's say A and B):

A. Random Copolymer: The different monomer units are arranged in a random or statistical sequence along the chain. Example: $-A-B-B-A-B-A-A-B-$

B. Block Copolymer: The polymer chain is composed of long sequences or "blocks" of each monomer type connected together. Example: $-A-A-A-A-A-B-B-B-B-B-$

C. Alternating Copolymer: The monomer units are arranged in a regular, alternating sequence along the chain. Example: $-A-B-A-B-A-B-A-B-$

D. Graft Copolymer: The main chain (backbone) is composed of one type of monomer, and branches made of another monomer type are "grafted" onto the main chain. Example: A main chain of $-A-A-A-A-A-$ with side chains of $-B-B-B-$ attached.

All four options listed (Random, Block, Alternating, and Graft) are well-established and primary subcategories of copolymers.

Step 3: Final Answer:

Since all four A, B, C, and D are valid subcategories of copolymers, the correct option is (C).

💡 Quick Tip

To easily remember the types of copolymers, try to visualize them. Draw simple diagrams for each type: a random mix for Random, connected chains for Block, a repeating pair for Alternating, and a main trunk with branches for Graft.

3. The yarns produced by splitting or slitting of sheets of material are called as _____.

- (A) Spun Yarns
- (B) Combed Yarns
- (C) Tape Yarns
- (D) Worsted Yarns

Correct Answer: (C) Tape Yarns

Solution:

Step 1: Understanding the Concept:

Yarns can be produced through various methods depending on the raw material and desired properties. The question describes a specific manufacturing process and asks for the name of the resulting yarn.

Step 2: Detailed Explanation:

Let's analyze the given options:

Spun Yarns: These are made from staple fibers (short, finite-length fibers like cotton or wool) that are twisted together to form a coherent thread.

Combed Yarns / Worsted Yarns: These are specific types of spun yarns. The combing process is used to remove short fibers and align the remaining long fibers, resulting in a smoother, stronger yarn (Combed cotton, Worsted wool).

Tape Yarns: These are produced from a polymer film or sheet (e.g., polypropylene). The sheet is first extruded and then cut or slit into narrow, flat, tape-like strands. These tapes function as yarns and are used in applications like carpet backing, bags, and ropes.

The description in the question, "splitting or slitting of sheets of material," perfectly matches the manufacturing process for Tape Yarns.

Step 3: Final Answer:

The yarns produced by slitting sheets of material are known as Tape Yarns. Therefore, option (C) is correct.

 Quick Tip

Associate the manufacturing process with the yarn type. "Spinning" staple fibers leads to Spun yarns. "Slitting" a film leads to Tape yarns. The keyword in the question is the direct clue.

4. Ring spinning machine was invented by:

- (A) James Hargreaves, 1764
- (B) Samuel Crompton, 1769
- (C) Richard Arkwright, 1769
- (D) John Thorp, 1828

Correct Answer: (D) John Thorp, 1828

Solution:

Step 1: Understanding the Concept:

This is a factual question about the history of textile machinery and key inventions during the Industrial Revolution.

Step 2: Detailed Explanation:

Let's review the contributions of each inventor listed:

James Hargreaves: Invented the Spinning Jenny (around 1764), a multi-spindle spinning frame that significantly increased the output of yarn.

Samuel Crompton: Invented the Spinning Mule (around 1779, not 1769), which combined features of the Spinning Jenny and the Water Frame to produce high-quality, fine yarn.

Richard Arkwright: Invented the Water Frame (patented in 1769), a spinning frame that was powered by water and produced a strong, twisted yarn suitable for warp.

John Thorp: An American inventor from Rhode Island, who invented the ring spinning machine in 1828. This machine improved upon earlier designs by using a ring and traveler system, allowing for continuous spinning and higher production speeds. It became the dominant spinning technology for many years.

Step 3: Final Answer:

The ring spinning machine was invented by John Thorp in 1828. Therefore, option (D) is the correct answer.

💡 Quick Tip

For history-based questions, creating a timeline of key textile inventions can be very helpful. Associate each inventor with their primary invention: Hargreaves - Jenny, Arkwright - Water Frame, Crompton - Mule, Thorp - Ring Spinning.

5. Select the extra step which is used in Worsted yarn spinning than Woolen yarn spinning.

- (A) Opening
- (B) Combing
- (C) Scouring
- (D) Spinning

Correct Answer: (B) Combing

Solution:**Step 1: Understanding the Concept:**

There are two main systems for spinning wool into yarn: the woolen system and the worsted

system. They produce yarns with different characteristics due to a key difference in their processing steps.

Step 2: Detailed Explanation:

Woolen System: This system uses both long and short wool fibers. The fibers are carded to disentangle them, but they are not made parallel. This results in a soft, bulky, fuzzy yarn with low twist. The process is shorter and less intensive.

Process Flow (simplified): Scouring -> Opening -> Carding -> Spinning.

Worsted System: This system uses only long staple wool fibers. After carding, the wool goes through additional steps called **gilling** and **combing**. The combing process removes the short fibers (called noils) and ensures that the remaining long fibers are aligned parallel to each other. This results in a smooth, fine, strong, and lustrous yarn.

Process Flow (simplified): Scouring -> Opening -> Carding -> Gilling -> **Combing** -> Drawing -> Spinning.

Comparing the two systems, steps like Opening, Scouring, and Spinning are common to both. The distinctive extra step in the worsted system is **Combing**.

Step 3: Final Answer:

Combing is the additional, crucial step that differentiates the worsted system from the woolen system. Therefore, option (B) is correct.

💡 Quick Tip

Remember: **W**orsted yarn has **w**ell-aligned fibers, making it smooth. This alignment is achieved by **c**ombing. **W**oolen yarn is fuzzy and jumbled because it is only **c**arded.

6. List the basic fabric weaves from the weaves mentioned below.

- A. Rib Weave
- B. Twill Weave
- C. Basket Weave
- D. Lappet Weave

Choose the correct answer from the options given below:

- (A) A, B and D only
- (B) A, B and C only
- (C) A, B, C and D
- (D) B, C and D only

Correct Answer: (B) A, B and C only

Solution:

Step 1: Understanding the Concept:

Fabric weaves are classified based on the pattern of interlacing warp (lengthwise) and weft (crosswise) yarns. There are three fundamental or "basic" weaves, from which most other weaves are derived.

Step 2: Detailed Explanation:

The three fundamental weaves are: **Plain Weave**, **Twill Weave**, and **Satin Weave**.

Let's analyze the given options:

A. Rib Weave: This is a derivative of the plain weave. It is created by using thicker yarns or more yarns in either the warp or weft direction, creating a ribbed effect. Because it is a direct and simple modification of a basic weave, it is often grouped with basic structures.

B. Twill Weave: This is one of the three fundamental weaves, easily identified by the diagonal lines or "wales" on the fabric surface.

C. Basket Weave: This is also a derivative of the plain weave. Two or more warp yarns are interlaced with two or more weft yarns as a single unit. It's a simple variation and is considered a basic weave type.

D. Lappet Weave: This is a complex decorative or "figure" weave. It uses extra warp yarns to create small, embroidered-like figures on the fabric surface. It is not considered a basic weave; it falls into the category of complex or dobby/jacquard-type weaves.

Therefore, Twill weave is a fundamental weave, while Rib and Basket weaves are common, simple derivatives of the Plain weave. Lappet weave is a complex decorative weave. The question asks to list the "basic" weaves, which includes the fundamental weaves and their simplest derivatives.

Step 3: Final Answer:

A, B, and C are all considered basic weave structures, while D is a complex weave. Thus, option (B) is the correct answer.

💡 Quick Tip

Memorize the three fundamental weaves: Plain, Twill, and Satin. Remember that common variations like Rib and Basket are derived from the Plain weave. Differentiate these from complex figure weaves like Dobby, Jacquard, and Lappet.

7. Match the LIST-I with LIST-II

LIST-I (Yarn Count)		LIST-II (Calculation of the count of yarn)	
A.	Cotton Count	I.	It is the number of hanks of 560 yards that weigh one pound
B.	Tex	II.	It is the number of hanks of 840 yards that weigh one pound
C.	Worsted Count	III.	It is the weight in grams of 1000 meters of yarn
D.	Metric Count	IV.	It is the weight in kilograms of 1 km of yarn

Choose the correct answer from the options given below:

- (A) A-II, B-III, C-I, D - IV
- (B) A-II, B-I, C-III, D - IV
- (C) A-I, B-II, C-IV, D - III
- (D) A-III, B-IV, C-I, D - II

Correct Answer: (A) A-II, B-III, C-I, D - IV

Solution:

Step 1: Understanding the Concept:

Yarn count is a numerical value that expresses the fineness or coarseness of a yarn. There are two main systems: **Indirect systems** (where a higher count means a finer yarn, e.g., Cotton Count) and **Direct systems** (where a higher count means a coarser/thicker yarn, e.g., Tex).

Step 2: Detailed Explanation:

Let's match each yarn count system from LIST-I to its correct definition in LIST-II.

A. Cotton Count (Ne): This is an indirect system. It is defined as the number of hanks, each 840 yards long, that weigh one pound. **Therefore, A matches with II.**

B. Tex: This is a direct system, part of the SI unit system. It is defined as the weight in grams of 1000 meters (1 kilometer) of yarn. **Therefore, B matches with III.**

C. Worsted Count (Nw): This is an indirect system used for worsted yarns. It is defined as the number of hanks, each 560 yards long, that weigh one pound. **Therefore, C matches with I.**

D. Metric Count (Nm): This is an indirect system. It is defined as the number of kilometers (or 1000-meter hanks) that weigh one kilogram. The definition given in IV is "the weight in kilograms of 1 km of yarn". This is technically the reciprocal of Nm (it's the linear density in kg/km, which is equivalent to Tex/1000). However, within the context of the options, it is the only definition that uses the metric units of kilometers and kilograms, making it the intended match for Metric Count. **Therefore, D matches with IV.**

Step 3: Final Answer:

Combining the matches gives the sequence: A-II, B-III, C-I, D-IV. This corresponds to option (A).

💡 Quick Tip

Create a small table to memorize the most common yarn count systems. Note the system type (Direct/Indirect), the units of length, and the units of weight for each one (e.g., Cotton Count: Indirect, 840 yds, 1 lb).

8. Corded complex yarns consist of:

- A. Base Yarn
- B. Effect Yarn
- C. Binder Yarn
- D. Fancy Yarn

Choose the correct answer from the options given below:

- (A) A, B and D only
- (B) A, B and C only
- (C) A, B, C and D
- (D) B, C and D only

Correct Answer: (B) A, B and C only

Solution:

Step 1: Understanding the Concept:

Complex, novelty, or fancy yarns are yarns that are not uniform in appearance. They are intentionally produced with irregularities or decorative elements. A typical complex yarn has a specific multi-component structure.

Step 2: Detailed Explanation:

A standard complex yarn (like a bouclé, loop, or slub yarn) is typically constructed from three distinct components:

A. Base Yarn (or Core Yarn): This is the foundation of the yarn. It provides strength and structure.

B. Effect Yarn (or Fancy Yarn Component): This yarn is responsible for creating the decorative effect. It is wrapped, looped, or twisted around the base yarn to form slubs, loops, snarls, etc.

C. Binder Yarn: This is a fine, often strong yarn that is wrapped over the effect yarn to hold it securely in place against the base yarn, preventing the decorative elements from slipping.

D. Fancy Yarn: This is the name for the final product itself, the overall category of the yarn. It is not a component part used to make the yarn.

The question asks for the constituent parts of a complex yarn. These are the base, effect, and binder yarns.

Step 3: Final Answer:

The components that make up a corded complex yarn are the Base Yarn, Effect Yarn, and Binder Yarn. Therefore, the correct choice is A, B, and C only, which corresponds to option (B).

💡 Quick Tip

Remember the three B's of complex yarns: **B**ase (the core), the effect (the **b**eautiful part), and the **B**inder (what holds it together). "Fancy Yarn" is the family name, not a person in the family.

9. It is a comb-like device placed between the heddle/ harnesses and the cloth/fabric beam on a hand loom.

- (A) Reed
- (B) Warp
- (C) Shuttle
- (D) Lease Rods

Correct Answer: (A) Reed

Solution:

Step 1: Understanding the Concept:

The question describes a specific part of a hand loom based on its appearance, location, and function. A loom is a device used to weave cloth.

Step 2: Detailed Explanation:

Let's define the parts of a loom listed in the options:

Reed: The reed is a comb-like frame mounted on the beater of the loom. It has two main functions: 1) to keep the warp yarns separated and evenly spaced, and 2) to push or "beat-up" each newly inserted weft yarn firmly against the previously woven cloth (the fell). Its position is between the heddles and the already woven fabric on the cloth beam. This perfectly matches the question's description.

Warp: These are the lengthwise yarns that are held under tension on the loom. The warp is the set of threads, not a device.

Shuttle: This is a device that carries the weft yarn across the loom, passing through the shed (the opening between raised and lowered warp yarns).

Lease Rods: These are a pair of rods inserted into the warp sheet near the back beam to maintain the order of the warp yarns and prevent them from tangling. They are located behind

the heddles, not between the heddles and the cloth beam.

Step 3: Final Answer:

The "comb-like device placed between the heddle/harnesses and the cloth/fabric beam" is the reed. Therefore, option (A) is correct.

💡 Quick Tip

To remember loom parts, trace the path of the yarn: Warp Beam -> Lease Rods -> Heddles -> **Reed** -> Fell of the Cloth -> Cloth Beam. The Reed comes after the heddles and acts on the cloth.

10. Match the LIST-I with LIST-II

LIST-I (Loom category)		LIST-II (Type of loom/Weaving Process/Woven Product)	
A.	Shuttle Loom	I.	Rapier looms
B.	Shuttle Less Looms	II.	Rigid Heddle
C.	Back Strap Loom	III.	Handlooms
D.	Vertical Looms	IV.	Hand Knotted Carpets

Choose the correct answer from the options given below:

- (A) A-I, B-II, C-III, D - IV
- (B) A-I, B - III, C-II, D - IV
- (C) A-III, B-I, C - II, D - IV
- (D) A-III, B-IV, C-I, D - II

Correct Answer: (C) A-III, B-I, C - II, D - IV

Solution:

Step 1: Understanding the Concept:

This question requires matching loom categories or types with specific examples, processes, or products associated with them.

Step 2: Detailed Explanation:

Let's establish the most definite matches first.

B. Shuttle Less Looms: This is a major category of modern, high-speed looms that do not use a conventional shuttle. **I. Rapier looms** are a prime example of a shuttleless loom, using flexible or rigid rapiers to carry the weft. So, **B-I** is a very strong and correct match.

D. Vertical Looms: These looms hold the warp yarns vertically. This configuration is particularly suited for weaving heavy, dense fabrics like tapestries and carpets. **IV. Hand Knotted Carpets** are traditionally made on vertical looms. So, **D-IV** is also a very strong match.

Now we need to match A and C with II and III. We know B-I and D-IV must be in the correct answer. This eliminates options (A), (B), and (D), leaving only option (C). Let's verify the remaining matches in option (C):

A. Shuttle Loom is matched with **III. Handlooms**. This is a plausible general classification, as most traditional handlooms (like floor looms and table looms) operate using a shuttle to carry the weft.

C. Back Strap Loom is matched with **II. Rigid Heddle**. This is the weakest pairing. A back strap loom is a simple, ancient loom where the weaver's body provides warp tension. A rigid heddle loom is another type of simple loom that uses a rigid heddle for both shedding and beating-up. While they are different, they are both categorized as very simple, often portable, looms. In the context of the available choices, this is the intended, albeit imperfect, pairing by association of simplicity.

Step 3: Final Answer:

Based on the strong matches of B-I and D-IV, and the plausible remaining pairings, the correct combination is A-III, B-I, C-II, D-IV, which corresponds to option (C).

💡 Quick Tip

In matching questions, always start by identifying the most certain and unambiguous pairs. Use these to eliminate incorrect answer choices. This strategy can often lead you to the correct answer even if one of the pairs is less obvious or slightly ambiguous.

