

GTH 301 YARN AND FABRIC MANUFACTURE – QUESTION BANK

UNIT- I: TEXTILE FIBRE

Part A – Multiple Choice Questions (1 Mark)

1. Which of the following is an important property of an ideal textile fibre?

- A) Uniformity and adequate strength
- B) High brittleness
- C) Low flexibility
- D) High solubility in water

2. A textile fibre should possess good _____ for easy conversion into yarn.

- A) Cohesion and flexibility
- B) Density only
- C) Colour only
- D) Electrical conductivity

3. Which fibre burns with the smell of burning paper?

- A) Polyester
- B) Nylon
- C) Cotton
- D) Acrylic

4. Silk burns with the smell of:

- A) Burning paper
- B) Burning hair
- C) Burning plastic
- D) Vinegar

5. Wool can be identified by the smell of:

- A) Burning plastic
- B) Burning hair or feathers
- C) Burning paper
- D) Sweet odour

6. Polyester generally:

- A) Burns rapidly like paper
- B) Melts and burns with a sweet chemical odour
- C) Dissolves in water
- D) Produces soft grey ash

7. Nylon fibre generally:

- A) Burns like cotton
- B) Melts before burning and forms a hard bead
- C) Produces fluffy ash
- D) Smells like paper

8. Acrylic fibre during burning generally:

- A) Melts and burns rapidly with a pungent odour
- B) Smells like burning paper
- C) Leaves soft grey ash
- D) Does not burn

9. Which fibre shows ribbon-like convolutions under a microscope?

- A) Wool
- B) Cotton
- C) Polyester
- D) Nylon

10. Wool fibre shows _____ under the microscope.

- A) Smooth rod-like surface
- B) Surface scales
- C) Ribbon-like twists
- D) Round cross-section only

11. Silk fibre appears under the microscope as:

- A) Twisted ribbon
- B) Smooth cylindrical filament
- C) Scaly fibre
- D) Hollow fibre

12. Which fibre manufacturing method is used when the polymer is dissolved in a solvent and coagulated in a chemical bath?

- A) Melt spinning
- B) Wet spinning
- C) Dry spinning
- D) Ring spinning

13. In dry spinning, fibre formation occurs by:

- A) Cooling molten polymer
- B) Evaporation of solvent
- C) Water coagulation only
- D) Mechanical twisting

14. Melt spinning is suitable for polymers that:

- A) Decompose on heating
- B) Can be melted without decomposition
- C) Are soluble only in acids
- D) Are natural fibres

15. Which of the following fibres is commonly produced by melt spinning?

- A) Cotton
- B) Polyester
- C) Wool
- D) Silk

16. Acrylic fibres are commonly manufactured by:

- A) Melt spinning
- B) Wet spinning
- C) Ring spinning
- D) Rotor spinning

17. A spun yarn is produced by:

- A) Twisting staple fibres together
- B) Extruding molten polymer
- C) Weaving filaments
- D) Bonding fibres

18. A monofilament yarn consists of:

- A) One continuous filament
- B) Two twisted yarns
- C) Many staple fibres
- D) Multiple plied yarns

19. A multifilament yarn consists of:

- A) One filament
- B) Several continuous filaments combined together
- C) Staple fibres only
- D) Only textured yarns

20. Texturised yarn is mainly produced to improve:

- A) Fabric stiffness
- B) Bulkiness and stretchability
- C) Fibre fineness
- D) Moisture content

21. Which yarn is most suitable for hosiery and sportswear due to its bulk and elasticity?

- A) Monofilament yarn
- B) Spun yarn
- C) Texturised yarn
- D) Metallic yarn

22. A fibre burns with the smell of burning paper and leaves a soft grey ash. Which fibre is it?

- A) Nylon
- B) Acrylic
- C) Polyester
- D) Cotton

23. Under a microscope, a fibre shows overlapping surface scales. Identify the fibre.

- A) Cotton
- B) Wool
- C) Polyester
- D) Silk

24. A polymer melts easily without decomposition before extrusion. Which spinning method is most suitable?

- A) Wet spinning
- B) Dry spinning
- C) Melt spinning
- D) Ring spinning

25. A fibre is manufactured by dissolving the polymer in a solvent and evaporating the solvent using hot air. Which spinning process is used?

