

Syllabus & Model Question Paper

Syllabus

Textile Fibres: Classification of Polymers-Application of Polymer-Study of Various methods of polymerization -Study of various types of initiators -Techniques of polymerization -Physical structure of polymers-Polymer reactions-Thermal analysis of polymers; Study of different structures of textile fibres using various techniques-Study of different properties of various textiles fibres i.e., moisture relations, mechanical properties optical properties, electrical properties and thermal properties; History on origin of textiles - Study of different textiles fibres-Basic requirements of textile fibres Geographic distribution-Cultivation and grading of cotton, wool, silk and jute fibres -Physical and chemical properties of important natural fibres; Sequence of operations in conversion of important natural fibres into fabric; Study of different man-made fibre spinning - Fundamentals of fluid flow in man -made fibre spinning-High speed melt spinning-Formation of fibre structure during various methods of man -made spinning-Production of micro denier and special shaped fibres; Production and Properties of various regenerated fibres-Production of various raw materials for different synthetic fibres -Properties of different synthetic fibres-Effect of various parameters on various synthetic fibres-Study of semi-continuous and integrated continuous process for production of Nylons; Study of different high performance fibres; Study of spin finish -heat setting and drawing of fibres; Study of different methods of texturing and various parameters affecting texturing -Test methods of textured yarns; Study of different yarn count systems-conversion from one system to another system.

Yarn Manufacture: Ginning and Baling:

Blow room: Objects and methods of mixing -Opening and cleaning- Blow room machineries cleaning efficiency -Lap regularity -Modern developments -Auto mixer and calculations pertaining to blow room.

Carding: Objects -Working -Speeds and Setting -Grinding and stripping -Silver quality -Modern developments in carding-Calculations related to carding -Fibre hooks at card -Opening lines required for processing of various blends.

Drawing: Objects and Principles -Roller drafting systems -Modern developments - Calculations pertaining to draw frame.

Combing: Hook formation in carding -Study of preparatory machines to comber - Combing process-Setting -Modern -Combers -Calculations pertaining to comber.

Speed Frame : Objects -working and drafting systems -Twist insertion -Mechanism of winding -Lift of bobbin-Bobbin building mechanism -Speeds and production calculations-Modern speed frames.

Ring Frame: Objects-Working and ring frame mechanisms-Yarns tension during spinning a yarn and package faults -modern developments- calculations pertaining to ring frame.

Doubling: Objects - Dry doubling and wet doubling - Fancy yarns - Hosiery and seing threads - Properties and end uses.

Open End Spinning: Principles of Break spinning - Comparison of ring and OE yarns - Recent developments in OE spinning - Different types of rotors and opening rollers.

Modern Yarn Production Methods: Twist less spinning – Self twist spinning – Wrap spinning – Friction spinning and air-jet spinning – Comparison of the above methods for their principles and yarn properties – end used and techno-economics feasibility – Siro, core and cover spinning methods.

Fabric Manufacture

Winding: Objects – Derivation of speeds – coil angles – Cone angle – Study of modern winders Production Calculations

Warping: Objects – Study of modern warping machines – Production calculations.

Sizing: Study of ingredients – Properties – Modern size cooking equipments – Modern sizing machine – Production calculations.

Looms: Study of Plain tappet tappet loom – Automatic looms – Drop box looms – Dobby and jacquard looms – Production calculations.

Unconventional Weaving Machine: Study of Gripper – Rapier – Air jet – water jet machines.

Non Wovens: Classification - Web productions techniques – Properties of Binders – Geometry of Non woven structures Identification and testing of Non wovens – Study of thermal, spun bonding and spun lacing.

Knitting: Weft Basic stitches – Jersey – Rib – Purl – Interlock – Warp Basic Stitches – Pillar – Atlas – Tricot – Study of circular weft knitting machines – Advantages of positive feed – Study of warp knitting machines – Tricot and Raschel.

Chemical Processing Of Textiles

Pre-process: Preparatory processes to wet processing; An overview of wet processing - Sequences of wet processing – Desizing – Methods of desizing – Singeing – Methods of singeing – Batching – Souring – Bleaching – Mercerizing; Methods of purifying fibre yarn and Fabric made from other natural fibre like silk, wool, jute etc.; Methods of desizing – Scouring and Bleaching of regenerated cellulose fibre.

Dyeing: Coloration – Theories of coloration / dyeing – Factors that affect Dyeing Mechanism of dyeing – Mechanism used for dyeing – Classification of dyes – Dyeing of Natural fibres using direct, reactive, acid, metal complex, vat, sulphur, Ingrain dyes and other popular dyes using different methods – After treatments and testing of dyed materials – Yarn package dyeing – Dyeing of knitted fabrics – Dyeing of garments.