11. Match the LIST-I with LIST-II

LIST-I (Non woven creating technique)		LIST-II (Examples of the non-woven as per the p	
A.	Parallel laid web	I.	Table napkins
B.	Cross laid web	II.	Wipes
C.	Wet laid	III.	Filter Cloths
D.	Spun laid	IV.	Geotextiles

Choose the correct answer from the options given below:

- (A) A-II, B-I, C-III, D - IV
- (B) A-I, B-III, C-II, D - IV
- (C) A-I, B-II, C-IV, D - III
- (D) A-III, B-IV, C-I, D - II

Correct Answer: (A) A-II, B-I, C-III, D - IV

Solution:

Step 1: Understanding the Concept:

Nonwoven fabrics are engineered fabrics made directly from fibers, bonded together chemically,

mechanically, or thermally. The technique used to form the initial web of fibers largely determines the fabric's properties and its end-use.

Step 2: Detailed Explanation:

Let's match each web formation technique with its typical application.

D. Spun laid (Spunbond): This process creates strong, stable, continuous filament nonwovens. Due to their excellent strength and durability, they are widely used in civil engineering applications like **IV. Geotextiles** for soil stabilization and drainage. So, **D-IV** is a correct match.

C. Wet laid: This process disperses short fibers in water to form a slurry, which is then filtered through a screen to form a uniform web, similar to papermaking. This results in a very uniform, isotropic fabric ideal for applications requiring controlled porosity, such as **III. Filter Cloths**. So, **C-III** is a correct match.

A. Parallel laid web: In this method (typically part of carding), fibers are oriented predominantly in the machine direction. This gives the fabric high tensile strength in one direction and good flexibility. This is suitable for products like disposable **II. Wipes**, where strength is needed for a wiping motion. So, **A-II** is a plausible match.

B. Cross laid web: This process involves laying down carded webs in alternating layers at 90-degree angles to each other. This creates a fabric with more balanced strength in both machine and cross directions. This balanced property is desirable for products like **I. Table napkins**, which need to resist tearing from various angles. So, **B-I** is a plausible match.

Step 3: Final Answer:

The most logical set of pairings is A-II, B-I, C-III, D-IV. This combination correctly links the properties imparted by each technique to a suitable end product. This corresponds to option (A).

💡 Quick Tip

Associate the nonwoven process with a key property. Spunlaid = Strength (Geotextiles). Wet laid = Uniformity (Filters). Parallel laid = Directional Strength (Wipes). Cross laid = Balanced Strength (Napkins).

12. Twill weave is used in which of the below mentioned fabrics:

- A. Serge
- B. Gabardine
- C. Tweed
- D. Surah

Choose the correct answer from the options given below:

- (A) A, B and D only

- (B) A, B and C only
- (C) A, C and D only
- (D) A, B, C and D

Correct Answer: (D) A, B, C and D

Solution:

Step 1: Understanding the Concept:

A twill weave is one of the three fundamental textile weaves, characterized by diagonal ribs or "wales" on the face of the fabric. This question asks to identify which of the listed fabrics are typically made using a twill weave.

Step 2: Detailed Explanation:

Let's examine each fabric:

A. Serge: This is a classic twill fabric, known for its diagonal lines on both sides. It's a durable fabric used for suits, coats, and uniforms.

B. Gabardine: This is a firm, tightly woven fabric with a prominent diagonal rib on one side. It was invented by Thomas Burberry and is famously used for trench coats. It is a quintessential twill fabric.

C. Tweed: This is a rough, woolen fabric. While it can sometimes be made with a plain weave, it is most famously and commonly produced with a twill weave structure, including variations like herringbone twill.

D. Surah: This is a soft, fine, and lightweight fabric, often made from silk. It is characterized by its soft drape and is woven with a twill construction, sometimes referred to as silk twill.

Since all four of the listed fabrics are well-known examples of textiles made with a twill weave, all options are correct.

Step 3: Final Answer:

Serge, Gabardine, Tweed, and Surah are all fabrics commonly constructed using a twill weave. Therefore, the correct option is (D), which includes A, B, C, and D.

💡 Quick Tip

When you think of "twill weave," immediately recall its most famous example: denim jeans. Other key examples to remember are Gabardine, Serge, and Chino.

13. Titanium Oxide and Geranium Oxide are added in dope solution before spinning of the manufactured fibers as:

- (A) Delusterant
- (B) Moderant
- (C) Chelating Agent
- (D) Oxidising Agent

Correct Answer: (A) Delusterant

Solution:

Step 1: Understanding the Concept:

"Dope solution" refers to the liquid polymer solution or melt from which manufactured fibers (like polyester, nylon, viscose) are spun. Additives can be mixed into this dope to impart specific properties to the final fiber. The question asks for the function of Titanium Oxide.

Step 2: Detailed Explanation:

Many raw synthetic fibers have a high natural luster or shine, which can be undesirable for certain apparel applications as it looks unnatural. To counteract this, a **delusterant** is added. A delusterant is a finely ground pigment that is dispersed in the dope solution. These particles, once embedded in the fiber, scatter light rather than reflecting it directly, which reduces the shine and results in a more subdued, matte (dull) appearance.

Titanium Dioxide (TiO_2) is the most widely used delusterant in the textile industry due to its high refractive index, whiteness, and chemical stability. By varying the amount of TiO_2 , manufacturers can produce fibers ranging from bright to semi-dull, dull, or extra-dull. While Geranium Oxide can be used as a catalyst, in this context, the primary function being described by the use of Titanium Oxide is delustering.

Step 3: Final Answer:

Titanium Oxide is added to the dope solution to act as a delusterant, reducing the natural gloss of synthetic fibers. Therefore, option (A) is correct.

💡 Quick Tip

Associate Titanium Dioxide (TiO_2) with the color white and the property of being opaque. It's the same pigment used in white paint and sunscreen. Its purpose in fibers is to make them less transparent and shiny, i.e., to "deluster" or make them dull.

14. Carriers are organic compounds that accelerates the disperse dyeing process when added in the bath. Examples of water insoluble carriers are:

- A. Trichlorobenzene
- B. Diphenol
- C. Benzoic Acid
- D. O-phenylphenol

Choose the correct answer from the options given below:

- (A) A, B and D only
- (B) A, B and C only
- (C) A, B, C and D
- (D) B, C and D only

Correct Answer: (C) A, B, C and D

Solution:

Step 1: Understanding the Concept:

Disperse dyes are used for hydrophobic fibers like polyester. The compact and crystalline structure of polyester makes it difficult for dye molecules to penetrate. To overcome this, dyeing is done either at high temperatures (130°C) and pressure or at atmospheric pressure (100°C) with the help of a chemical auxiliary called a "carrier."

Step 2: Detailed Explanation:

A carrier acts as a fiber-swelling agent. It loosens the polymer structure of the polyester, opening up temporary pores that allow the disperse dye molecules to enter and diffuse into the fiber more rapidly. Carriers are typically aromatic organic compounds. Let's review the examples given:

A. Trichlorobenzene: A chlorinated aromatic hydrocarbon, known to be an effective carrier.

B. Diphenol (more commonly Biphenyl): One of the earliest and most classic carriers used for dyeing polyester.

C. Benzoic Acid: An aromatic carboxylic acid that also exhibits carrier activity, helping to swell the fiber.

D. O-phenylphenol: A phenolic compound that is a very effective and widely used carrier.

All four substances listed are well-documented examples of chemicals used as carriers in the disperse dyeing of polyester and other hydrophobic fibers.

Step 3: Final Answer:

Since Trichlorobenzene, Diphenol, Benzoic Acid, and O-phenylphenol are all examples of dyeing carriers, the correct option is (C), which includes A, B, C, and D.

 Quick Tip

Remember that carriers are essentially "solvents" or "plasticizers" for the fiber, not the dye. They make the fiber more accessible to the dye, especially in atmospheric dyeing conditions. Most carriers are aromatic compounds.

15. 114 meters of yarn was found to weigh 3 grammes. Calculate the count of the yarn.

- (A) 38
- (B) 117
- (C) 111
- (D) 342

Correct Answer: (A) 38

Solution:

Step 1: Understanding the Concept:

The question requires calculating the yarn count from given length and weight values. We need to determine which yarn count system results in one of the given answers. The use of meters and grams suggests a metric-based system like Tex (direct) or Metric Count (Nm) (indirect).

Step 2: Key Formula or Approach:

The two most likely formulas are:

1. **Tex (Direct System):** Tex = Weight in grams for 1000 meters of yarn.
2. **Metric Count (Nm) (Indirect System):** Nm = Length in meters for 1 gram of yarn.

Step 3: Detailed Explanation:

Let's calculate the count using both systems.

Given Data:

Length = 114 meters

Weight = 3 grams

Calculation 1: Using Metric Count (Nm)

The formula is $Nm = \text{Length (m)} / \text{Weight (g)}$. This gives the number of meters per gram.

$$Nm = \frac{114 \text{ meters}}{3 \text{ grams}}$$

$$Nm = 38$$

This means the yarn count is 38 in the Metric Count system (38 meters weigh 1 gram). This value matches option (A).

Calculation 2: Using Tex

The formula is $\text{Tex} = (\text{Weight (g)} / \text{Length (m)}) * 1000$.

$$\text{Tex} = \left(\frac{3 \text{ g}}{114 \text{ m}} \right) \times 1000$$

$$\text{Tex} = \frac{3000}{114} \approx 26.32$$

This value does not match any of the options.

Step 4: Final Answer:

The calculation using the Metric Count (Nm) system yields a result of 38, which is listed as option (A). Therefore, the count of the yarn is 38 Nm.

💡 Quick Tip

When a yarn count problem uses metric units (meters, grams), always test the Metric Count ($N_m = m/g$) and Tex ($\text{Tex} = (g/m) * 1000$) formulas first. One of them will usually match the given options.

16. Calculate the count of the threefold cotton yarn composed of 20s, 15s and 12s singles.

- (A) 10s
- (B) 60s
- (C) 15s
- (D) 5s

Correct Answer: (D) 5s

Solution:

Step 1: Understanding the Concept:

The question asks for the resultant count of a threefold yarn. A threefold yarn is a plied yarn made by twisting three single yarns together. The 's' notation (e.g., 20s) refers to the English Cotton Count (Ne), which is an **indirect system**. In an indirect system, a higher count number means a finer (thinner) yarn.

Step 2: Key Formula or Approach:

For an indirect yarn count system, the formula to find the resultant count (N_R) of multiple yarns ($N_1, N_2, N_3, \dots$) plied together is:

$$\frac{1}{N_R} = \frac{1}{N_1} + \frac{1}{N_2} + \frac{1}{N_3} + \dots$$

Step 3: Detailed Explanation:

We are given three single yarn counts:

$$N_1 = 20s$$

$$N_2 = 15s$$

$$N_3 = 12s$$

Using the formula:

$$\frac{1}{N_R} = \frac{1}{20} + \frac{1}{15} + \frac{1}{12}$$

To add these fractions, we find the least common multiple (LCM) of the denominators (20, 15, and 12). The LCM is 60.

$$\begin{aligned}\frac{1}{N_R} &= \frac{3}{60} + \frac{4}{60} + \frac{5}{60} \\ \frac{1}{N_R} &= \frac{3+4+5}{60} \\ \frac{1}{N_R} &= \frac{12}{60}\end{aligned}$$

To find N_R , we can simplify the fraction and then take the reciprocal:

$$\begin{aligned}\frac{1}{N_R} &= \frac{1}{5} \\ N_R &= 5s\end{aligned}$$

Step 4: Final Answer:

The resultant count of the threefold cotton yarn is 5s. Therefore, option (D) is the correct answer.

💡 Quick Tip

For indirect count systems (like Cotton 's' or Worsted 'Nw'), the resultant plied yarn is always coarser (has a lower count number) than the finest single yarn used. For direct systems (like Tex or Denier), the resultant count is simply the sum of the individual counts.

17. Calculate the total number of ends/yarn in 36 inches wide fabric with 76 reed count and 0.5 inch of selvedge on each side (assuming 2 ends/yarn per dent for body as well as for selvedge).

- (A) 2000 ends
- (B) 2812 ends
- (C) 2736 ends
- (D) 2500 ends

Correct Answer: (C) 2736 ends

Solution:

Step 1: Understanding the Concept:

This question requires calculating the total number of warp yarns (ends) in a woven fabric based on its width and construction parameters. The total number of ends is determined by the fabric width and the density of warp yarns, which is defined by the reed count and the number of ends per dent.

Step 2: Key Formula or Approach:

The standard formula to calculate the total number of ends is:

Total Ends = Fabric Width (in inches) $\times$ Ends Per Inch (EPI)

where, **Ends Per Inch (EPI) = Reed Count (dents per inch) $\times$ Ends per Dent**

Therefore, **Total Ends = Fabric Width $\times$ Reed Count $\times$ Ends per Dent**

Step 3: Detailed Explanation:**Given Data:**

Fabric Width = 36 inches

Reed Count = 76 (interpreted as 76 dents per inch)

Ends per Dent = 2

Standard Calculation:

Using the formula directly:

$$\begin{aligned}\text{Total Ends} &= 36 \text{ inches} \times 76 \frac{\text{dents}}{\text{inch}} \times 2 \frac{\text{ends}}{\text{dent}} \\ \text{Total Ends} &= 5472 \text{ ends}\end{aligned}$$

Analysis of Discrepancy:

The calculated value of 5472 does not match any of the given options. However, option (C) is 2736, which is exactly half of 5472. This suggests a potential error in the question's premise. The value 2736 can be obtained if we assume there is only 1 end per dent instead of the stated 2.

Let's recalculate with this assumption:

$$\begin{aligned}\text{Total Ends (assuming 1 end/dent)} &= 36 \text{ inches} \times 76 \frac{\text{dents}}{\text{inch}} \times 1 \frac{\text{end}}{\text{dent}} \\ \text{Total Ends} &= 2736 \text{ ends}\end{aligned}$$

This result matches option (C). Given that this is a multiple-choice question, it is highly probable that the question intended to use 1 end per dent, or there was a typo in the "2 ends/yarn per dent" clause. To arrive at one of the provided answers, we must follow this logic. The information about the selvedge width is not needed as the calculation is based on the total fabric width.

Step 4: Final Answer:

Assuming a likely error in the question and that the calculation should be based on 1 end per dent, the total number of ends is 2736. Therefore, option (C) is the intended correct answer.

💡 Quick Tip

In exam questions involving calculations, if your result doesn't match any option, double-check your formula and the question's phrasing. If the discrepancy is a simple factor (like 2 or 10), it might point to a typo in the question. Analyze the options to see if a logical modification to the premise leads to one of them.

18. Himroo is a cotton warp and silk weft brocade produced at _____ Maharashtra.

- (A) Nagpur
- (B) Mumbai
- (C) Aurangabad
- (D) Paithan

Correct Answer: (C) Aurangabad

Solution:

Step 1: Understanding the Concept:

This question tests knowledge of traditional Indian textiles and their geographical origins. Himroo is a specific type of brocade fabric with a unique history and place of production.

Step 2: Detailed Explanation:

Himroo is a luxurious fabric that blends silk and cotton. It is a type of brocade weave where a cotton warp and silk weft are used to create intricate designs. The fabric is known for its warmth and softness, making it suitable for shawls, stoles, and jackets.

Historically, Himroo weaving was developed in Persia and brought to India during the reign of Mohammad Bin Tughlaq. It flourished in the Deccan region, particularly in **Aurangabad**, Maharashtra, which became the primary center for its production.

While **Paithan** is famous for its Paithani sarees, another exquisite silk textile from Maharashtra, Himroo is specifically associated with Aurangabad.

Step 3: Final Answer:

The production center for Himroo brocade in Maharashtra is Aurangabad. Therefore, option (C) is the correct answer.

 Quick Tip

Create a mental map or a chart linking famous Indian textiles to their states and specific cities of origin. For Maharashtra, key textiles include Paithani from Paithan and Himroo from Aurangabad.

19. The double ikat work of Gujarat, Orissa and Andhra Pradesh is _____ weave.

- (A) Balance of warp and weft
- (B) Warp faced
- (C) Weft faced
- (D) Unbalance of warp and weft

Correct Answer: (A) Balance of warp and weft

Solution:

Step 1: Understanding the Concept:

The question asks about the weave structure typically used for double ikat textiles. Ikat is a resist-dyeing technique applied to the yarns before weaving. Double ikat involves dyeing both the warp and weft yarns. The weave structure is what holds these patterned yarns together to form the fabric.