- A) Wet spinning
- B) Dry spinning
- C) Melt spinning
- D) Open-end spinning

26. A fishing line requires high transparency and excellent abrasion resistance. Which yarn is most suitable?

- A) Monofilament yarn
- B) Spun yarn
- C) Mélange yarn
- D) Slub yarn

27. A textile engineer requires a yarn with greater softness, bulk, and stretch for knitted garments. Which yarn should be selected?
- A) Monofilament
 - B) Multifilament
 - C) Texturised yarn
 - D) Metallic yarn
28. Which combination is correctly matched?
- A) Polyester – Wet spinning
 - B) Nylon – Melt spinning
 - C) Cotton – Dry spinning
 - D) Wool – Melt spinning
29. A yarn is manufactured by twisting staple cotton fibres together. It is classified as:
- A) Spun yarn
 - B) Multifilament yarn
 - C) Monofilament yarn
 - D) Texturised yarn
30. Which fibre is the most likely to melt and form a hard bead during the burning test?
- A) Cotton
 - B) Wool
 - C) Polyester
 - D) Silk

Part A – Answer Key

Q.No.	Correct Answer
1	A) Uniformity and adequate strength
2	A) Cohesion and flexibility
3	C) Cotton
4	B) Burning hair
5	B) Burning hair or feathers
6	B) Melts and burns with a sweet chemical odour
7	B) Melts before burning and forms a hard bead
8	A) Melts and burns rapidly with a pungent odour

Q.No.	Correct Answer
9	B) Cotton
10	B) Surface scales
11	B) Smooth cylindrical filament
12	B) Wet spinning
13	B) Evaporation of solvent
14	B) Can be melted without decomposition
15	B) Polyester
16	B) Wet spinning
17	A) Twisting staple fibres together
18	A) One continuous filament
19	B) Several continuous filaments combined together
20	B) Bulkiness and stretchability
21	C) Texturised yarn
22	D) Cotton
23	B) Wool
24	C) Melt spinning
25	B) Dry spinning
26	A) Monofilament yarn
27	C) Texturised yarn
28	B) Nylon – Melt spinning
29	A) Spun yarn
30	C) Polyester

Compact Answer Key:

1-A, 2-A, 3-C, 4-B, 5-B, 6-B, 7-B, 8-A, 9-B, 10-B, 11-B, 12-B, 13-B, 14-B, 15-B, 16-B, 17-A, 18-A, 19-B, 20-B, 21-C, 22-D, 23-B, 24-C, 25-B, 26-A, 27-C, 28-B, 29-A, 30-C.

Part B – Descriptive Questions (10 Marks)

1. Explain the important properties of an ideal textile fibre and discuss any two fibre identification methods.
2. Explain the identification characteristics of Cotton, Silk, Wool, Polyester, Nylon, and Acrylic using microscopic appearance test.
3. Explain the principles of wet spinning and the fibre manufacturing techniques used in this process.
4. Explain the principles of dry spinning and the fibre manufacturing techniques used in this process
5. Explain the principles of melt spinning and the fibre manufacturing techniques used in this process

UNIT -II : SPINNING PROCESS

Part A – Multiple Choice Questions (1 Mark)

1. The primary objective of ginning is to:
A) Increase fibre strength
B) Remove seeds from cotton
C) Reduce yarn hairiness
D) Improve yarn twist
2. Mixing in spinning is mainly carried out to:
A) Increase yarn twist
B) Increase yarn count
C) Reduce spindle speed
D) Achieve uniform raw material quality
3. Blending differs from mixing because blending involves:
A) Combining fibres of different types
B) Combining the same fibres
C) Removing impurities
D) Yarn doubling
4. The main function of the blow room is to:
A) Twist yarn
B) Draw sliver
C) Open cotton tufts
D) Wind yarn
5. In carding machine, carding action takes place between _____
A) Lickerin & Cylinder
B) Flats & Cylinder
C) Cylinder & Doffer
D) Lickerin & Flats

6. The primary objective of drawing is to:

- A) Increase yarn twist
- B) Remove seeds
- C) Wind yarn
- D) Improve sliver evenness

7. Combing mainly removes:

- A) Short fibres and neps
- B) Long fibres
- C) Yarn twist
- D) Wax

8. Combed yarn is generally:

- A) Coarser
- B) Stronger and smoother
- C) Hairier
- D) Less uniform

9. The main functions of simplex are:

- | | |
|--------------------------------|-----------------------|
| a) Drafting, twisting, winding | b) Ginning, opening |
| c) Carding, combing | d) Cleaning, pressing |