Printing: Design development for printing – Sources of inspection – the designers tools and work space – Different techniques for design generation and reproduction – Transfer of designs on wooden blocks, Screen and Stencil – Scope of printing – Methods and principles of printing – Machineries used for Textile printing – Passage of material through printing machines.

Finishing: Objects of finishing – Various methods of finishing – Cotton, Silk, Wool, worsted fabric – Chemicals formulation of different finishes – Machineries used for finishing – Speciality chemicals used for finishing – Finishing of Garments.

Textile Testing

Fibres: Regain – Length – Fineness – Maturity – Strength – their determination – HVI and AFIS.

Yarn: Yarn count – Twist – Strength – Hairiness – Uniformity – and their determination.

Fabrics: Fabric weight – Thickness – Cover – Tear – Abrasion – Drape – Crease – Colour fastness – their determination. Fabric Handle – KESF and FAST

Silk Technology

Cocoons: Sorting of cocoons, cocoon testing, storage of cocoons, stifling of cocoons, Drying of cocoons cooking of cocoons. Methods employed – Characteristics of cocoons.

Reeling: Methods of Silk Reeling – Charakha – Cottage basins – Filatures – Semi – automatic an Automatic types.

Raw Silk testing – Packing of raw silk – Utilization of by –products.

Silk Throwing: Manufacture of yarns for use in ordinary, chiffon, crepe, georgette fabrics – Number of plies and different twist levels used. Developments in Silk Throwing Industry.

Weaving Industry: Warp and Weft preparation – Machineries employed in small scale and organized sections. Silk Weaving – Handloom and Power loom Weaving – Special features of silk looms – modifications required on power loom to weave silk fabrics.

Spun Silk Industry: Raw materials for Spun Silk Yarn Production, Production of Spun yarn and their properties.

Processing Industry: Degumming and drying of silk yarns – Dyeing, Printing and Finishing of silk fabrics.

Fabric Structure: Study of plain – Twill – Stain – Crepe – Mockleno and Towelling structures. Backed cloths – Extra wrap and Extra Weft cloths – Double cloth Terry weaves - Velvet – Velveteens – Gauge and Leno – Damask Brocade cloths.+

Fashion Design and Garment Technology

Terms and Definitions used in Fashion and Garment Industries – The art and Techniques of Body measurements and standard sizes and measurements prevalent in Garment industries.

Principles and Practices of Pattern making – Grading – Computer Aided pattern making and Grading – Cutting room operation – Laying – Cutting – Numbering – Bundling – Sewing operation – Classes of seams and stitches – Sewing threads – Defects is sewing; Garment Finishing section – Buttoning – Labelling – Care labeling – Checking – Pressing – Folding – packing and packing standards. Quality control in garment Industry – Garments washing – dyeing and finishing. Brand culture and Apparel brand names. Sourcing and Merchandising – Apparel Engineering and Production Control.

Model Question paper

PART – I

Each question carries One Marks

50 x 1 = 50 Marks

1) Moisture regain of Polyester is -----.

- a) 12% b) 0.4% c) 10% d) 8%

2) In Modern card the speed of the licker in is up to -----.

- a) 200rpm b) 400 rpm c)1800 rpm d)750 rpm

3) The Position of the last Pick in the cloth Woven on the loom is known as

- (a) Negative shedding
- (b) Positive shedding
- (c) Positive & Negative shedding
- (d) Semi positive shedding

4) Heat setting process is applicable to -----.

- (a) Polyester
- (b) Silk
- (c) Wool
- (d) Cotton

5) Hydrogen Peroxide bleaching is done at -----.

- (a) 80-85 degree centigrade
- (b) 140 degree centigrade
- (c) 200 degree centigrade
- (d) 240 degree centigrade

PART – II

Each question carries two marks

25 x 2 = 50 Marks

1) The essential operations of spinning are -----.

- (a) Twisting and Winding
- (b) Drafting and Winding
- (c) Drafting and Twisting
- (d) Drafting, Twisting and Winding

2) Nylon 6,6 is made from -----.

- a) Urea
- b) Wood Pulp
- c) Glycer Salt
- d) Hexamethylene diamine and Adipic acid

3) Keighley dobby has become very popular because of its

- (a) Low Cost
- (b) Availability
- (c) Simplicity and reliability
- (d) Capacity to produce defectless fabric.

4) Mercerising is done to impart ----- to the yarn or fabric

- (a) Strength

- (b) Lustre
- (c) Elongation
- (d) Elastic recovery

5) In cheese dyeing ----- kg of yarn is dyed in one lot..

- a) 20 Kg
- b) 40 Kg
- c) 200 - 250 Kg
- d) 1000 Kg.