Step 2: Detailed Explanation:

In the ikat technique, the primary focus is on the pattern created by the pre-dyed yarns. To ensure that the intricate patterns on both the warp and weft align perfectly and are clearly visible, a simple and stable weave structure is required.

The most common weave used for ikat, and especially for the precise alignment needed in double ikat (like the Patan Patola of Gujarat), is the **plain weave**.

A plain weave is the simplest interlacement pattern (over-one, under-one). A key characteristic of a standard plain weave is that it is a **balanced weave**. This means that the number of warp yarns per inch (ends per inch) and weft yarns per inch (picks per inch) are roughly equal, and the yarns are of similar size. This balance ensures that both the warp and weft yarns are equally visible on the surface of the fabric, which is crucial for the double ikat pattern to emerge correctly.

Warp-faced or weft-faced weaves (like satin or some twills) would obscure one set of yarns, defeating the purpose of double ikat. An unbalanced weave would similarly distort the pattern.

Step 3: Final Answer:

Double ikat is typically a plain weave, which is characterized by a balance of warp and weft. Therefore, option (A) is the correct answer.

💡 Quick Tip

For complex yarn-patterning techniques like Ikat, the underlying weave structure is usually the simplest possible: plain weave. This allows the pattern in the yarns to be the star, without interference from a complex weave texture. Plain weave is the quintessential balanced weave.

20. Use of textiles made of cotton, linen and silk between the 15th century and 2nd centuries BC is mentioned in

- A. Ramayana
- B. Buddhist sources
- C. Mahabharata
- D. Islamic literature

Choose the correct answer from the options given below:

- (A) A, B and D only
- (B) A, B and C only

- (C) A, B, C and D
(D) B, C and D only

Correct Answer: (B) A, B and C only

Solution:

Step 1: Understanding the Concept:

This question requires knowledge of ancient history and literature to identify which sources from a specific time period contain references to textiles. The timeframe given is pre-Common Era (1500 BC to 100 BC).

Step 2: Detailed Explanation:

Let's analyze the time period of each source:

A. Ramayana and C. Mahabharata: These are ancient Indian epics. Their composition is generally dated to the later Vedic Period, roughly between 800 BC and 400 BC, with oral traditions stretching back even further. Both epics contain numerous references to fine clothing, royal garments, cotton, and silk (often referred to as 'Kauseya'), fitting squarely within the specified timeframe.

B. Buddhist sources: Early Buddhist literature, such as the Pali Canon (including the Vinaya Pitaka) and the Jataka Tales, dates from around the 5th century BC onwards. These texts provide detailed accounts of daily life, trade, and monastic rules, including descriptions of the types of cloth (cotton, silk, linen, wool) that were permissible or in common use. This also falls within the given period.

D. Islamic literature: The advent of Islam dates to the 7th century AD. Therefore, Islamic literature, including the Quran and Hadith, was written much later than the 15th to 2nd centuries BC period. It cannot be a source for textile use during that ancient era.

Step 3: Final Answer:

The Ramayana, Buddhist sources, and the Mahabharata all originate from the specified historical period and mention the use of various textiles. Islamic literature does not. Therefore, the correct combination is A, B, and C only, corresponding to option (B).

 Quick Tip

When dealing with historical questions, establishing a clear timeline is the first and most crucial step. Immediately identifying that Islamic literature post-dates the BC era by many centuries allows you to eliminate any options that include 'D'.

21. Chintz term is used for _____ textiles.

- (A) Embroidered
- (B) Woven
- (C) Space dyed
- (D) Both painted and printed

Correct Answer: (D) Both painted and printed

Solution:

Step 1: Understanding the Concept:

This question asks for the definition of "Chintz," a specific term in the history of textiles. It refers to a particular type of decorated fabric that was highly popular in Europe and originated in India.

Step 2: Detailed Explanation:

Chintz (derived from the Hindi word 'chint', meaning 'spotted' or 'variegated') is a type of cotton fabric, typically calico, decorated with vibrant, multi-colored patterns, often floral. The traditional Indian production process was complex and involved multiple stages:

1. **Printing:** Outlines and large areas of color were applied using carved wooden blocks. Mordants (chemicals to fix the dye) were printed first, and then the cloth was dyed, with the color adhering only to the mordanted areas.
2. **Painting (or Kalamkari):** Fine details, additional colors, and intricate work were added by hand using a pen-like tool called a 'kalam'.

This combination of block-printing and hand-painting gave the fabric its characteristic richness and detail. Therefore, Chintz is correctly described as a textile that is both painted and printed.

Step 3: Final Answer:

The term Chintz refers to cotton textiles decorated through a combination of painting and printing techniques. Thus, option (D) is the correct answer.

💡 Quick Tip

Associate Chintz with the historical Indian textile trade to Europe. Remember it as the highly decorative, floral cotton fabric that combined the efficiency of block-printing with the artistry of hand-painting (Kalamkari).

22. The Institutes of Handloom Technology were established in the year _____.

- (A) 1952
- (B) 1955
- (C) 1956
- (D) 1960

Correct Answer: (C) 1956

Solution:

Step 1: Understanding the Concept:

This is a factual question about the history of government initiatives to support the handloom sector in post-independence India. It requires knowing the establishment year of the Indian Institutes of Handloom Technology (IIHT).

Step 2: Detailed Explanation:

After India's independence, the government took several steps to protect and promote the handloom industry, which is a significant source of employment. The All India Handloom Board was constituted in 1952 to advise the government on the development of the handloom sector. Based on the recommendations of this board, a plan was made to establish dedicated institutes for technical education in the field of handloom weaving. The first two such institutes, the **Indian Institutes of Handloom Technology (IIHT)**, were established in **1956** at Varanasi (Uttar Pradesh) and Salem (Tamil Nadu). These institutes were created to provide formal, three-year diploma programs in Handloom Technology and to conduct research and development for the sector.

Step 3: Final Answer:

The Indian Institutes of Handloom Technology were first established in the year 1956. Therefore, option (C) is the correct answer.

💡 Quick Tip

Remember key dates for Indian textile policy. The All India Handloom Board was set up in 1952. A few years later, in 1956, the first IIHTs were established to provide the technical education needed to support the board's goals.

23. Kinkhab is a kind of _____ textiles.

- (A) Painted
- (B) Printed
- (C) Brocade
- (D) Space dyed

Correct Answer: (C) Brocade

Solution:

Step 1: Understanding the Concept:

This question asks to classify "Kinkhab," a traditional Indian textile, into a specific category

of fabric construction or decoration.

Step 2: Detailed Explanation:

Kinkhab (also spelled Kimkhwab) is a highly ornate and luxurious fabric, historically associated with centers like Varanasi (Banaras). The name is of Persian origin and translates to "a little dream" or "golden dream," reflecting its opulence.

Kinkhab is not a painted or printed fabric. Its patterns are not applied to the surface of a finished cloth. Instead, the designs are created directly on the loom during the weaving process. It is a type of **brocade**, which is a class of richly decorative shuttle-woven fabrics, often made in colored silks and with or without gold and silver threads. In brocade weaving, supplementary, non-structural weft yarns are added to the ground weave to create the pattern. This technique results in a raised, embossed, or embroidered appearance. Kinkhab is one of the most famous and heavy forms of Indian brocade.

Step 3: Final Answer:

Kinkhab is a type of woven brocade textile. Therefore, option (C) is the correct answer.

💡 Quick Tip

Associate Kinkhab and other "zari" work textiles (like Baluchari or Paithani) with the category of **brocade**. Brocade means the pattern is woven into the fabric structure itself, not applied later.

24. Match the LIST-I with LIST-II

LIST-I (Indian Traditional Craft / Textiles)		LIST-II (State where craft is practised or textiles created)	
A.	Masulipatnam	I.	West Bengal
B.	Tangalia	II.	Rajasthan
C.	Pichhawai	III.	Gujarat
D.	Baluchar/ Baluchari	IV.	Andhra Pradesh

Choose the correct answer from the options given below:

- (A) A-I, B-II, C - III, D - IV
- (B) A-I, B-III, C-II, D - IV
- (C) A-I, B-II, C-IV, D - III
- (D) A-IV, B-III, C-II, D - I

Correct Answer: (D) A-IV, B-III, C-II, D - I

Solution:

Step 1: Understanding the Concept:

This question requires matching traditional Indian textile crafts with their respective states of

origin.

Step 2: Detailed Explanation:

Let's match each craft from List-I to its state in List-II:

A. Masulipatnam: Masulipatnam is a city in Andhra Pradesh. It is historically famous as a major center for the production of **Kalamkari**, a style of hand-painted and block-printed cotton textiles. **Match: A → IV (Andhra Pradesh)**

B. Tangalia: Tangalia is a 700-year-old intricate weaving craft that creates geometric or dot-like patterns by twisting extra threads into the fabric. This craft is native to the Surendranagar district of **Gujarat**. **Match: B → III (Gujarat)**

C. Pichhawai: Pichhawai are large, detailed devotional paintings on cloth that serve as backdrops in shrines dedicated to Lord Krishna (specifically his form as Shrinathji). This art form originated and is practiced in Nathdwara, a town in **Rajasthan**. **Match: C → II (Rajasthan)**

D. Baluchar/Baluchari: Baluchari sarees are rich silk sarees characterized by intricate woven motifs on the pallu (end piece), often depicting mythological scenes or courtly life. This weaving tradition originated in the village of Baluchar and is now centered in Bishnupur, in **West Bengal**. **Match: D → I (West Bengal)**

Step 3: Final Answer:

The correct set of matches is A-IV, B-III, C-II, and D-I. This corresponds to option (D).

💡 Quick Tip

When faced with matching questions about crafts and states, try to identify the one or two you are most certain about first. For example, Baluchari from Bengal is a very well-known pairing. This can help you quickly eliminate incorrect options.

25. In which village of Andhra Pradesh square double Ikat Telias are produced.

- (A) Chirala
- (B) Chimaru
- (C) Patan
- (D) Pochampali

Correct Answer: (A) Chirala

Solution:

Step 1: Understanding the Concept:

This question asks for the specific village of origin for "Telia Rumal," a type of double ikat

textile from Andhra Pradesh (now largely in Telangana). The name 'Telia' comes from the process of treating the yarn with oil ('tel').

Step 2: Detailed Explanation:

Telia Rumal is a unique and intricate double ikat handloom weave. The yarns are treated with a mixture of castor ash and oil to give them a distinct texture, color, and smell. Traditionally, these were produced as square 'rumals' or kerchiefs with geometric patterns in a limited color palette of red, black, and white.

While **Pochampally** is now the most famous center for Ikat weaving in Telangana (the region formerly part of Andhra Pradesh), the original and historical home of the Telia Rumal craft was the coastal village of **Chirala** in Andhra Pradesh. Weavers from Chirala later migrated to Pochampally, bringing the craft with them, but its origin is strongly associated with Chirala.

Patan in Gujarat is famous for its own double ikat tradition, the Patola.

Step 3: Final Answer:

The historical production center for square double Ikat Telias in Andhra Pradesh is the village of Chirala. Therefore, option (A) is the correct answer.

 Quick Tip

Differentiate the Ikat centers: Patan (Gujarat) for Patola, Sambalpur (Orissa) for single Ikat, and for the Andhra/Telangana region, remember Pochampally as the modern hub but Chirala as the specific origin of Telia Rumal.

26. The _____ is the space between the two halves of the warp in which the weaver places the weft thread/yarn just after the reed while weaving on a loom.

- (A) Beater
- (B) Shed
- (C) Lease Rods
- (D) Heddle

Correct Answer: (B) Shed

Solution:

Step 1: Understanding the Concept:

This question asks for the specific term used to describe the opening created in the warp yarns during the weaving process to allow for the insertion of the weft yarn. This is one of the primary motions of weaving.

Step 2: Detailed Explanation:

Let's define the terms:

Beater (or Reed): The beater is a frame that holds the reed. Its function is to push, or "beat," the newly inserted weft yarn firmly against the already woven cloth. It is a part of the loom, not the space.

Shed: This is the correct term. The **shed** is the V-shaped opening or space created when the harnesses (or heddles) lift some warp yarns and lower others. The shuttle or weft carrier passes through this shed to lay the weft yarn. The action of creating this opening is called "shedding."

Lease Rods: These are rods placed at the back of the loom to keep the warp yarns in order and prevent them from tangling. They are not involved in creating the opening for the weft.

Heddle: A heddle is a single wire or cord with an eye in the center through which a warp yarn is threaded. Heddles are held in frames called harnesses. The upward and downward movement of the heddles and harnesses is what creates the shed. The heddle is the component; the shed is the resulting space.

Step 3: Final Answer:

The space created between the upper and lower sets of warp yarns for the weft to pass through is called the shed. Therefore, option (B) is correct.

 Quick Tip

Remember the three primary motions of weaving in order: 1. **Shedding** (creating the opening, the shed), 2. **Picking** (passing the weft through the shed), and 3. **Beating-up** (pushing the weft into place with the beater/reed). The question describes the result of the first step.

27. The necessary weave at the beginning of each warp to spread out the warp ends evenly and to close the gaps left when knotting the warp to the front stick/ warp beam in table top loom weaving is called as _____.

- (A) Heading
- (B) Beating
- (C) Drawing
- (D) Threading

Correct Answer: (A) Heading

Solution:

Step 1: Understanding the Concept:

This question asks for the term that describes the initial section of weaving done at the start of a new warp on a loom. This section serves a practical purpose before the main fabric piece

is started.

Step 2: Detailed Explanation:

When a new warp is put on a loom (a process called 'dressing the loom'), the warp yarns are tied to the front beam or an apron rod. This can create uneven tension and spacing. To fix this and to create a firm, even base before starting the actual project, the weaver weaves a few inches of simple, often scrap, yarn. This initial weaving is known as the **heading** or **header**.

Its functions are:

1. To spread the warp threads evenly to their correct density.
2. To establish an even tension across all warp ends.
3. To provide a stable edge to begin the main weaving.

Let's look at the other options:

Beating: This is the action of pushing the weft yarn into place with the reed. It is a continuous action, not a specific section of the weave.

Drawing/Threading: These are parts of the loom dressing process where each warp yarn is drawn through a heddle eye. It happens before any weaving starts.

Step 3: Final Answer:

The section of weave at the beginning of a warp used to even out the threads is called the heading. Therefore, option (A) is correct.

💡 Quick Tip

Think of the "heading" like the title or header of a document. It's the preparatory section at the very beginning before the main body of the work starts.

28. Number of minimum shafts / harnesses required to make a double cloth weave (2- layers).

- (A) 2
- (B) 3
- (C) 4
- (D) 5

Correct Answer: (C) 4

Solution:

Step 1: Understanding the Concept:

Double cloth is a complex weave structure where two layers of fabric are woven simultaneously on the same loom. The question asks for the minimum number of shafts (also called harnesses) required to create this structure. A shaft is a frame that holds a set of heddles, and each shaft can be moved up or down independently to create the weave.

Step 2: Detailed Explanation:

To weave a single layer of the simplest fabric, a plain weave, we need a minimum of 2 shafts.

- Shaft 1 lifts the odd-numbered warp threads.
- Shaft 2 lifts the even-numbered warp threads.

To create a double cloth, we are essentially weaving two separate fabrics at the same time, one on top of the other. Each fabric requires its own independent set of warp threads and its own set of shafts to control them.

- **Top Layer:** To weave a plain weave for the top layer, we need a minimum of 2 shafts. Let's call them Shaft A and Shaft B.
- **Bottom Layer:** To weave a plain weave for the bottom layer, we also need a minimum of 2 shafts. Let's call them Shaft C and Shaft D.

When weaving, to create the shed for the top layer, shafts A and B will move while shafts C and D keep the bottom layer yarns down and out of the way. To create the shed for the bottom layer, shafts C and D will move while shafts A and B keep the top layer yarns up and out of the way.

Therefore, the total minimum number of shafts required is the sum of the minimums for each layer: 2 (for top) + 2 (for bottom) = 4 shafts.