10. Open-end spinning eliminates the process of:

- A) Blow room
- B) Carding
- C) Drawing
- D) Ring spinning

11. Compact spinning mainly reduces:

- A) Fibre length
- B) Yarn hairiness
- C) Yarn count
- D) Fibre fineness

12. Friction spinning forms yarn using:

- A) Rollers only
- B) Needles
- C) Rotating drums
- D) Water jets

13. The main objective of doubling in drawframe is to:

- A) Increase spindle speed
- B) Improve yarn uniformity

- C) Reduce yarn count only
- D) Remove impurities

14. What is the typical cleaning efficiency of the overall blow room line?

- A) 20–30%
- B) 40–50%
- C) 60–65%
- D) 80–90%

15. Auto leveller is used to:

- a) Control sliver thickness variations
- b) Dye fibres
- c) Increase twist
- d) Reduce bale size

16. Which fancy yarn contains periodic thick places?

- A) Slub yarn
- B) Core yarn
- C) Spiral yarn
- D) Mélange yarn

17. Core yarn consists of:

- A) Two cotton yarns
- B) A central core covered by another fibre
- C) Two wool fibres
- D) Two twisted rovings

18. Mélange yarn is produced by:

- A) Mixing dyed and undyed yarns
- B) Mixing dyed and undyed fibres
- C) Mixing dyed and undyed fabrics
- D) Mixing dyed and undyed nonwovens

19. If the nipper does not close properly during combing, the effect will be:

- a) Increased lap plucking
- b) Increased lap strength
- c) Increased lap weight
- d) Increased lap production

20. In modern ring frames, the range of spindle speed is:

- a) 5000–10000 rpm
- b) 10000–15000 rpm
- c) 15000–20000 rpm
- d) 20000–25000 rpm

21. Elastomeric yarn is widely used because of its:

- A) High thermal conductivity
- B) High moisture absorption
- C) High stretch and recovery
- D) High stiffness

22. Which sequence is most suitable to produce more premium yarns?

- A) Blow room → Carding → Ring spinning
- B) Blow room → Carding → Drawing → Ring spinning

- C) Blow room → Carding → Drawing → Combing → Ring spinning
 D) Blow room → Open-end spinning

23. Which yarn should be selected for high-quality shirting fabric. ?

- A) Carded yarn
 B) Rotor yarn
 C) Slub yarn
 D) Combed yarn

24. Which spinning system is most suitable to produce less hairy yarns?

- A) Ring spinning
 B) Compact spinning
 C) Friction spinning
 D) Open-end spinning

25. Poor settings in draw frame may lead to:

- A) Better fibre cleaning B) Uneven sliver and poor yarn quality
 C) Reduced neps D) Lower sliver evenness

26. Compact spinning results in which of the following yarn properties?

- A. Lower strength B. Higher hairiness
 C. Higher strength and lower hairiness D. Higher elongation

27. The _____ is heart of rotor spinning machine.

- a) Rotor b) Feed roller
 c) Opening roller d) Navel

28. Wrapper fibres in air jet spinning provide:

- a) Increase in yarn bulkiness b) Cohesion
 c) Elasticity d) Color

29. Which spinning system offers the highest production speed for coarse-count yarns?

- A) Ring spinning
 B) Compact spinning
 C) Doubling
 D) Open-end spinning

30. Improved yarn strength after doubling is mainly due to:

- A) Increased fibre length
 B) Averaging of yarn irregularities
 C) Increased moisture
 D) Reduced twist

Part – A Answer key

Q.No.	Correct Answer
1	B) Remove seeds from cotton

2	D) Achieve uniform raw material quality
3	A) Combining fibres of different types
4	C) Open cotton tufts
5	B) Flats & Cylinder
6	D) Improve sliver evenness
7	A) Short fibres and neps
8	B) Stronger and smoother
9	A) Drafting, twisting, winding
10	D) Ring spinning
11	B) Yarn hairiness
12	C) Rotating drums
13	B) Improve yarn uniformity
14	C) 60–65%
15	A) Control sliver thickness variations
16	A) Slub yarn
17	B) A central core covered by another fibre
18	B) Mixing dyed and undyed fibres
19	A) Increased lap plucking
20	D) 20,000–25,000 rpm
21	C) High stretch and recovery
22	C) Blow room → Carding → Drawing → Combing → Ring spinning
23	D) Combed yarn
24	B) Compact spinning
25	B) Uneven sliver and poor yarn quality
26	C) Higher strength and lower hairiness
27	A) Rotor
28	B) Cohesion
29	D) Open-end spinning
30	B) Averaging of yarn irregularities

Compact Answer Key:

1-B, 2-D, 3-A, 4-C, 5-B, 6-D, 7-A, 8-B, 9-A, 10-D, 11-B, 12-C, 13-B, 14-C, 15-A, 16-A, 17-B, 18-B, 19-A, 20-D, 21-C, 22-C, 23-D, 24-B, 25-B, 26-C, 27-A, 28-B, 29-D, 30-B.

Part B – Descriptive Questions (10 Marks)

1. Explain the sequence of machinery used in the manufacture of carded and combed yarns.
2. Explain the principles and advantages of Open-end spinning and Compact Spinning with neat sketches.
3. Describe the objectives of the spinning process from Blow Room to Ring Frame.
4. Define Fancy Yarn. Explain the construction and applications of Slub Yarn, Core Yarn, and Mélange Yarn with neat sketches.
5. Explain the following:
 - a. Types of twist in yarn
 - b. Principle of doubling

UNIT III: WEAVING AND KNITTING PROCESS

Part A – Multiple Choice Questions (1 Mark)

1. The typical operating speed of a modern high-speed warping machine is approximately:
A) 100–200 m/min
B) 300–500 m/min
C) 800–1,200 m/min
D) 1,500–2,000 m/min

2. The primary objective of warping is to:
A) Insert weft yarn
B) Prepare the warp ends
C) Produce fabric
D) Increase yarn twist

3. The main purpose of sizing is to:
A) Increase yarn count
B) Improve warp yarn strength
C) Remove impurities
D) Increase loom speed

4. Drawing-in is the process of:
A) Passing warp yarns through heddle eyes
B) Passing yarn through the reed
C) Winding yarn on a pirn
D) Twisting yarn

5. Denting refers to:
A) Passing warp yarns through the reed
B) Knotting warp yarns
C) Winding warp beam
D) Cleaning yarn

6. Which of the following is a primary motion of a loom?
A) Take-up
B) Shedding
C) Let-off
D) Warp stop motion

7. Picking is the process of:
A) Opening the shed
B) Inserting the weft yarn
C) Beating the fabric
D) Winding the fabric

8. Beating-up is performed by the:

- A) Reed
- B) Shuttle
- C) Heald frame
- D) Warp beam

9. Which is a secondary motion of a loom?

- A) Shedding
- B) Picking
- C) Take-up motion
- D) Beating-up

10. Which of the following is an auxiliary motion?

- A) Shedding
- B) Picking
- C) Beating-up
- D) Warp stop motion

11. In a plain loom, the material first passes through the:

- A) Cloth roller
- B) Warp beam
- C) Shuttle
- D) Take-up roller

12. The main advantage of an automatic loom is:

- A) Automatic warp replenishment
- B) Automatic weft replenishment
- C) Lower fabric quality
- D) Higher manual intervention

13. The main function of the shedding mechanism in a loom is to:

- A) Split the warp ends
- B) Insert the weft
- C) Beat the fabric
- D) Wind the fabric

14. Which loom element beats the inserted weft yarn into the fabric fell?

- A) Heald
- B) Beam
- C) Shuttle
- D) Reed

15. A shuttleless loom generally provides:

- A) Higher production speed
- B) Lower production speed
- C) Only hand operation
- D) Lower fabric quality

16. Knitting is the process of fabric formation by:

- A) Interlacing yarns
- B) Interlooping yarns
- C) Bonding fibres
- D) Braiding yarns

17. Which device is commonly used for positive shedding in modern looms?

- A) Reed
- B) Tappet
- C) Dobby
- D) Shuttle

18. Which of the following is the typical speed range of a modern air-jet loom?

- A) 100–300 rpm
- B) 300–500 rpm
- C) 600–1,200 rpm
- D) 1,500–2,000 rpm

19. Which knitting element forms the loops?

- A) Needle
- B) Reed
- C) Shuttle
- D) Warp beam

20. The sinker in a knitting machine mainly helps to:

- A) Insert weft
- B) Hold down the fabric
- C) Twist yarn
- D) Wind fabric

21. Braiding is mainly used for manufacturing:

- A) Towels
- B) Surgical masks
- C) Denim fabric
- D) Cords

22. Which of the following is the correct sequence of operations in the preparatory process from singeing to weaving?

- A) Singeing → Sizing → Desizing → Warping → Weaving
- B) Singeing → Warping → Sizing → Drawing-in → Weaving
- C) Singeing → Drawing-in → Warping → Sizing → Weaving
- D) Singeing → Sizing → Warping → Drawing-in → Weaving