Step 3: Final Answer:

The minimum number of shafts required to weave a two-layered double cloth is 4. Therefore, option (C) is the correct answer.

💡 Quick Tip

For calculating minimum shafts for multi-layered fabrics, simply multiply the minimum shafts needed for one layer by the number of layers. For a simple plain weave double cloth (2 layers), it's $2 \text{ shafts/layer} \times 2 \text{ layers} = 4 \text{ shafts}$. For a triple cloth, it would be $2 \times 3 = 6 \text{ shafts}$.

29. Twill weave variations in woven fabrics are

- A. Brighton Honeycomb
- B. Diamond
- C. Broken
- D. Herringbone

Choose the correct answer from the options given below:

- (A) A, B and D only
- (B) A, B and C only
- (C) A, B, C and D
- (D) B, C and D only

Correct Answer: (D) B, C and D only

Solution:

Step 1: Understanding the Concept:

The question asks to identify which of the listed weave structures are considered variations of the fundamental twill weave. A twill weave is characterized by diagonal lines on the fabric. Variations are created by altering the direction or continuity of these diagonal lines.

Step 2: Detailed Explanation:

Let's analyze each option:

A. Brighton Honeycomb: This is a type of "honeycomb" or cellular weave. It creates a fabric with a textured, cell-like appearance resembling a honeycomb. Its structure is based on creating groups of floating warp and weft yarns and is distinct from the twill weave structure. It is not a twill variation.

B. Diamond: Diamond twills are created by combining right-hand and left-hand twill weaves in a specific arrangement. This reversal of the twill direction produces diamond-shaped patterns on the fabric. It is a direct variation of the twill weave.

C. Broken Twill: In this variation, the regular diagonal line of the twill is intentionally interrupted and restarted, often slightly offset. This breaks up the continuous wale and is a common way to modify a basic twill. Denim is often a broken twill.

D. Herringbone: This is a specific and very popular type of broken twill. The direction of the twill is reversed at regular intervals, creating a distinct V-shaped or "zigzag" pattern that resembles the skeleton of a herring fish.

Step 3: Final Answer:

Diamond, Broken, and Herringbone weaves are all established variations of the twill weave. Brighton Honeycomb is a different class of weave. Therefore, the correct options are B, C, and D only. This corresponds to option (D).

💡 Quick Tip

Remember that twill variations are all about manipulating the direction of the diagonal line (the "wale"). Herringbone, diamond, and broken twills all achieve their look by changing the wale's direction. Honeycomb weaves are about creating 3D texture and cells, a different structural concept.

30. A mass of fibers lying indiscriminately in all directions, not spun or twisted into yarn and not interworked in any regular order, can be made into a firm fabric using processes involving heat, pressure, friction etc. is called as _____.

- (A) Felt
- (B) Jean

- (C) Tweed
- (D) Suede

Correct Answer: (A) Felt

Solution:

Step 1: Understanding the Concept:

The question provides a detailed definition of a specific type of fabric and asks to identify it. The key elements of the definition are: it's made directly from a mass of fibers (not yarn), the fibers are randomly oriented, and they are bonded by heat, pressure, and friction. This is the definition of a non-woven fabric.

Step 2: Detailed Explanation:

Let's evaluate the options based on this definition:

A. Felt: This is the classic example of a non-woven fabric made from fibers (typically wool or other animal hair) that are subjected to heat, moisture, pressure, and agitation (friction). The microscopic scales on the surface of the wool fibers interlock with each other, creating a dense, matted fabric. This perfectly matches the description in the question.

B. Jean: Jean is a sturdy, woven fabric. It is made from yarns that are interlaced in a twill weave pattern. It does not fit the description.

C. Tweed: Tweed is also a woven fabric, typically made from woolen yarns in various weave structures (plain, twill, herringbone). It does not fit the description.

D. Suede: Suede is not a fabric made from fibers but a type of leather. It is made from the underside of animal skin, which is buffed and sanded to create a soft, napped finish. It does not fit the description.

Step 3: Final Answer:

The fabric described is Felt, a non-woven material created by matting fibers together. Therefore, option (A) is the correct answer.

💡 Quick Tip

The key distinction in fabric types is Woven (interlaced yarns), Knitted (interlooped yarns), and Non-woven (fibers bonded directly). The question's description "mass of fibers, not spun into yarn" is a direct giveaway for a non-woven fabric, and Felt is the most traditional example.

31. Match the LIST-I with LIST-II

LIST-I (Product Category)		LIST-II (Fabrics Used)	
A.	Table Clothes	I.	Percalé
B.	Bed Linens	II.	Damask
C.	Shirting	III.	Charmeuse
D.	Lingerie	IV.	Batiste

Choose the correct answer from the options given below:

- (A) A-I, B-II, C-III, D - IV
- (B) A-II, B-I, C - III, D - IV
- (C) A-I, B-II, C-IV, D - III
- (D) A-II, B-I, C - IV, D - III

Correct Answer: (D) A-II, B-I, C - IV, D - III

Solution:

Step 1: Understanding the Concept:

This question requires matching common textile products with the types of fabric typically used to make them. This involves knowledge of fabric properties and their end uses.

Step 2: Detailed Explanation:

Let's analyze each product category and find its most suitable fabric from List-II.

A. Table Clothes: For formal table linens, a decorative and durable fabric is preferred. **II. Damask** is a jacquard-woven fabric with reversible, intricate patterns, making it a classic and elegant choice for tablecloths. **Match: A → II**

B. Bed Linens: High-quality bed sheets are valued for being smooth, cool, and crisp. **I. Percale** is a plain-weave, medium-weight cotton fabric with a high thread count, known for these exact qualities. **Match: B → I**

C. Shirting: Fine shirts and blouses require a lightweight, soft, and somewhat sheer fabric. **IV. Batiste** is a very fine, lightweight, plain-weave fabric, often made from cotton, perfect for high-quality shirting. **Match: C → IV**

D. Lingerie: Lingerie requires a fabric that is soft, smooth, drapery, and has a luxurious feel. **III. Charmeuse** is a lightweight satin-weave fabric with a lustrous, shiny front and a dull back, known for its excellent drape and feel against the skin. **Match: D → III**

Step 3: Final Answer:

Combining the matches, we get the sequence A-II, B-I, C-IV, D-III. This corresponds to option (D).

💡 Quick Tip

Associate fabrics with their key characteristic and a common product. Damask = Jacquard patterns (Tablecloths). Percale = Crisp cotton (Bed sheets). Batiste = Fine & lightweight (Blouses). Charmeuse = Silky satin (Lingerie).

32. _____ Weave is a weave in which warp yarn of a pair is moved from side to side using doup attachment on loom and is also called as gauze weave. This weave allows weft yarns to be held apart without slipping and forms open plain weave.

- (A) Twill
- (B) Satin
- (C) Leno
- (D) Jacquard

Correct Answer: (C) Leno

Solution:

Step 1: Understanding the Concept:

The question provides a detailed description of a specific type of weave and asks for its name. The key features are the crossing of warp yarns, the use of a "doup attachment," its alternative name "gauze weave," and its open structure.

Step 2: Detailed Explanation:

Let's analyze the description against the options:

The description points directly to the **Leno weave**. In a Leno weave, two warp yarns, known as the ground yarn and the doup yarn, are twisted around each other between each weft insertion. This crossing action is controlled by a special loom attachment called a doup heddle. This twisting locks the weft yarns firmly in place, even when the weave is very open and net-like. For this reason, it is also called a gauze weave and is used for products like mosquito netting, sheer curtains, and some bags for produce.

Twill Weave: Characterized by diagonal lines; does not involve twisting warp yarns.

Satin Weave: Characterized by long floats for a smooth, lustrous surface; does not involve twisting warp yarns.

Jacquard Weave: Refers to a mechanism (Jacquard head) for creating complex, large-scale patterns, not a basic weave structure like the one described.

Step 3: Final Answer:

The weave described, involving twisted warp yarns and a doup attachment, is the Leno weave. Therefore, option (C) is correct.

💡 Quick Tip

The keywords "doup attachment," "gauze weave," and "twisted warp yarns" are all direct pointers to the Leno weave. If you see any of these, Leno is almost certainly the answer.

33. Linen is a generic name for _____.

- (A) Flax
- (B) Jute
- (C) Cotton
- (D) Silk

Correct Answer: (A) Flax

Solution:

Step 1: Understanding the Concept:

This question asks for the source fiber from which linen fabric is made. Many fabrics are named after their source fiber (e.g., cotton, silk), but linen is an exception.

Step 2: Detailed Explanation:

Linen is a textile made from the fibers of the **flax** plant (*Linum usitatissimum*). The fibers are derived from the stem of the plant, making them bast fibers. The term "linen" refers to the finished fabric, while "flax" refers to the plant and the raw fiber itself. They are essentially two names for the same material at different stages of production.

The other options are incorrect:

Jute: Another bast fiber, but it is much coarser than flax and is used for burlap and ropes.

Cotton: A seed fiber from the cotton plant.

Silk: A protein filament from the cocoon of the silkworm.

Step 3: Final Answer:

Linen is the fabric made from flax fibers. Therefore, option (A) is the correct answer.

💡 Quick Tip

Remember this specific fiber-to-fabric name relationship: Flax (the plant/fiber) becomes Linen (the fabric).

34. Novelty yarn with closed loops at intervals used for textural interest and warmth generation from air trapping is called as _____.

- (A) Boucle' yarn
- (B) Slub yarn
- (C) Flat yarn
- (D) Tape yarn

Correct Answer: (A) Boucle' yarn

Solution:

Step 1: Understanding the Concept:

The question describes a specific type of novelty or fancy yarn based on its structure ("closed loops") and properties (texture, warmth from air trapping).

Step 2: Detailed Explanation:

Bouclé yarn: This is the correct answer. The name "bouclé" is French for "curled" or "ringed." This yarn is characterized by having loops that project from a central core. These loops are created by feeding an effect yarn more rapidly than a core yarn and then securing it with a binder. The loops create a highly textured surface and trap air, which provides insulation and warmth. This matches the description perfectly.

Slub yarn: This yarn has thick, soft sections (slubs) alternating with thinner sections. It does not have loops.

Flat yarn / Tape yarn: These are yarns made by slitting a sheet of polymer film. They are flat and tape-like, not loopy.

Step 3: Final Answer:

The novelty yarn characterized by closed loops is called a Bouclé yarn. Therefore, option (A) is correct.

💡 Quick Tip

For novelty yarns, associate the name with the structure: Bouclé = Loops, Slub = Thick/Thin spots, Chenille = Fuzzy caterpillar, Metallic = Shiny.

35. National Handloom Day has started to be celebrated as a national event since _____.

- (A) 2014
- (B) 2015
- (C) 2016
- (D) 2017

Correct Answer: (B) 2015

Solution:

Step 1: Understanding the Concept:

This is a factual question about a significant national event related to the Indian textile industry. It requires knowledge of when National Handloom Day was first instituted.

Step 2: Detailed Explanation:

The Government of India declared August 7th as National Handloom Day to honor the handloom weaving community and to highlight the contribution of the sector to the country's socio-economic development. The date was chosen specifically to commemorate the Swadeshi Movement, which was launched on August 7, 1905, and encouraged the use of indigenous products, including handloom fabrics. The first National Handloom Day was inaugurated by Prime Minister Narendra Modi on **August 7, 2015**, in Chennai.

Step 3: Final Answer:

The celebration of National Handloom Day began in the year 2015. Therefore, option (B) is correct.

💡 Quick Tip

Connect National Handloom Day (August 7th) to its historical root: the Swadeshi Movement (launched August 7, 1905). The modern celebration started in 2015.

36. Khadi day is celebrated every year in India on _____.

- (A) 7th August
- (B) 2nd October
- (C) 10th October
- (D) 30th January

Correct Answer: (B) 2nd October

Solution:**Step 1: Understanding the Concept:**

This question asks for the date on which "Khadi Day" is celebrated. While not as formally declared as National Handloom Day, the celebration of Khadi is intrinsically linked to Mahatma Gandhi.

Step 2: Detailed Explanation:

Khadi, the hand-spun and hand-woven cloth, was a symbol of self-reliance, economic independence, and protest during the Indian freedom struggle. Its chief proponent was Mahatma Gandhi. Due to this inseparable connection, events, promotions, and celebrations related to Khadi are centered around the birth anniversary of Mahatma Gandhi, which is **October 2nd**. This day is also known as Gandhi Jayanti.

The other dates are significant for other reasons:

7th August: National Handloom Day.

30th January: Martyrs' Day in India, marking the assassination of Mahatma Gandhi.

Step 3: Final Answer:

Khadi Day is celebrated in connection with Mahatma Gandhi's birthday on the 2nd of October. Therefore, option (B) is the correct answer.

 Quick Tip

Remember the key associations: Handloom = Swadeshi Movement (Aug 7). Khadi = Mahatma Gandhi (Oct 2).

37. The full form of HEPC nodal agency constituted under the Ministry of Textiles, Government of India to promote exports of handloom products is _____.

- (A) Handloom Export Promotion Council
- (B) Handloom Expo Product Council
- (C) Handloom Export Promote Council
- (D) Handloom Export Product Council

Correct Answer: (A) Handloom Export Promotion Council

Solution:

Step 1: Understanding the Concept:

This question asks for the full form of the acronym HEPC, which represents a key governmental body in the Indian textile sector.

Step 2: Detailed Explanation:

The Government of India has established several Export Promotion Councils (EPCs) for different sectors to facilitate and promote exports. These councils act as a bridge between the government and the industry. For the handloom sector, the designated body is the **Handloom Export Promotion Council (HEPC)**. Its primary objective is to support handloom exporters and promote Indian handloom products in the international market. The acronym stands for:

H - Handloom

E - Export

P - Promotion

C - Council

Step 3: Final Answer:

The full form of HEPC is Handloom Export Promotion Council. Therefore, option (A) is cor-

rect.

 Quick Tip

Most Indian export-focused government bodies for specific industries are named "Export Promotion Councils." Knowing this pattern helps in deducing the correct full form for acronyms like HEPC, AEPC (Apparel Export Promotion Council), etc.

38. The annual exhibition held in the month of February or March in Delhi for the world of textiles and garment manufacturing industry is -----.

- (A) India Art Fair
- (B) Heimtextil India
- (C) Gartex Texprocess India
- (D) International Gift and Handicrafts Fair

Correct Answer: (C) Gartex Texprocess India

Solution:

Step 1: Understanding the Concept:

The question asks to identify a major annual trade fair for the textile and garment industry held in Delhi around February/March.

Step 2: Detailed Explanation:

Let's analyze the options:

India Art Fair: This is a premier event for modern and contemporary art in South Asia. It is not focused on textile manufacturing.

Heimtextil India: This is a major trade fair, but it specifically focuses on home textiles, interior decor, and home furnishings.

Gartex Texprocess India: This is a comprehensive trade fair that covers the entire value chain of the garment and textile manufacturing industry. It showcases everything from fabrics and accessories to garmenting machinery and digital textile printing. It is held annually in Delhi and is a key event for the industry. While its exact dates can vary, it is the most fitting description for a broad "textiles and garment manufacturing" exhibition.

International Gift and Handicrafts Fair: This is a very large fair but has a much broader scope, including gifts, lifestyle products, and various handicrafts, not just industrial textile and garment manufacturing.

Step 3: Final Answer:

Gartex Texprocess India is the most accurate answer for a comprehensive annual exhibition in Delhi covering the textile and garment manufacturing industry. Therefore, option (C) is correct.

 Quick Tip

For questions about trade fairs, pay attention to the specific scope. "Heimtextil" implies home textiles. "Art Fair" is for art. "Gartex Texprocess" combines "Garment" and "Textile Processing," indicating a focus on the manufacturing industry.

39. Forecasts are important for creating collections according to future trends and consumer demands. The forecasting services are provided globally by

- A. Promostyl
- B. Here and There
- C. WGSN
- D. The Doneger Group

Choose the correct answer from the options given below:

- (A) A, B and D only
- (B) A, B and C only
- (C) A, B, C and D
- (D) B, C and D only

Correct Answer: (C) A, B, C and D

Solution:

Step 1: Understanding the Concept:

This question asks to identify which of the listed companies are recognized global trend forecasting services for the fashion and textile industries.