23. Which preparatory process should be improved to reduce frequent warp yarn breakage?

- A) Warping
- B) Sizing
- C) Drawing-in
- D) Denting

24. Which loom is most suitable for high-speed weaving?

- A) Plain shuttle loom
- B) Air-jet loom
- C) Handloom
- D) Fly shuttle loom

25. Which shuttle-less loom is preferred for delicate synthetic filament yarn weaving?

- A) Water-jet loom
- B) Plain loom
- C) Handloom
- D) Shuttle loom

26. Which knitting element should be inspected for irregular loop formation due to improper yarn holding?

- A) Needle
- B) Sinker
- C) Reed
- D) Shuttle

27. Which knitting term represents the number of horizontal rows of loops per unit length?

- A) Courses
- B) Wales
- C) Picks
- D) Ends

28. Which fabric formation method is most suitable for highly stretchable fabrics?

- A) Weaving
- B) Knitting
- C) Braiding
- D) Nonwoven

29. Which fabric formation technique should be selected for an elastic cord for sportswear?

- A) Weaving
- B) Knitting
- C) Braiding
- D) Felting

30. In a plain loom, after the picking motion, which operation immediately follows?

- A) Shedding
- B) Beating-up
- C) Let-off
- D) Drawing-in

Part A – Answer Key

Q.No.	Correct Answer
1	C) 800–1,200 m/min
2	B) Prepare the warp ends
3	B) Improve warp yarn strength
4	A) Passing warp yarns through heddle eyes
5	A) Passing warp yarns through the reed
6	B) Shedding
7	B) Inserting the weft yarn
8	A) Reed
9	C) Take-up motion
10	D) Warp stop motion
11	B) Warp beam
12	B) Automatic weft replenishment
13	A) Split the warp ends
14	D) Reed
15	A) Higher production speed
16	B) Interlooping yarns
17	C) Dobby

Q.No.	Correct Answer
18	C) 600–1,200 rpm
19	A) Needle
20	B) Hold down the fabric
21	D) Cords
22	B) Singeing → Warping → Sizing → Drawing-in → Weaving
23	B) Sizing
24	B) Air-jet loom
25	A) Water-jet loom
26	B) Sinker
27	A) Courses
28	B) Knitting
29	C) Braiding
30	B) Beating-up

Compact Answer Key

1-C, 2-B, 3-B, 4-A, 5-A, 6-B, 7-B, 8-A, 9-C, 10-D, 11-B, 12-B, 13-A, 14-D, 15-A, 16-B, 17-C, 18-C, 19-A, 20-B, 21-D, 22-B, 23-B, 24-B, 25-A, 26-B, 27-A, 28-B, 29-C, 30-B.

Part B – Descriptive Questions (10 Marks)

1. Explain the passage of material through a plain loom with a neat sketch.
2. Explain the passage of material through a plain circular knitting machine with neat sketch.
3. Explain the sequence of preparatory processes in weaving and state the objectives of each process.
4. Define the knitting terms: wale, course, texture, face loop, and back loop, with neat sketches.
5. Explain the following:
 - a. Advantages of automatic looms
 - b. Different weft insertion techniques used in shuttleless looms

Unit IV: FABRIC STRUCTURE

Part A – Multiple Choice Questions (1 Mark)

1. In woven fabric design, the design represents:
 - A) Order of warp drawing
 - B) Interlacement of warp and weft threads
 - C) Order of denting
 - D) Fabric colour

2. A draft indicates:
 - A) The yarn count
 - B) The lifting order of heald shafts
 - C) The order of drawing warp ends through heald eyes
 - D) The order of weft insertion

3. A peg plan is used to indicate:
 - A) Sequence of lifting the reed
 - B) Sequence of lifting heald shafts
 - C) Increasing the yarn twist
 - D) Increasing the warp tension