Step 2: Detailed Explanation:

Trend forecasting is a major global industry that helps brands and designers anticipate future trends in colors, fabrics, silhouettes, and consumer behavior. Let's examine the companies listed:

A. Promostyl: A Paris-based international trend forecasting agency founded in 1966. It is one of the pioneering and leading names in the industry.

B. Here and There: A well-known New York-based trend forecasting agency specializing in color and fashion trends.

C. WGSN (Worth Global Style Network): Headquartered in London, WGSN is arguably the world's largest and most influential trend forecasting company, providing insights for fashion, lifestyle, and retail industries.

D. The Doneger Group: A prominent New York-based firm that provides trend forecasting, market analysis, and merchandising services to the retail and fashion industries.

All four are major, globally recognized providers of forecasting services.

Step 3: Final Answer:

Since Promostyl, Here and There, WGSN, and The Doneger Group are all global forecasting

services, the correct answer includes all of them. Therefore, option (C) is correct.

 Quick Tip

WGSN is the most famous trend forecasting service; if it's on the list, it's definitely correct. Knowing it and one or two others like Promostyl can help you confidently answer such questions.

40. Match the LIST-I with LIST-II

LIST-I (Textile Based CAD Software)		LIST-II (Functions/Outcomes achieved)	
A.	Arahne	I.	Patterns and Grading
B.	Tukatech	II.	Vector Print Designs
C.	Clo 3D	III.	3D Simulation of Garments
D.	Adobe Illustrator	IV.	Dobby and Jacquard Designs

Choose the correct answer from the options given below:

- (A) A-IV, B-I, C - III, D - II
- (B) A-IV, B-III, C-II, D - I
- (C) A-I, B-II, C - IV, D - III
- (D) A-III, B-IV, C-I, D - II

Correct Answer: (A) A-IV, B-I, C - III, D - II

Solution:

Step 1: Understanding the Concept:

This question requires matching specific Computer-Aided Design (CAD) software packages with their primary function in the textile and apparel industry.

Step 2: Detailed Explanation:

A. Arahne: This is a highly specialized CAD/CAM software for the weaving industry. Its main function is to design woven fabrics, specifically for creating the complex weave patterns used in **IV. Dobby and Jacquard Designs**. **Match: A → IV**

B. Tukatech: This is a comprehensive CAD system for apparel manufacturing. Its core functionalities include creating digital patterns, grading them for different sizes, and creating efficient markers for cutting. Thus, it is used for **I. Patterns and Grading**. **Match: B → I**

C. Clo 3D: This is a leading software in the field of virtual fashion. Its primary purpose is to create realistic **III. 3D Simulation of Garments**, allowing designers to visualize fit, drape, and appearance without making a physical sample. **Match: C → III**

D. Adobe Illustrator: While a general graphic design tool, it is the industry standard for creating fashion illustrations, technical flats, and especially **II. Vector Print Designs** for textile printing due to its powerful vector graphics capabilities. **Match: D → II**

Step 3: Final Answer:

The correct set of matches is A-IV, B-I, C-III, D-II. This corresponds to option (A).

💡 Quick Tip

In CAD software questions, look for the most specialized pairings first. Clo 3D is almost synonymous with 3D garment simulation, and Arahne is a key name in Jacquard design. This can help narrow down the options quickly.

41. Pantone TCX means standard color swatch dyed on -----.

- (A) Paper
- (B) Wool
- (C) Cotton
- (D) Polyester

Correct Answer: (C) Cotton

Solution:

Step 1: Understanding the Concept:

This question is about the Pantone color matching system, specifically the codes used in its Fashion, Home + Interiors (FHI) system. The letters in the code indicate the material (substrate) on which the color standard is presented.

Step 2: Detailed Explanation:

The Pantone FHI system uses different suffixes to denote the substrate, because color can appear differently on different materials. The key codes are:

TCX: This stands for **T**extile **C**otton **eX**tended. This means the color standard is a dye applied to a 100% **cotton** fabric swatch. This is the primary standard for apparel and home goods.

TPG: This stands for **T**extile **P**aper - **G**reen. This indicates the color is shown on a paper substrate (lacquer coating on paper), formulated to be more eco-friendly.

There are also codes for nylon (TN) and polyester (TSX).

Step 3: Final Answer:

The code TCX in the Pantone system signifies a color standard on a cotton substrate. Therefore, option (C) is correct.

💡 Quick Tip

For Pantone codes, remember the middle letter is usually the key to the material:
TCX = Cotton, TPG = Paper.

42. Rank the weaves in ascending order as per the number of minimum harnesses required on loom to weave:

- A. Plain Weave
- B. Satin Weave
- C. Twill Weave
- D. Dobby Weave

Choose the correct answer from the options given below:

- (A) A, B, C, D
- (B) A, C, B, D
- (C) B, A, D, C
- (D) C, B, D, A

Correct Answer: (B) A, C, B, D

Solution:

Step 1: Understanding the Concept:

This question asks to arrange different types of weaves based on the minimum number of harnesses (or shafts) required to produce them. The complexity of the weave determines this number.

Step 2: Detailed Explanation:

Let's determine the minimum harness requirement for each weave:

A. Plain Weave: This is the simplest weave with a 1/1 interlacing pattern. It has a repeat size of 2 (in both warp and weft). Therefore, it requires a **minimum of 2 harnesses**.

C. Twill Weave: This weave creates a diagonal line. The simplest possible twill is a 2/1 twill, which has a repeat size of 3. Therefore, it requires a **minimum of 3 harnesses**.

B. Satin Weave: Satin weaves require long floats and have no obvious diagonal lines. The rule for satin is that the repeat size must be 5 or greater. Therefore, a satin weave requires a **minimum of 5 harnesses**.

D. Dobby Weave: This is not a single weave but a category of weaves with small, geometric patterns. They are created using a dobby attachment on a loom, which can control more harnesses than a simple tappet loom, typically up to 24 or 32. By definition, a dobby weave is more complex than a basic satin and will require more harnesses than the minimum for satin to create its figures. Its requirement is **greater than 5 harnesses**.

Step 3: Final Answer:

Arranging these in ascending order of minimum required harnesses:

Plain (2) < Twill (3) < Satin (5) < Dobby (5).

The correct sequence is A, C, B, D. This corresponds to option (B).

💡 Quick Tip

Memorize the minimum harness numbers for the fundamental weaves: Plain = 2, Twill = 3, Satin = 5. Dobby and Jacquard are more complex and require more harnesses than these three basics.

43. Write the sequence of mechanism of Textile Dyeing.

A. Dissolution of dye molecules in water

B. Absorption of dye into the fiber

C. Dispersion of the dye in the bath

D. Diffusion of dye inside the fiber

Choose the correct answer from the options given below:

(A) A, B, C, D

(B) A, C, B, D

(C) B, A, D, C

(D) C, A, B, D

Correct Answer: (B) A, C, B, D

Solution:

Step 1: Understanding the Concept:

This question asks for the correct sequence of events that occur at a molecular level during the process of dyeing a textile fiber from an aqueous solution.

Step 2: Detailed Explanation:

The dyeing process involves moving dye molecules from a solid state into a fiber. The logical sequence is as follows:

1. **A. Dissolution of dye molecules in water:** First, the solid dye powder must be dissolved in water to get individual dye molecules or small aggregates into the solution. This creates the dyebath.

2. **C. Dispersion of the dye in the bath:** Once dissolved, the dye molecules must be evenly distributed throughout the entire dyebath to ensure uniform access to the textile material.

3. **B. Absorption of dye into the fiber:** Dye molecules move from the bulk of the dyebath to the surface of the fiber. This step is often called adsorption.

4. **D. Diffusion of dye inside the fiber:** Once on the surface, the dye molecules must penetrate into the internal structure of the fiber. This is the slowest step and is crucial for

achieving good wash fastness.

Step 3: Final Answer:

The correct chronological sequence for the mechanism of dyeing is: Dissolution → Dispersion → Absorption → Diffusion. This corresponds to the sequence A, C, B, D, which is option (B).

💡 Quick Tip

Think of dyeing like feeding a plant. First, you dissolve the food in water (Dissolution/Dispersion). Then, the water gets onto the roots (Absorption). Finally, the nutrients travel up into the plant itself (Diffusion).

44. Once the loom is set in regard to warp and weft, the loom goes through a series of motions to form the fabric. Regardless of the kind of loom or pattern to be woven, the basic weaving operation consists of the following steps from primary to secondary in sequence:

- A. Shedding
- B. Picking
- C. Beating
- D. Taking up and Letting off

Choose the correct answer from the options given below:

- (A) A, B, C, D
- (B) A, C, B, D
- (C) B, A, D, C
- (D) C, B, D, A

Correct Answer: (A) A, B, C, D

Solution:

Step 1: Understanding the Concept:

This question asks to sequence the fundamental motions of a loom. These motions are divided into primary motions (essential for each weft insertion) and secondary motions (continuous or intermittent actions to handle the yarn and fabric sheets).

Step 2: Detailed Explanation:

The weaving cycle follows a precise order:

Primary Motions (in order):

1. **A. Shedding:** The harnesses are raised and lowered to create a V-shaped opening (the shed) in the warp yarns.
2. **B. Picking:** A carrier (like a shuttle or rapier) inserts the weft yarn through the open shed from one side of the loom to the other.
3. **C. Beating (or Beating-up):** The reed, which is part of the beater, pushes the newly

inserted weft yarn firmly against the previously woven fabric (the fell of the cloth). These three actions (Shedding, Picking, Beating) repeat for every single weft yarn inserted.

Secondary Motions:

4. **D. Taking up and Letting off:** These are complementary actions. 'Letting off' is the unwinding of new warp yarn from the back warp beam. 'Taking up' is the winding of the newly formed fabric onto the front cloth beam. These motions occur to advance the fabric and maintain tension, but not necessarily for every single pick.

The question asks for the sequence from primary to secondary. The correct order is the three primary motions followed by the secondary motions.

Step 3: Final Answer:

The correct sequence of loom motions is Shedding → Picking → Beating → Taking up and Letting off. This corresponds to the sequence A, B, C, D, which is option (A).

💡 Quick Tip

Remember the primary weaving motions with a simple mnemonic: "**S**ally **P**icks **B**erries." S for Shedding, P for Picking, B for Beating. The secondary motions (Take-up/Let-off) happen after these to manage the cloth.

45. Sequence of steps for production and processing of Silk yarn.

- A. Reeling
- B. Stifling and Brushing
- C. Degumming
- D. Throwing

Choose the correct answer from the options given below:

- (A) A, B, D, C
- (B) A, C, B, D
- (C) B, A, D, C
- (D) C, B, D, A

Correct Answer: (C) B, A, D, C

Solution:

Step 1: Understanding the Concept:

This question asks to arrange the major steps involved in converting silk cocoons into finished silk yarn in the correct chronological order. This process is known as sericulture and silk processing.

Step 2: Detailed Explanation:

Let's analyze the steps in the silk production process:

1. **B. Stifling and Brushing:** After the cocoons are harvested, they must be processed. **Stifling** is the process of killing the pupa inside the cocoon, usually with steam or hot air, to prevent it from maturing into a moth and breaking the continuous filament. After stifling, the cocoon is **brushed** to find the true end of the silk filament. This is the very first step.
2. **A. Reeling:** This is the process of unwinding the long silk filaments from several cocoons simultaneously and combining them to form a single, continuous thread of raw silk.
3. **D. Throwing:** The raw silk thread from reeling is often too fine and delicate for weaving. **Throwing** is the process of twisting two or more of these threads together to create a stronger, thicker, and more uniform yarn (e.g., organzine or crepe). This step adds twist and plies the yarn.
4. **C. Degumming:** Raw silk is coated with a gummy protein called sericin. **Degumming** is the process of removing this sericin, usually by boiling the yarn in a soap and soda solution. This makes the silk soft, lustrous, and white. While it can sometimes be done after weaving, it is a key yarn processing step.

Step 3: Final Answer:

The correct sequence of operations is: Stifling and Brushing → Reeling → Throwing → Degumming. This corresponds to the sequence B, A, D, C, which is option (C).

💡 Quick Tip

Think of the process logically: First, you must prepare the cocoon (Stifling/Brushing). Then, you get the thread off it (Reeling). Next, you make the thread stronger for use (Throwing). Finally, you clean and finish the yarn (Degumming).

46. Rank as per the repeat of print design increases in size from small to big using the below-mentioned printing processes.

- A. Block
- B. Screen
- C. Rotary
- D. Roller

Choose the correct answer from the options given below:

- (A) A, B, C, D
- (B) A, D, C, B
- (C) B, A, D, C
- (D) C, B, D, A

Correct Answer: (B) A, D, C, B

Solution:

Step 1: Understanding the Concept:

The question asks to rank different textile printing methods based on the typical size of their design repeat, from smallest to largest. The size of the repeat is determined by the physical constraints of the equipment used in each process.

Step 2: Detailed Explanation:

Let's analyze the repeat size limitations for each method:

A. Block Printing: This is a manual method using hand-carved wooden blocks. The repeat size is limited by the size of the block that can be practically handled and carved. This results in the **smallest** repeat size.

D. Roller Printing: This method uses engraved copper rollers. The repeat size is limited by the circumference of the roller. For practical reasons of weight and cost, these rollers are typically small in diameter, leading to a relatively small repeat size, though generally larger than a hand block.

C. Rotary Screen Printing: This method uses seamless, perforated cylindrical screens. The repeat size is limited by the circumference of the rotary screen. These screens are larger in circumference than engraved rollers, allowing for a **medium to large** repeat size.

B. Screen Printing (Flatbed): In this method, a flat screen is used to print on fabric laid out on a long table. The repeat size is limited by the dimensions of the screen frame. Flatbed screens can be made very large, especially in length, allowing for the **largest** possible repeat size among these options.

Step 3: Final Answer:

Arranging the processes in ascending order of their design repeat size (from small to big) gives the following sequence:

Block (A) < Roller (D) < Rotary (C) < Screen (B).

This corresponds to the sequence A, D, C, B, which is option (B).

💡 Quick Tip

To remember the order of repeat size, visualize the equipment: a small hand Block, a slightly larger metal Roller, a bigger cylindrical Rotary screen, and a very large flatbed Screen.

47. Rank the below-mentioned fibers as per their drapability property from high to low.

- A. Cotton
- B. Flax
- C. Wool
- D. Silk

Choose the correct answer from the options given below:

- (A) A, B, C, D
- (B) D, C, A, B
- (C) B, A, D, C
- (D) C, B, D, A

Correct Answer: (B) D, C, A, B

Solution:

Step 1: Understanding the Concept:

Drapability is the ability of a fabric to hang in graceful folds under its own weight. This property is influenced by the fiber's fineness, flexibility (low stiffness), and density. The question asks to rank the given fibers from highest drapability (most fluid) to lowest drapability (most stiff).

Step 2: Detailed Explanation:

Let's evaluate the drapability of each fiber:

D. Silk: Silk is a long, smooth, very fine filament fiber. It is highly flexible and has a relatively high density, which gives it excellent, fluid drape. It has the **highest drapability**.

C. Wool: Wool is a protein fiber with natural crimp and elasticity. It is more flexible than cotton or flax, allowing it to drape well, although not as fluidly as silk. It has **good drapability**.

A. Cotton: Cotton is a staple cellulosic fiber. It is less flexible than wool and has a moderate stiffness, resulting in **fair to moderate drapability**.

B. Flax (Linen): Flax is a bast cellulosic fiber known for its stiffness and crispness. Fabric made from flax (linen) has poor drape and tends to wrinkle rather than hang in soft folds. It has the **lowest drapability**.

Step 3: Final Answer:

Arranging the fibers in descending order of drapability (from high to low) gives the sequence: Silk (D) > Wool (C) > Cotton (A) > Flax (B).

This corresponds to the sequence D, C, A, B, which is option (B).

 Quick Tip

For drapability, think about the fiber's nature. Long, fine filaments (Silk) drape best. Stiff, rigid fibers (Flax/Linen) drape worst. Wool and Cotton fall in between, with wool generally being more pliable than cotton.

48. Match the LIST-I with LIST-II

LIST-I (Textile Fiber Type)		LIST-II (Preferred Dyes)	
A.	Cellulosics	I.	Basic Dyes
B.	Protein	II.	Disperse Dyes
C.	Acrylic	III.	Sulphur Dyes
D.	Polyester	IV.	Reactive Dyes

Choose the correct answer from the options given below:

- (A) A-I, B-II, C-III, D - IV
 (B) A-I, B - III, C-II, D - IV
 (C) A-I, B-II, C-IV, D - III
 (D) A-III, B - IV, C-I, D - II

Correct Answer: (D) A-III, B - IV, C-I, D - II

Solution:

Step 1: Understanding the Concept:

This question tests the knowledge of dye-fiber affinity, which is based on the chemical structure of both the fiber and the dye. Each class of dye works best with a specific class of fiber.

Step 2: Detailed Explanation:

Let's find the most specific and correct pairings:

C. Acrylic: Acrylic fibers have a unique chemical structure that makes them highly receptive to **I. Basic (Cationic) Dyes**. This is the primary dye class for acrylics. **Match: C → I**

D. Polyester: Polyester is a hydrophobic synthetic fiber with a compact structure. It can only be dyed effectively with **II. Disperse Dyes**, which are small, non-ionic molecules that can diffuse into the fiber at high temperatures. **Match: D → II**

Now we have C-I and D-II. Let's check the options. Only option (D) contains both of these matches. We can verify the remaining pairs in option (D):

A. Cellulosics (e.g., cotton): These fibers are commonly dyed with various classes, including **III. Sulphur Dyes**, which are cost-effective for dark shades like black and navy. This is a valid pairing. **Match: A → III**

B. Protein (e.g., wool): While primarily dyed with acid dyes, protein fibers can also be dyed with certain types of **IV. Reactive Dyes** that are specially designed to form covalent bonds with the amino groups in the fiber. This is also a valid pairing. **Match: B → IV**

Step 3: Final Answer:

The complete set of correct matches is A-III, B-IV, C-I, D-II. This corresponds to option (D).

 Quick Tip

In dye-fiber matching questions, start with the most unique pairs. Polyester is almost exclusively dyed with Disperse dyes, and Acrylic is primarily dyed with Basic (Cationic) dyes. Finding these two pairs can often solve the question immediately.

49. Which of the below-mentioned processes are the dye fixing method after printing of a fabric.

- A. Baking
- B. Pad-batch method
- C. Reduction
- D. Ageing

Choose the correct answer from the options given below:

- (A) A, B and D only
- (B) A, B and C only
- (C) A, B, C and D
- (D) B, C and D only

Correct Answer: (A) A, B and D only

Solution:

Step 1: Understanding the Concept:

After a dye is printed onto a fabric, it must be "fixed" to ensure it bonds with the fiber and becomes permanent. This fixation step typically involves energy (heat, steam) and/or chemicals. The question asks to identify which of the listed processes are used for this purpose.

Step 2: Detailed Explanation:

A. Baking: This involves treating the printed fabric with hot air in an oven-like chamber (a baker). It is a dry-heat fixation method used for pigment prints (curing the binder) and some disperse dyes on polyester. This is a fixing method.

B. Pad-batch method: This is primarily a dyeing method, but the principle is used in printing. For reactive dyes, the printed fabric can be "batched" (rolled up and covered in plastic) and left to dwell at room temperature for several hours. During this time, the dye reacts with the fiber and becomes fixed. This is a cold fixation method.

C. Reduction: This is a chemical process used to make vat and sulphur dyes soluble *before* they are applied. The fixation of these dyes after printing involves an oxidation step, not reduction. Therefore, reduction is a preparation step, not a post-printing fixing method.

D. Ageing: This is a very common fixation method where the printed fabric is exposed to steam (either at atmospheric pressure or high pressure). The steam provides both the heat and

moisture necessary for the dye to diffuse into and react with the fibers. This is a fixing method.

Step 3: Final Answer:

Baking, the principle of batching, and Ageing are all methods used to fix dye after printing. Reduction is not. Therefore, the correct options are A, B, and D only. This corresponds to option (A).

 Quick Tip

Remember fixation is about making the dye permanent *after* it's on the fabric. Common methods involve heat (Baking), steam (Ageing), or chemical reaction over time (Batching). Processes that prepare the dye before application (like Reduction for vat dyes) are not fixation steps.

50. The styles mentioned below fall under the resist style of printing in textiles.

- A. Batik
- B. Tie and Dye
- C. Dabu
- D. Digital

Choose the correct answer from the options given below:

- (A) A, B and D only
- (B) A, B and C only
- (C) A, B, C and D
- (D) B, C and D only

Correct Answer: (B) A, B and C only

Solution:

Step 1: Understanding the Concept:

Resist dyeing or printing is a traditional method of creating patterns by applying a substance (a 'resist') that prevents dye from reaching certain areas of the fabric. The question asks to identify which of the given techniques are resist styles.

Step 2: Detailed Explanation:

A. Batik: This is a classic resist technique where molten wax is applied to the fabric. The fabric is then dyed, and the wax resists the dye. The wax is later removed to reveal the pattern.

B. Tie and Dye (Bandhani): In this method, parts of the fabric are tightly tied with thread, pleated, or folded. The pressure from the ties acts as a mechanical resist, preventing the dye from penetrating the tied areas.

C. Dabu: This is a traditional Indian resist printing technique that uses a paste made of mud, lime, and gum. This mud paste is block-printed onto the fabric and acts as a resist during dyeing.

D. Digital Printing: This is a modern, direct method of printing. It works like an inkjet printer, applying color directly onto the fabric surface from a digital file. It does not use any resist substance or method.

Step 3: Final Answer:

Batik, Tie and Dye, and Dabu are all examples of resist techniques. Digital printing is a direct printing method. Therefore, the correct options are A, B, and C only. This corresponds to option (B).

 Quick Tip

A technique is a 'resist' style if something is applied to the fabric to block the dye. This can be a substance like wax (Batik) or mud (Dabu), or a physical barrier like thread (Tie and Dye).

51. If there are 72 dents per 2 inches in a reed and 2 ends/yarn are drawn from each dent, what will be ends/yarn per inch of the fabric?

- (A) 36
- (B) 72
- (C) 18
- (D) 12

Correct Answer: (B) 72

Solution:

Step 1: Understanding the Concept:

The question asks to calculate the warp density of a fabric, known as Ends Per Inch (EPI). EPI is determined by the reed count (how many dents are in one inch) and the number of warp yarns (ends) drawn through each dent.

Step 2: Key Formula or Approach:

The formula for EPI is:

$$\text{Ends Per Inch (EPI)} = \text{Dents Per Inch} \times \text{Ends Per Dent}$$

Step 3: Detailed Explanation:**Given Data:**

Reed density = 72 dents per 2 inches

Ends per dent = 2

Step 3a: Calculate Dents Per Inch

First, we need to convert the given reed density into dents per inch.

$$\text{Dents Per Inch} = \frac{72 \text{ dents}}{2 \text{ inches}} = 36 \text{ dents per inch}$$

Step 3b: Calculate Ends Per Inch (EPI)

Now, we can use the EPI formula with the calculated dents per inch.

$$\text{EPI} = 36 \text{ dents per inch} \times 2 \text{ ends per dent}$$

$$\text{EPI} = 72 \text{ ends per inch}$$

Step 4: Final Answer:

The fabric will have 72 ends/yarn per inch. Therefore, option (B) is the correct answer.

💡 Quick Tip

Be careful with the units in reed count questions. Always convert the given reed density to a "per inch" basis before multiplying by the number of ends per dent.

52. _____ is used to test the wash fastness of dyes in textile materials.

- (A) Crock meter
- (B) Xenon Arc lamp
- (C) Launderometer
- (D) Spirometer

Correct Answer: (C) Launderometer

Solution:**Step 1: Understanding the Concept:**

The question asks to identify the specific laboratory instrument used to test the color fastness of a textile to washing. Color fastness tests evaluate how well a color resists fading or transferring during various conditions like washing, rubbing, or exposure to light.

Step 2: Detailed Explanation:

Let's examine the purpose of each instrument:

Crock meter: This device is used to test color fastness to rubbing (crocking). It rubs a standard white cloth against the colored sample under controlled pressure and measures how much

color transfers.

Xenon Arc lamp: This is the light source within a light fastness tester (like a Weather-Ometer). It simulates the full spectrum of sunlight to test how much a color fades upon exposure to light.

Launderometer: This is the standard laboratory machine specifically designed to test wash fastness. It consists of a heated water bath with a rotating rack that holds sealed stainless steel containers. Inside each container, the fabric sample, a standard multi-fiber strip, steel balls (for abrasion), and a detergent solution are placed. The machine then tumbles the containers for a set time and temperature to simulate a specific number of home launderings in an accelerated and reproducible manner.

Spirometer: This is a medical instrument used for measuring air capacity in the lungs and is completely unrelated to textiles.

Step 3: Final Answer:

The Launderometer is the standard instrument for testing wash fastness. Therefore, option (C) is correct.

💡 Quick Tip

Associate the testing equipment with the type of fastness: **Launderometer** = **Laundry** (Washing). **Crockmeter** = **Crocking** (Rubbing). **Xenon lamp** = **Sunlight** (Light fastness).

53. Jig dyeing, Beam Dyeing, Winch Dyeing, Pad Dyeing and Jet Dyeing are all examples of dyeing at the fabric stage.

- (A) Fiber/ Stock
- (B) Piece
- (C) Garment
- (D) Yarn

Correct Answer: (B) Piece

Solution:

Step 1: Understanding the Concept:

Dyeing can be done at various stages of textile manufacturing. The question lists several dyeing methods and asks to identify the stage at which they are performed.

Step 2: Detailed Explanation:

The main stages of dyeing are:

Fiber/Stock Dyeing: Dyeing loose fibers before they are spun into yarn.

Yarn Dyeing: Dyeing yarns after spinning but before they are woven or knitted.

Piece Dyeing: Dyeing fabric after it has been constructed (woven or knitted). This is the most common method for solid-colored fabrics.

Garment Dyeing: Dyeing finished garments (like T-shirts or sweaters).

Let's look at the methods listed:

Jig, Beam, Winch, Pad, and Jet Dyeing are all industrial methods designed to handle long lengths of fabric. They process the material after it has been woven or knitted. For example, in winch dyeing, a continuous rope of fabric is circulated through the dyebath. In beam dyeing, fabric is wound onto a perforated beam through which dye is forced. All these are methods for dyeing fabric in "piece" form. The technical term for this stage is **piece dyeing**.

Step 3: Final Answer:

The listed dyeing methods are all used to dye fabric, which is known as piece dyeing. Therefore, option (B) is the correct term for this stage.

 Quick Tip

Remember the progression: Fiber → Yarn → Piece (Fabric) → Garment. The machines listed (Jig, Jet, Winch) are designed to handle large rolls or ropes of fabric, placing them squarely in the "Piece" dyeing category.

54. Wool blend mark signifies that at least _____ % of virgin wool fibers have been blended with only one other fiber.

- (A) 0
- (B) 10
- (C) 20
- (D) 60

Correct Answer: (D) 60

Solution:

Step 1: Understanding the Concept:

This question pertains to the standards set by The Woolmark Company for its certification trademarks. These marks assure consumers of the fiber content and quality. The "Wool Blend" mark has specific minimum requirements for wool content.

Step 2: Detailed Explanation:

The Woolmark Company has several certification marks:

Woolmark: Signifies 100% pure new wool.

Woolmark Blend: Requires the product to contain at least 50% new wool.

Wool Blend: A performance mark for products containing 30-49.9% new wool.

The options provided in the question (0, 10, 20, 60) do not perfectly align with the current primary standards (50% and 30%). However, historically and in certain contexts, a 60/40 wool blend has been a common and significant standard for quality blended products. Given the choices, 60% is the most plausible intended answer, likely referring to a specific or historical standard for a high-quality wool blend that could carry a recognized mark. The other options (0, 10, 20) are too low for a quality certification signifying a "wool" blend.

Step 3: Final Answer:

Based on the provided options, the most logical answer representing a significant wool blend composition is 60%. Therefore, option (D) is the correct choice in this context.

💡 Quick Tip

While the main Woolmark Blend standard is 50% wool, be aware that other standards exist. In a multiple-choice question, if the exact number you know isn't an option, choose the one that makes the most sense in the context of a quality standard.

55. Match the LIST-I with LIST-II

LIST-I (Type of Selvage)		LIST-II (Details of Selvage)	
A.	Tape	I.	When the loom is weaving a fabric that will later be cut in half lengthwise into two separate materials.
B.	Fused	II.	Same as warp yarns and weave as the fabric body, but with increased warp yarns per inch.
C.	Center or Split	III.	Can only be used when the fabric has a high percent of thermoplastic fibers.
D.	Plain	IV.	Same as warp yarns and weave as the fabric body, the warp yarns are heavier and weave is either basket or rib weave.

Choose the correct answer from the options given below:

- (A) A-I, B-II, C - III, D - IV
- (B) A-I, B - III, C-II, D - IV
- (C) A-III, B-II, C-I, D - IV
- (D) A-IV, B-III, C-I, D - II

Correct Answer: (D) A-IV, B-III, C-I, D - II

Solution:

Step 1: Understanding the Concept:

This question requires matching different types of selvages (the self-finished edges of a fabric) with their correct descriptions or method of construction.

Step 2: Detailed Explanation:

Let's find the correct match for each selva type:

A. Tape Selva: These are strong, wide selvages created using heavier yarns and/or a different weave structure like a rib or basket weave to provide extra strength and dimensional stability. This is common in upholstery fabrics. **Match: A → IV**

B. Fused Selva: This type of selva is not woven but is created by cutting the fabric with a hot knife. This method only works on fabrics made from thermoplastic fibers (like polyester or nylon), which melt and seal the edge to prevent fraying. **Match: B → III**

C. Center or Split Selva: This is a technique where a loom weaves a very wide piece of fabric with a special reinforced (often leno) weave down the middle. This allows the fabric to be cut in half lengthwise to produce two narrower pieces, each with a finished edge. **Match: C → I**

D. Plain Selva: This is the most common type of selva. It uses the same yarns and weave as the main body of the fabric. To make it stronger and prevent tearing, the warp yarns are simply packed more densely (more ends per inch) than in the fabric body. **Match: D → II**

Step 3: Final Answer:

The correct set of matches is A-IV, B-III, C-I, D-II. This corresponds to option (D).

💡 Quick Tip

When matching selva types, look for keywords: "thermoplastic" points to Fused; "cut in half" points to Center/Split; "heavier yarns/basket weave" points to Tape; and "increased warp yarns" points to a Plain selva.

56. To the fiber add 85% formic acid at room temperature. Then the fiber dissolves. Identify the fiber.

- (A) Acrylic
- (B) Wool
- (C) Silk
- (D) Polyester

Correct Answer: (A) Acrylic

Solution:

Step 1: Understanding the Concept:

This question describes a chemical test for fiber identification. Different fibers have unique solubilities in specific chemical reagents, which allows for their identification. The key test described is solubility in 85% formic acid.

Step 2: Detailed Explanation:

The standard fiber that is identified by its solubility in 85% formic acid is Nylon. However, Nylon is not listed as an option. We must therefore evaluate the solubility of the given options.

Wool and Silk: These are protein fibers. They are not soluble in formic acid but are dissolved by strong alkaline solutions like sodium hypochlorite.

Polyester: This fiber is very chemically resistant. It is not soluble in formic acid. It requires stronger solvents like hot meta-cresol.

Acrylic: While the primary solvents for acrylic are Dimethylformamide (DMF) or acetone, some types of acrylic fibers and modacrylics can be soluble in formic acid.

Given that Wool, Silk, and Polyester are definitely not soluble in 85% formic acid, by a process of elimination, Acrylic is the only possible answer among the choices. The question is likely flawed as this is the standard test for Nylon, but within the confines of the provided options, Acrylic is the intended correct answer.

Step 3: Final Answer:

By eliminating the other fibers which are insoluble in formic acid, the fiber that dissolves must be Acrylic. Therefore, option (A) is the correct answer.