4. Which is the simplest and most commonly used weave?
 - A) Satin
 - B) Twill
 - C) Plain weave
 - D) Matt weave

5. The repeat size of a plain weave is:
 - A) 1×1
 - B) 2×2
 - C) 3×3
 - D) 4×4

6. A 4×4 matt weave is derived from:
 - A) Plain weave
 - B) Satin weave
 - C) Twill weave
 - D) Basket weave only

7. A 2/1 twill means:
 - A) Two warp floats over one weft
 - B) One warp over two wefts
 - C) Four warp over four wefts
 - D) Five-end repeat

8. Which weave produces a distinct diagonal line?

- A) Plain weave
- B) Twill weave
- C) Satin weave
- D) Leno weave

9. In a 3/1 twill weave, each warp yarn floats over:

- A) One weft
- B) Two wefts
- C) Three wefts
- D) Four wefts

10. A 5-end satin weave has a repeat of:

- A) 4 ends
- B) 5 ends
- C) 6 ends
- D) 8 ends

11. Satin weave is mainly characterized by:

- A) Frequent interlacements
- B) Open construction
- C) Rib effect
- D) Long floats and smooth surface

12. Sateen weave is generally produced using:

- A) Warp-faced construction
- B) Weft-faced construction
- C) Balanced weave
- D) Knitted loops

13. Which weave generally has the highest number of interlacements?

- A) Plain weave
- B) Twill weave
- C) Satin weave
- D) Sateen weave

14. Knit stitch is formed by:

- A) Holding the old loop
- B) Missing loop formation
- C) Drawing a new loop through the old loop
- D) Floating yarn only

15. In a tuck stitch, the needle:

- A) Casts off the old loop
- B) Holds the old loop and receives a new loop

- C) Misses the yarn
- D) Cuts the yarn

16. In a miss stitch, the needle:

- A) Forms a new loop
- B) Releases all loops
- C) Holds the yarn without knitting it
- D) Inserts a weft

17. Single jersey fabric is produced using:

- A) One needle bed
- B) Two needle beds
- C) Three needle beds
- D) Warp knitting

18. Rib fabric is formed using:

- A) One needle bed
- B) Two needle beds with face loops on both sides
- C) Plain weave
- D) Satin weave

19. Purl fabric is characterized by:

- A) Face loops only
- B) Alternate face and back loops in the wale direction
- C) Only tuck stitches
- D) Miss stitches only

20. Interlock fabric is produced by:

- A) One needle bed
- B) Two intermeshing rib structures
- C) Plain weave
- D) Satin weave

21. Which knitted structure provides the highest dimensional stability among the following?

- A) Single jersey
- B) Rib
- C) Interlock
- D) Purl

22. Which weave is most suitable to produce fabric with higher abrasion resistance?

- A) Satin
- B) Twill
- C) Plain weave
- D) Sateen

23. A designer wants a fabric with a smooth and lustrous surface for luxury garments. Which weave should be selected?

- A) Plain weave
- B) Twill weave
- C) Matt weave
- D) Satin weave

24. A denim fabric requires prominent diagonal lines. Which weave is appropriate?

- A) Plain weave
- B) 3/1 Twill weave
- C) Satin weave
- D) Matt weave

25. Which weave is it most likely to be used for fabric has long weft floats?

- A) Plain
- B) Twill
- C) Satin
- D) Sateen

26. During knitting, the old loop remains on the needle while a new loop is received. Which stitch is formed?

- A) Knit stitch
- B) Tuck stitch
- C) Miss stitch
- D) Float stitch

27. A knitting machine intentionally skips loop formation on selected needles to create a design. Which stitch is being produced?

- A) Knit
- B) Tuck
- C) Miss stitch
- D) Rib

28. Which knitted structure is most suitable for a fabric with excellent stretch and recovery?

- A) Single jersey
- B) Rib
- C) Purl
- D) Satin

29. Which structure is recommended for a stable double-knit fabric with good shape retention?

- A) Single jersey
- B) Rib

- C) Interlock
- D) Purl

30. Which weave should be selected to create a fabric with a basket-like appearance using grouped warp and weft yarns?

- A) Plain weave
- B) 4 × 4 Matt weave
- C) 3/1 Twill
- D) 5-end Satin

Part A – Answer Key

Q.No.	Correct Answer
1	B) Interlacement of warp and weft threads
2	C) The order of drawing warp ends through heald eyes
3	B) Sequence of lifting heald shafts
4	C) Plain weave
5	B) 2 × 2
6	A) Plain weave
7	A) Two warp floats over one weft
8	B) Twill weave
9	C) Three wefts
10	B) 5 ends
11	D) Long floats and smooth surface
12	B) Weft-faced construction
13	A) Plain weave
14	C) Drawing a new loop through the old loop
15	B) Holds the old loop and receives a new loop
16	C) Holds the yarn without knitting it
17	A) One needle bed
18	B) Two needle beds with face loops on both sides
19	B) Alternate face and back loops in the wale direction

Q.No.	Correct Answer
20	B) Two intermeshing rib structures
21	C) Interlock
22	C) Plain weave
23	D) Satin weave
24	B) 3/1 Twill weave
25	D) Sateen
26	B) Tuck stitch
27	C) Miss stitch
28	B) Rib
29	C) Interlock
30	B) 4 × 4 Matt weave

Compact Answer Key

1-B, 2-C, 3-B, 4-C, 5-B, 6-A, 7-A, 8-B, 9-C, 10-B, 11-D, 12-B, 13-A, 14-C, 15-B, 16-C, 17-A, 18-B, 19-B, 20-B, 21-C, 22-C, 23-D, 24-B, 25-D, 26-B, 27-C, 28-B, 29-C, 30-B.

Part B – Descriptive Questions (10 Marks)

1. Define Design, Draft, and Peg Plan. Draw the design, draft, and peg plan for a Plain Weave.
2. Draw the Design, Draft, and Peg Plan for the following woven structures:
 - a) 4 × 4 Matt Weave
 - b) 5-End Satin Weave
 - c) 5-End Sateen Weave
3. Explain the Knit, Tuck, and Miss stitches with neat sketches and discuss their influence on knitted fabric properties.
4. Draw the Graphical Notation and Needle (Diagrammatic) Notation for:
 - Single Jersey
 - Purl
 - Rib
 - Interlock
5. Suggest the most suitable woven or knitted structure for each product and briefly justify your choice based on its properties and end use.
 - a. Denim jeans
 - b. Sweater cuffs

UNIT V :NON-WOVEN FABRICS

Part A – Multiple Choice Questions (1 Mark)

1. Nonwoven fabric is defined as a fabric produced by:
 - A) Interlacing warp and weft yarns
 - B) Interlooping yarns
 - C) Braiding fibres
 - D) Bonding fibres without weaving or knitting

2. Which of the following is NOT a characteristic of nonwoven fabrics?
 - A) Lightweight
 - B) High production speed
 - C) Manufactured without yarn formation
 - D) Requires a weaving process

3. Which industry is the largest consumer of nonwoven fabrics?
 - A) Aerospace
 - B) Medical and hygiene
 - C) Shipbuilding
 - D) Glass manufacturing

4. Disposable surgical masks are generally made from:
 - A) Woven fabric
 - B) Knitted fabric
 - C) Nonwoven fabric
 - D) Felt fabric

5. Which of the following is a common application of nonwoven fabrics?
 - A) Denim jeans
 - B) Geo grids
 - C) Silk sarees
 - D) Wool carpets

6. Nonwoven fabrics are primarily classified based on:
 - A) Fabric colour
 - B) Fabric weight
 - C) Web formation and bonding methods
 - D) Fabric length

7. Which web formation method uses water as the fibre dispersing medium?
 - A) Dry-laid
 - B) Wet-laid
 - C) Spunbond
 - D) Melt-blown

8. Dry-laid web formation mainly uses:

- A) Staple fibres
- B) Molten polymers
- C) Filament yarns only
- D) Metallic fibres

9. In a parallel-laid web, fibres are arranged:

- A) Randomly
- B) Perpendicular to machine direction
- C) Predominantly in the machine direction
- D) Vertically

10. Cross-laid webs improve:

- A) Machine speed
- B) Cross-direction strength
- C) Fibre fineness
- D) Fibre colour

11. Random-laid webs provide:

- A) Directional properties
- B) Nearly isotropic properties
- C) Only machine direction strength
- D) Zero porosity

12. Spunbond webs are produced directly from:

- A) Staple fibres
- B) Continuous filaments
- C) Cotton sliver
- D) Wool tops

13. Melt-blown technology produces fibres that are:

- A) Very fine microfibres
- B) Coarse fibres
- C) Twisted yarns
- D) Heavy staple fibres

14. Which bonding method uses adhesives?

- A) Needle punching
- B) Thermal bonding
- C) Chemical bonding
- D) Hydroentangling

15. Thermal bonding requires:

- A) Solvent binders
- B) Thermoplastic binders
- C) Water binders
- D) Mechanical stitching