Quick Tip

Memorize the key solvent for each major fiber: Acetone dissolves Acetate; formic acid dissolves Nylon; DMF dissolves Acrylic; M-cresol dissolves Polyester; bleach dissolves Wool/Silk. If the standard fiber isn't an option, use elimination to find the most plausible choice.

57. Which among the below mentioned fibers is not a regenerated fiber?

- (A) Rayon
- (B) Nylon
- (C) Acetate
- (D) Lyocell

Correct Answer: (B) Nylon

Solution:

Step 1: Understanding the Concept:

Manufactured fibers are broadly classified into two categories: regenerated and synthetic. **Regenerated fibers** are produced from naturally occurring polymers, such as cellulose from wood pulp or cotton linters. **Synthetic fibers** are synthesized from chemical compounds, typically derived from petroleum or natural gas.

Step 2: Detailed Explanation:

Let's classify each of the fibers listed:

Rayon: This is a classic regenerated fiber, manufactured from purified cellulose (usually from wood pulp).

Nylon: This is a synthetic fiber. It is a polyamide, created through a chemical process called polymerization using monomers derived from crude oil. It does not start with a naturally occurring polymer.

Acetate: This is a type of regenerated fiber, specifically a derivative fiber. It is made by reacting cellulose with acetic acid and acetic anhydride to form cellulose acetate.

Lyocell: This is a sub-class of rayon. It is a regenerated cellulose fiber made using a more environmentally friendly solvent-spinning process.

Step 3: Final Answer:

Rayon, Acetate, and Lyocell are all derived from natural cellulose. Nylon is a purely synthetic polymer. Therefore, Nylon is not a regenerated fiber. Option (B) is the correct answer.

💡 Quick Tip

Remember the key distinction: Regenerated = Starts with a natural polymer (like wood pulp). Synthetic = Starts with simple chemical building blocks (like from oil). The main synthetics are Nylon, Polyester, and Acrylic.

58. Glauber's salt ($\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$) is used as a _____ agent with acid dyes.

- (A) Oxidising
- (B) Adding
- (C) Subtracting
- (D) Levelling

Correct Answer: (D) Levelling

Solution:

Step 1: Understanding the Concept:

This question asks about the function of Glauber's salt (sodium sulfate) when used as a chemical auxiliary in the acid dyeing process, typically for wool, silk, or nylon.

Step 2: Detailed Explanation:

In acid dyeing, the dye molecules are anions (negatively charged) and are attracted to the protonated amino groups (positively charged sites) on the fiber. This attraction can be very strong, causing the dye to rush onto the fiber too quickly and result in an uneven, or unlevel, dyeing.

Glauber's salt is an electrolyte that dissociates in water to form sodium ions (Na^+) and sulfate ions (SO_4^{2-}). The colorless sulfate anions are also negatively charged and have an affinity for the positive sites on the fiber. They compete with the dye anions for these sites.

This competition slows down the rate at which the dye is absorbed by the fiber. By acting as a retarding agent, the salt ensures that the dye goes on more slowly and evenly, migrating to produce a uniform color. This function is known as **levelling**.

Step 3: Final Answer:

With acid dyes, Glauber's salt acts as a levelling agent to promote uniform dyeing. Therefore, option (D) is correct.

💡 Quick Tip

The role of salt depends on the dye class. With Direct dyes on cotton, salt acts as an exhausting agent (pushing dye onto the fiber). With Acid dyes on wool/nylon, salt acts as a levelling agent (slowing the dye down).

59. Ikats of Orissa, Patan Patolas of Gujarat and Pochampally of Telangana are examples of ----- dyeing technique.

- (A) Resist
- (B) Garment
- (C) Stock
- (D) Piece

Correct Answer: (A) Resist

Solution:

Step 1: Understanding the Concept:

The question asks to classify the Ikat technique based on how the pattern is created. Ikat is a highly skilled and complex method of creating patterned textiles.

Step 2: Detailed Explanation:

The fundamental principle of Ikat (practiced in Orissa, Gujarat, Telangana, and other parts of the world) is to create a pattern by dyeing the yarns **before** they are woven into fabric.

This is done by tightly wrapping bundles of yarn with a dye-resistant material (like wax threads or plastic strips) in a predetermined pattern. When the yarn bundle is submerged in the dye

bath, the wrapped sections **resist** the dye. This process can be repeated with different colors. After dyeing, the wraps are removed, and the yarns, now patterned with color, are carefully aligned on the loom to be woven into fabric.

Because the pattern is created by preventing dye from reaching certain parts of the yarn, Ikat is a classic example of a **resist dyeing** technique. It is specifically a yarn-resist method.

Step 3: Final Answer:

The Ikat technique is a form of resist dyeing. Therefore, option (A) is the correct answer.

💡 Quick Tip

Remember that Ikat is a "yarn-resist" technique. The pattern exists on the yarns before the cloth is even made. This differentiates it from fabric-resist methods like Batik or post-weaving printing.

60. The general composition of printing paste has

- A. Dyestuff
- B. Thickener
- C. Hygroscopic Agent
- D. Auxiliary Chemical

Choose the correct answer from the options given below:

- (A) A, B and C only
- (B) A, B and D only
- (C) A, B, C and D
- (D) B, C and D only

Correct Answer: (C) A, B, C and D

Solution:

Step 1: Understanding the Concept:

A textile printing paste is a complex chemical formulation designed to transfer color to a fabric in a defined pattern. The question asks for the essential components of a typical printing paste.

Step 2: Detailed Explanation:

A standard printing paste is composed of several key ingredients, each with a specific function:

A. Dyestuff (or Pigment): This is the colorant itself. It is the most fundamental component that provides the color.

B. Thickener: This is a high-viscosity substance (like a natural gum or synthetic polymer) that gives the paste its thick consistency. This is crucial to prevent the color from spreading beyond the pattern boundaries (wicking) and to hold the dye on the surface of the fabric before fixation.

C. Hygroscopic Agent: This is a chemical, such as urea or glycerine, that attracts and holds

moisture. In steam fixation (ageing), it helps keep the print area moist, which is necessary for the dye to dissolve and diffuse into the fiber.

D. Auxiliary Chemical: This is a broad category for other essential chemicals that vary depending on the dye system. This can include wetting agents (to help the paste spread evenly), pH buffers like acids or alkalis (to ensure the correct conditions for dye fixation), dispersing agents, antifoaming agents, and more.

Since all these components are crucial for a functional and effective printing paste, all four options are correct parts of its general composition.

Step 3: Final Answer:

The general composition of printing paste includes Dyestuff, Thickener, Hygroscopic Agent, and various other Auxiliary Chemicals. Therefore, option (C) which includes A, B, C, and D, is the correct answer.

💡 Quick Tip

Think of a printing paste like a recipe for paint. You need the **Color** (Dyestuff), something to make it thick and not runny (**Thickener**), something to keep it "workable" during fixing (**Hygroscopic Agent**), and other special ingredients for the specific job (**Auxiliaries**).

61. Match the LIST-I with LIST-II

LIST-I (Traditional Indian Embroideries)		LIST-II (States to which it belongs/practised)	
A.	Kashida	I.	Bihar
B.	Kasuti	II.	Karnataka
C.	Sujani	III.	Andhra Pradesh
D.	Lambadi	IV.	Jammu and Kashmir

Choose the correct answer from the options given below:

- (A) A-I, B-II, C - III, D - IV
- (B) A-I, B-IV, C-III, D - II
- (C) A-III, B-II, C-IV, D-I
- (D) A-IV, B-II, C-I, D-III

Correct Answer: (D) A-IV, B-II, C-I, D-III

Solution:

Step 1: Understanding the Concept:

This question requires matching traditional Indian embroidery styles with their respective states

of origin. This is a test of knowledge in the area of Indian crafts and textiles.

Step 2: Detailed Explanation:

Let's match each embroidery from List-I to its state in List-II:

A. Kashida: This is a very popular and intricate style of needlework from **IV. Jammu and Kashmir**. It is known for its beautiful floral and natural motifs, often done in a single stitch. **Match: A → IV**

B. Kasuti: This is a traditional form of folk embroidery practiced in the state of **II. Karnataka**. It is characterized by geometric patterns and motifs from mythology and daily life, stitched without knots so that both sides of the fabric look the same. **Match: B → II**

C. Sujani: This is a form of quilting and embroidery from **I. Bihar**. Traditionally, old saris and dhotis were stitched together to make a soft quilt, which was then embroidered with narrative scenes using a simple running stitch. **Match: C → I**

D. Lambadi: This is a vibrant and bold style of embroidery done by the Lambadi or Banjara tribal community. It is characterized by the use of mirrors, shells, coins, and colorful threads. This craft is practiced in several states, including prominently in **III. Andhra Pradesh** (and Telangana). **Match: D → III**

Step 3: Final Answer:

The correct set of matches is A-IV, B-II, C-I, and D-III. This corresponds to option (D).

 Quick Tip

When matching Indian crafts, focus on the most famous pairings first. Kashida from Kashmir and Kasuti from Karnataka are very well-known. Identifying these two correctly (A-IV, B-II) immediately points to option (D) as the only possible answer.

62. The embroidery style defined by using of mirror work along with embroidery stitches to create designs on fabrics by tribal community of Gujarat is called as _____.

- (A) Moti Bharat
- (B) Abhla Bharat
- (C) Kachcho Bharat
- (D) Soof Bharat

Correct Answer: (B) Abhla Bharat

Solution:

Step 1: Understanding the Concept:

The question asks for the specific name of a Gujarati embroidery style characterized by the use

of mirrors. The term 'Bharat' in Gujarati refers to embroidery.

Step 2: Detailed Explanation:

Let's analyze the given styles of Gujarati embroidery:

Moti Bharat: This style uses 'Moti' or beads to create patterns.

Abhla Bharat: 'Abhla' is the Gujarati word for a small, round mirror. Therefore, **Abhla Bharat** is the name for the famous mirror-work embroidery from the Kutch and Saurashtra regions of Gujarat. The mirrors are typically secured to the fabric using a buttonhole stitch.

Kachcho Bharat and Soof Bharat: These are styles of embroidery from the Kutch region. 'Kachcho' is a style that uses herringbone stitch, while 'Soof' is a meticulous counted-thread embroidery that creates geometric patterns, worked from the back of the fabric without a pre-drawn design. Neither is primarily defined by mirror work.

Step 3: Final Answer:

The embroidery style that uses mirror work is called Abhla Bharat. Therefore, option (B) is the correct answer.

💡 Quick Tip

Learn the Gujarati terms for embroidery components: 'Abhla' = Mirror, 'Moti' = Bead. This makes it easy to identify the correct style. Abhla Bharat is the quintessential mirror work of Gujarat.

63. Match the LIST-I with LIST-II

LIST-I (Indian names in Traditional Textiles)		LIST-II (Details of the Traditional Textile)	
A.	Dabka	I.	Elephant pattern (Gujarati term)
B.	Gabbas	II.	Inferior quality patchworked floor coverings
C.	Gyasar	III.	Zig zag coiled thin wire usually in silver and gold
D.	Kunjar	IV.	Satin woven brocade for Buddhist monasteries

Choose the correct answer from the options given below:

- (A) A-I, B-II, C-III, D - IV
- (B) A-III, B-II, C-IV, D - I
- (C) A-I, B-II, C-IV, D - III
- (D) A-III, B-IV, C-I, D - II

Correct Answer: (B) A-III, B-II, C-IV, D - I

Solution:

Step 1: Understanding the Concept:

This question requires matching specific terms from traditional Indian textiles with their cor-

rect definitions or descriptions.

Step 2: Detailed Explanation:

Let's match each term from List-I to its description in List-II:

A. Dabka: This is a type of material used in intricate Zardozi embroidery. It is a fine, **III. zig-zag coiled thin wire** made of silver or gold-plated metal that is stitched onto fabric to create delicate patterns. **Match: A → III**

B. Gabbas: This is a traditional craft from Kashmir. It involves creating floor coverings and wall hangings by appliqueing and embroidering pieces of old woolen blankets. They are essentially **II. inferior quality patchworked floor coverings**. **Match: B → II**

C. Gyasar: This is a rich, heavy brocade fabric woven with a satin ground, traditionally from Varanasi. It is specifically produced for the Tibetan market and used for ceremonial robes and furnishings in **IV. Buddhist monasteries**. **Match: C → IV**

D. Kunjar: This is the Gujarati term for an **I. elephant pattern or motif**, which is a very common and auspicious design in Gujarati textiles, including embroideries and woven fabrics. **Match: D → I**

Step 3: Final Answer:

The correct set of matches is A-III, B-II, C-IV, and D-I. This corresponds to option (B).

💡 Quick Tip

In terminology matching, focus on the unique items. "Dabka" is very specifically the coiled wire for Zardozi. "Gyasar" is strongly associated with Tibetan Buddhist textiles. Identifying these can quickly narrow your choices.

64. The full form of GI tag given to a craft of specific region is _____.

- (A) Geographical Index
- (B) Geography Index
- (C) Geographical Indicator
- (D) Geography Indicator

Correct Answer: (C) Geographical Indicator

Solution:

Step 1: Understanding the Concept:

This question asks for the correct full form of the acronym 'GI' as used in 'GI tag'. This is a standard term in intellectual property rights related to products from specific regions.

Step 2: Detailed Explanation:

A **Geographical Indication** (GI) is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin. The GI tag is a form of intellectual property right that gives the holders the right to prevent its use by a third party whose product does not conform to the applicable standards. For example, 'Darjeeling Tea' or 'Kanchipuram Silk' are products with GI tags.

The term is "Geographical Indicator," not Index. "Geography" is also the incorrect word in this formal title.

Step 3: Final Answer:

The full form of GI is Geographical Indicator. Therefore, option (C) is the correct answer.

💡 Quick Tip

Remember that the GI tag **indicates** the geographical origin of a product. This helps in remembering the correct term is "Geographical Indicator."

65. Woven carpets in India are majorly produced in

- A. Jaipur
- B. Mirzapur
- C. Assam
- D. Bhadoi

Choose the correct answer from the options given below:

- (A) A, B and D only
- (B) A, B and C only
- (C) A, B, C and D
- (D) B, C and D only

Correct Answer: (A) A, B and D only

Solution:

Step 1: Understanding the Concept:

This question asks to identify the major centers for woven carpet production in India. India has a long and rich history of carpet weaving, with several distinct regional hubs.

Step 2: Detailed Explanation:

Let's analyze the listed locations:

A. Jaipur: Located in Rajasthan, Jaipur is a major center for high-quality hand-knotted carpets, known for their fine craftsmanship and intricate designs.

B. Mirzapur and D. Bhadoi: These are two towns in Uttar Pradesh that are very close to each other. This Mirzapur-Bhadoi belt is the largest hand-knotted carpet weaving cluster in

South Asia and is known as the "Carpet City" of India. It is a massive production hub.

C. Assam: While Assam has a rich tradition of handloom weaving, particularly in silk (Muga, Eri) and cotton textiles (Gamosa), it is not a major center for the production of hand-knotted wool or silk carpets in the same way as the other locations. Its weaving traditions are focused on different types of textiles.

Step 3: Final Answer:

Jaipur, Mirzapur, and Bhadoi are all major and famous centers for woven carpet production in India. Assam is not. Therefore, the correct answer includes A, B, and D only. This corresponds to option (A).

 Quick Tip

When thinking of Indian carpets, the "Mirzapur-Bhadoi belt" in Uttar Pradesh should immediately come to mind as the largest hub. Rajasthan (Jaipur) and Kashmir are other key areas.

66. The major textile powerloom centres in India are

- A. Surat
- B. Ahmedabad
- C. Bhilwara
- D. Kashmir

Choose the correct answer from the options given below:

- (A) A, B and D only
- (B) A, B and C only
- (C) A, C and D
- (D) B, C and D only

Correct Answer: (B) A, B and C only

Solution:

Step 1: Understanding the Concept:

The question asks to identify the major centers for the powerloom industry in India. The powerloom sector is a significant part of the Indian textile industry, producing a large volume of fabric.

Step 2: Detailed Explanation:

Let's analyze the listed locations:

A. Surat: Located in Gujarat, Surat is a massive textile hub, particularly famous for its powerloom sector that produces synthetic fabrics (polyester). It is often called the "Silk City" or "Textile City" of India.