16. Needle punching bonds fibres by:

- A) Chemical reaction
- B) Heat fusion
- C) Mechanical entanglement
- D) Yarn twisting

17. Which bonding method is commonly used for spunbond fabrics?

- A) Thermal bonding
- B) Stitching only
- C) Adhesive painting
- D) Weaving

18. Which web formation method is suitable for paper-like products?

- A) Wet-laid
- B) Melt-blown
- C) Spunbond
- D) Needle punching

19. Which property is improved by cross-lapping?

- A) Fabric width uniformity and transverse strength
- B) Fibre length
- C) Yarn twist
- D) Polymer melting point

20. Melt-blown fabrics are widely used in:

- A) Curtains
- B) Filtration media
- C) Denim
- D) Upholstery

21. Needle-punched nonwovens are widely used in:

- A) Geotextiles and automotive carpets
- B) Silk garments
- C) Dress shirts
- D) Wool blankets

22. Increasing punch density in needle punching generally results in:
- A) Lower fabric strength
 - B) Better fibre entanglement
 - C) Reduced web consolidation
 - D) Lower fabric thickness only
23. Which type of fibres is primarily used in the spunlaid process?
- A) Cotton staple fibres
 - B) Wool fibres
 - C) Continuous synthetic filaments
 - D) Jute fibres
24. A major advantage of the spunlaid process is:
- A) High production speed
 - B) Low fabric strength
 - C) Requirement of spinning yarn before fabric formation
 - D) Limited production width
25. Which of the following is **NOT** a thermal bonding method?
- A) Calendar bonding
 - B) Through-air bonding
 - C) Ultrasonic bonding
 - D) Hydroentangling
26. A common machine used for thermal bonding is the:
- A) Carding machine
 - B) Calendar rollers
 - C) Needle loom
 - D) Comber machine
27. Which of the following products is commonly manufactured using thermal bonding?
- A) Baby diapers
 - B) Denim fabric
 - C) Wool blanket
 - D) Cotton towel
28. Which bonding process is appropriate for geotextile products that need high mechanical strength?
- A) Adhesive bonding
 - B) Thermal bonding
 - C) Needle punching
 - D) Resin finishing

29. Which process is preferred for making lightweight medical gowns?

- A) Wet-laid
- B) Spunbond
- C) Parallel-laid
- D) Needle punching

30. Fire-resistant clothing and bulletproof vests are classified under:

- A) Packtech
- B) Protech
- C) Clothtech
- D) Oekotech

Part A – Answer Key

Q.No.	Correct Answer
1	D) Bonding fibres without weaving or knitting
2	D) Requires a weaving process
3	B) Medical and hygiene
4	C) Nonwoven fabric
5	B) Geo grids
6	C) Web formation and bonding methods
7	B) Wet-laid
8	A) Staple fibres
9	C) Predominantly in the machine direction
10	B) Cross-direction strength
11	B) Nearly isotropic properties
12	B) Continuous filaments
13	A) Very fine microfibres
14	C) Chemical bonding
15	B) Thermoplastic binders
16	C) Mechanical entanglement
17	A) Thermal bonding
18	A) Wet-laid

Q.No.	Correct Answer
19	A) Fabric width uniformity and transverse strength
20	B) Filtration media
21	A) Geotextiles and automotive carpets
22	B) Better fibre entanglement
23	C) Continuous synthetic filaments
24	A) High production speed
25	D) Hydroentangling
26	B) Calendar rollers
27	A) Baby diapers
28	C) Needle punching
29	B) Spunbond
30	B) Protech

Compact Answer Key

1-D, 2-D, 3-B, 4-C, 5-B, 6-C, 7-B, 8-A, 9-C, 10-B, 11-B, 12-B, 13-A, 14-C, 15-B, 16-C, 17-A, 18-A, 19-A, 20-B, 21-A, 22-B, 23-C, 24-A, 25-D, 26-B, 27-A, 28-C, 29-B, 30-B.

Part B – Descriptive Questions (10 Marks)

1. Classify nonwovens and list any two products in each category.
2. Describe the different web formation techniques used in staple fibre nonwoven production with neat sketches.
3. Explain the construction and working principles of spun-laid web formation techniques with neat sketches.
4. Explain the construction and working principles of needle punching web bonding with neat sketches.
5. Explain the construction and working principles of thermal bonding web bonding techniques with neat sketches.