B. Ahmedabad: Also in Gujarat, Ahmedabad has a long history as a textile mill center ("Manchester of India") and continues to be a major player in both mill and powerloom sectors, especially for cotton textiles.

C. Bhilwara: Located in Rajasthan, Bhilwara is a major textile city, known as the "Textile City of Rajasthan." It has a huge concentration of powerlooms and is particularly famous for producing synthetic suiting fabrics.

D. Kashmir: The textile industry in Kashmir is world-famous for its high-quality handloom products, such as Pashmina shawls and hand-knotted carpets. While it has some powerlooms, it is not considered a major powerloom center in the same league as Surat, Ahmedabad, or Bhilwara. Its strength lies in handcrafted luxury textiles.

Step 3: Final Answer:

Surat, Ahmedabad, and Bhilwara are all major powerloom centers in India. Kashmir is primarily a handloom center. Therefore, the correct answer includes A, B, and C only. This corresponds to option (B).

💡 Quick Tip

For Indian textile centers, differentiate between handloom and powerloom hubs. Kashmir = Handloom (Shawls, Carpets). Surat/Bhilwara = Powerloom (Synthetics). Ahmedabad = Mill/Powerloom (Cotton).

67. In triaxial weaving three sets of yarns (two warps and one weft) are woven at an angle of _____ degrees.

- (A) 0
- (B) 45
- (C) 60
- (D) 90

Correct Answer: (C) 60

Solution:

Step 1: Understanding the Concept:

The question is about triaxial weaving, a specialized weaving technique that differs from conventional biaxial weaving. Biaxial weaving uses two sets of yarns (warp and weft) at a 90-degree angle. Triaxial weaving uses three sets of yarns.

Step 2: Detailed Explanation:

In triaxial weaving, three sets of yarns are interlaced to create the fabric. Typically, this consists of two sets of warp yarns and one set of weft yarns. These three sets of yarns are oriented

at **60-degree** angles to each other. This creates a fabric structure with equilateral triangular interstices (openings).

This structure is highly stable in all directions (isotropic) and resistant to shear and tearing. It is used for advanced technical applications like aerospace components, inflatables, and composite reinforcements.

A 90-degree angle is characteristic of conventional biaxial weaving.

Step 3: Final Answer:

The three sets of yarns in triaxial weaving are interlaced at 60-degree angles. Therefore, option (C) is the correct answer.

 Quick Tip

Remember: **B**iaxial (2 yarn sets) = 90 degrees. **T**riaxial (3 yarn sets) = 60 degrees. The three 60-degree angles add up to 180 degrees, forming a stable structure.

68. _____ involves printing with a chemical substance which destroys the fiber in the pattern design print area. Thus, a hole/ gradation in the fabric is formed where the chemical contacts the fabric.

- (A) Burn-out print
- (B) Flock print
- (C) Warp print
- (D) Pigment print

Correct Answer: (A) Burn-out print

Solution:

Step 1: Understanding the Concept:

The question describes a specific printing technique where a chemical is used to destroy one type of fiber in a blended fabric, creating a pattern of sheer or open areas.

Step 2: Detailed Explanation:

Let's analyze the options:

Burn-out print (also known as Devoré): This technique is precisely what is described. It is performed on a blended fabric, typically one with a cellulosic fiber (like cotton or viscose) and a synthetic fiber (like polyester). A chemical paste (usually an acid) is printed onto the fabric, which, upon heating, destroys or "burns out" the cellulosic fiber, leaving the synthetic fiber intact. This creates a pattern of sheer or transparent areas where the cellulosic fiber has been removed.

Flock print: This involves printing an adhesive paste onto the fabric and then dusting it with short fibers (flock), which stick to the adhesive to create a raised, velvety texture.

Warp print: In this method, the warp yarns are printed before the fabric is woven. This results in a hazy, indistinct pattern.

Pigment print: This involves printing a paste containing a color pigment and a binder. The binder fixes the pigment to the surface of the fabric. It does not destroy the fiber.

Step 3: Final Answer:

The process of destroying a fiber with a chemical print to create a pattern is called Burn-out printing. Therefore, option (A) is correct.

 Quick Tip

The keyword "destroys the fiber" or "burns out" directly points to the Burn-out or Devoré printing technique.

69. The cost of production of a woven fabric depends on

- A. Type of yarn used
- B. Type of fiber used
- C. Type of dyeing used
- D. Thread Count of the fabric

Choose the correct answer from the options given below:

- (A) A, B and D only
- (B) A, C and D only
- (C) A, B, C and D
- (D) B, C and D only

Correct Answer: (C) A, B, C and D

Solution:

Step 1: Understanding the Concept:

This question asks to identify the key factors that contribute to the final cost of producing a woven fabric. The cost is a sum of raw materials, processing, and construction parameters.

Step 2: Detailed Explanation:

Let's evaluate each factor's impact on cost:

B. Type of fiber used: This is a primary cost driver. The raw material cost varies significantly between fibers. For example, silk is much more expensive than cotton, which is more expensive than polyester.

A. Type of yarn used: The cost of converting fiber to yarn depends on the process. A fine, combed cotton yarn is more expensive to produce than a coarse, carded yarn. A complex novelty yarn is more expensive than a simple single yarn. So, the yarn type is a major cost

factor.

D. Thread Count of the fabric: Thread count refers to the number of warp and weft yarns per square inch. A higher thread count means more yarn is used and the weaving process is slower and more complex, thus increasing the cost.

C. Type of dyeing used: The cost of coloration depends on the method. Dyeing loose fiber (stock dyeing) is generally more expensive than dyeing the finished fabric (piece dyeing). The type of dye used also affects the cost.

All four factors—fiber, yarn, dyeing method, and fabric construction (thread count)—are fundamental components that determine the final production cost of a fabric.

Step 3: Final Answer:

Since all four factors listed (Type of yarn, Type of fiber, Type of dyeing, and Thread Count) directly influence the cost of production, the correct option includes all of them. Therefore, option (C) is the correct answer.

💡 Quick Tip

To analyze fabric cost, think through the production chain: Fiber (raw material cost) → Yarn (spinning cost) → Fabric Construction (weaving cost, related to thread count) → Finishing (dyeing/printing cost). All these steps add to the final price.

70. Process of Viscose Rayon filament production:

- A. Ripening
- B. Ageing
- C. Shredding
- D. Xanthating

Choose the correct answer from the options given below:

- (A) A, B, C, D
- (B) C, B, D, A
- (C) B, A, D, C
- (D) C, A, D, B

Correct Answer: (B) C, B, D, A

Solution:

Step 1: Understanding the Concept:

This question asks for the correct sequence of key chemical and mechanical processing steps in the production of Viscose Rayon fiber. The process starts with cellulose and converts it into a

spinnable liquid (dope).

Step 2: Detailed Explanation:

The viscose process involves several distinct stages. Let's sequence the given steps:

1. **(Steeping and Pressing - not listed):** Cellulose sheets are steeped in caustic soda (NaOH).
2. **C. Shredding:** The pressed alkali cellulose sheets are mechanically shredded into fine crumbs to increase the surface area for the next reactions.
3. **B. Ageing:** The white crumbs of alkali cellulose are allowed to age under controlled conditions. During this time, the cellulose polymer chains are oxidatively depolymerized (shortened) to achieve the desired viscosity for the final spinning solution.
4. **D. Xanthating:** The aged crumbs are treated with carbon disulfide (CS₂) in a rotating churn. This reaction converts the alkali cellulose into cellulose xanthate, a yellow, crumbly solid.
5. **(Dissolving - not listed):** The cellulose xanthate is dissolved in a dilute caustic soda solution to form a viscous, honey-like liquid called viscose.
6. **A. Ripening:** The viscose solution is stored for a period to "ripen." During this stage, the xanthate groups redistribute and some are lost, bringing the solution to the optimal condition for spinning (extrusion).
7. **(Spinning - not listed):** The ripened viscose solution is extruded through a spinneret into an acid bath, where the cellulose is regenerated into filaments.

Step 3: Final Answer:

The correct chronological order of the given steps is: Shredding → Ageing → Xanthating → Ripening. This corresponds to the sequence C, B, D, A, which is option (B).

💡 Quick Tip

To remember the viscose process, think of it as "breaking down and rebuilding" cellulose. Shredding and Ageing break it down. Xanthating and Dissolving make it a liquid. Ripening prepares it for spinning, where it's rebuilt as a fiber.

71. Hound's tooth pattern is a common example of _____ design.

- (A) Double cloth weave
- (B) Extra weft
- (C) Extra warp
- (D) Colour and weave effect

Correct Answer: (D) Colour and weave effect

Solution:

Step 1: Understanding the Concept:

The question asks to classify the Hound's tooth pattern. This pattern is a classic textile design, and its appearance is created by a specific interaction between the color arrangement of the yarns and the weave structure.

Step 2: Detailed Explanation:

Hound's tooth is a duotone textile pattern characterized by broken checks or abstract four-pointed shapes. This distinct visual effect is not created by a complex weave structure like a double cloth or by adding extra threads. Instead, it is a prime example of a **colour and weave effect**.

It is typically produced using a simple 2/2 twill weave structure, but with a specific color order in both the warp and the weft, usually four dark threads alternating with four light threads (e.g., 4 black, 4 white). The interaction between this specific color sequence and the simple twill weave structure is what generates the characteristic jagged check pattern.

Step 3: Final Answer:

The Hound's tooth pattern is created by the interplay of color arrangement and weave structure, which is defined as a colour and weave effect. Therefore, option (D) is correct.

💡 Quick Tip

"Colour and weave effect" refers to patterns like checks, stripes, and houndstooth that are made using simple weaves (plain or twill) combined with specific color arrangements in warp and weft. The pattern comes from the color, not from a complex weave.

72. _____ is also called 'Green Gold'.

- (A) Silk
- (B) Bamboo
- (C) Coir
- (D) Cotton

Correct Answer: (B) Bamboo

Solution:

Step 1: Understanding the Concept:

This question asks to identify the material that is colloquially known by the nickname 'Green Gold'. This nickname reflects the material's economic importance, versatility, and sustainable, plant-based origin.

Step 2: Detailed Explanation:

The term 'Green Gold' is widely used to refer to **Bamboo**. This is due to several reasons:

1. **Economic Value:** Bamboo is a highly valuable resource in many parts of the world, used

for everything from construction and furniture to paper and textiles. It supports large rural economies.

2. **Rapid Growth:** Bamboo is one of the fastest-growing plants on Earth, making it a highly renewable resource.

3. **Environmental Benefits:** It releases a significant amount of oxygen into the atmosphere and is excellent for preventing soil erosion.

4. **Versatility:** Its wide range of applications makes it as valuable as a precious resource like gold, but it is 'green' because it is a plant.

While jute is sometimes called the 'Golden Fibre', the term 'Green Gold' is most strongly and commonly associated with bamboo.

Step 3: Final Answer:

Bamboo is often referred to as 'Green Gold' due to its economic and environmental significance. Therefore, option (B) is the correct answer.

💡 Quick Tip

Associate the nicknames with the fibers: Jute = Golden Fibre (due to its color and value). Bamboo = Green Gold (due to its value and renewable green nature).

73. Match the LIST-I with LIST-II

LIST-I (Colour Scheme)		LIST-II (Details of colours in the scheme)	
A.	Analogous	I.	Colours present directly opposite to one another on colour wheel
B.	Complimentary	II.	Colours present adjacent to one another on colour wheel
C.	Monochromatic	III.	Six evenly spaced colours
D.	Hexad	IV.	Colour mix with different values

Choose the correct answer from the options given below:

- (A) A-I, B-II, C - III, D - IV
- (B) A-I, B-II, C-IV, D - III
- (C) A-II, B-I, C-IV, D - III
- (D) A-III, B-IV, C-I, D - II

Correct Answer: (C) A-II, B-I, C-IV, D - III

Solution:

Step 1: Understanding the Concept:

This question requires matching standard color theory terms (color schemes) with their correct definitions based on the color wheel.

Step 2: Detailed Explanation:

Let's define each color scheme from List-I and find its match in List-II:

A. Analogous: An analogous color scheme uses colors that are next to each other on the color wheel. For example, yellow, yellow-green, and green. **Match: A → II (Colours present adjacent to one another on colour wheel)**

B. Complimentary (or Complementary): A complementary color scheme uses two colors that are directly opposite each other on the color wheel, such as red and green or blue and orange. **Match: B → I (Colours present directly opposite to one another on colour wheel)**

C. Monochromatic: This scheme uses variations in lightness and saturation (tints, tones, and shades) of a single color or hue. **Match: C → IV (Colour mix with different values)**

D. Hexad: A hexad color scheme uses **six** colors that are evenly spaced around the color wheel. This forms a hexagon on the wheel. **Match: D → III (Six evenly spaced colours)**

Step 3: Final Answer:

The correct set of matches is A-II, B-I, C-IV, and D-III. This corresponds to option (C).

💡 Quick Tip

Break down the terms: 'Mono' = one (Monochromatic). 'Complementary' = opposite. 'Analogous' = next to/neighbors. 'Hexa' = six (Hexad).

74. _____ is basically a 3-Dimensional object having volume and thickness.

- (A) Form
- (B) Shape
- (C) Line
- (D) Point

Correct Answer: (A) Form

Solution:

Step 1: Understanding the Concept:

This question asks to identify the correct element of design that is defined as being three-dimensional (3D), possessing height, width, and depth (volume and thickness).

Step 2: Detailed Explanation:

Let's define the elements of design listed:

Point: A point is a location in space with no dimension.

Line: A line is the path of a point and has one dimension (length).

Shape: A shape is a two-dimensional (2D) area enclosed by a line. It has height and width but no depth. Examples include circles, squares, and triangles.

Form: A form is a three-dimensional (3D) object. It has height, width, and depth, thus occupying volume. Examples include spheres, cubes, and pyramids.

The description "a 3-Dimensional object having volume and thickness" is the precise definition of a form.

Step 3: Final Answer:

The design element that is 3-dimensional is Form. Therefore, option (A) is the correct answer.

💡 Quick Tip

Remember the progression of dimensions in design: Point (0D) → Line (1D) → Shape (2D) → Form (3D). A shape is flat; a form has depth.

75. The diameter of yarn is _____ to the square roots of the cotton count.

- (A) Equal
- (B) Directly propotional
- (C) Non-directly propotional
- (D) Inversely propotional

Correct Answer: (D) Inversely propotional

Solution:

Step 1: Understanding the Concept:

This question asks about the mathematical relationship between the diameter of a cotton yarn and its count (specifically, the English Cotton Count, Ne). Cotton count is an indirect system, meaning a higher count signifies a finer (thinner) yarn.

Step 2: Key Formula or Approach:

The relationship is derived from the definitions:

- Cotton Count (Ne) is proportional to $\frac{\text{Length}}{\text{Weight}}$.
- Yarn diameter (d) is related to its cross-sectional area (A), where $A \propto d^2$.
- Weight is proportional to $\text{Area} \times \text{Length}$.

From this, we can establish that $\text{Count} \propto \frac{1}{\text{Area}}$. Since $\text{Area} \propto d^2$, we get $\text{Count} \propto \frac{1}{d^2}$.

Step 3: Detailed Explanation:

From the relationship derived above:

$$\text{Count} \propto \frac{1}{(\text{Diameter})^2}$$

We can rearrange this to solve for the diameter:

$$(\text{Diameter})^2 \propto \frac{1}{\text{Count}}$$

Now, take the square root of both sides:

$$\text{Diameter} \propto \sqrt{\frac{1}{\text{Count}}}$$

$$\text{Diameter} \propto \frac{1}{\sqrt{\text{Count}}}$$

This equation shows that the diameter of the yarn is **inversely proportional** to the square root of the cotton count. This makes intuitive sense: as the count number gets bigger (finer yarn), the diameter gets smaller.

Step 4: Final Answer:

The diameter of a yarn is inversely proportional to the square root of its cotton count. Therefore, option (D) is the correct answer.

💡 Quick Tip

For indirect count systems like cotton count (Ne), remember that as the count number **increases**, the yarn gets **thinner** (diameter decreases). This inverse relationship is key. The square root comes from the fact that count is related to cross-sectional area (d^2), not directly to diameter.