

Syllabus for Screening Test for rectt. to the post of
Technical Officer(Textiles)in the Directorate of Textiles
(Handloom etc.) under the Department of M.S.M.E &
Textiles, Govt. of W.B.[Advt. No. **04/2024**]

Topic	Sub-Topic
Fibre Science	Classification of textile fibre on basis of its source/origin NATURAL FIBRE Cotton Fibre Commercial varieties of cotton; Physical properties of cotton; Chemical Properties of cotton; Brief study of uses of cotton Bast Fibre (extraction process and different uses) Jute; Flax, Ramie; Hemp Silk Rearing, Reeling and Throwing of silk fibre; Degumming of silk fibre; Physical and chemical properties of silk fibre; Different uses of wool fibre Wool Physical and chemical properties of wool. MANMADE FIBRE Viscose, Polyester, Nylon and acrylic Raw materials Physical and chemical properties Uses
Weaving& Knitting	Outline of weaving process Definition of weaving, common weaving terms; Classification of looms Primary, secondary & auxiliary motions of weaving; Functions & uses of various important loom parts & accessories Handloom Type of handloom; Fly shuttle frame loom; Semiautomatic looms; Tie up of healds Powerloom Types of powerloom; various shuttleless picking mechanism such as, rapier, gripper, air jet and water jet. Winding Object of warp & weft winding; Cone winding machine-mechanism & working Principle; Pirn winding machine-mechanism & working principle Warping Object of warping; Beam warping machine-mechanism & working principles; Sectional warping machine-mechanism & working principles; Defects of beam and their remedies. Picking/ Weft insertion Mechanism Type of picking mechanism & working principles Beating up mechanism The motion of the sley; Eccentricity of sleys motion & its effect Secondary motion Take up motion & its type; Seven wheel take up motion; Let off motion & its type; Negative & positive let off mechanism.

	<p>Sizing Object of sizing; Study of sizing ingredients & their function; Preparation of sizing paste; Sizing machine-mechanism & working principles</p> <p>Dobby Loom Principles of doobby shedding; Types of doobby: Timing & setting of doobby; Common defects of doobby-causes & remedies</p> <p>Jacquard Loom Objects & principles of jacquard shedding; Types of jacquard; Timing and setting of jacquard loom; Study of different system of harness mounting and harness ties; Study of working of piano card cutting machine card lacing and their mounting</p> <p>Fabric Defects Common fabric defects, causes and their remedies Calculation related to cost of fabrics</p> <p>Knitting Types of Knitted fabrics and their applications.</p>
<p>Fabric Structure</p>	<p>Plain weave & its derivatives Plain weave; Warp rib weaves; Mat weaves</p> <p>Twill weave & its derivatives Characteristics of twill weave; Construction of twill weave; Rearranged twill Combined twill; Broken twill; Diamond twill; Influence of twist direction & angle of twill on appearance to twill; Stain weavers</p> <p>Simple toweling & curtain fabrics Ordinary honey comp design; Double stitched ordinary honey comp; Straight draft honey comp; Brighten honey comp</p> <p>Yarn numbering system Indirect system of numbering of yarn; Direct system of numbering of yarn Resultant count of folded yarn; Conversion of count of yarn</p> <p>Heald count & reed count Difference system of heald count; Different system of reed count</p> <p>Bedford cord & Pique design Plain faced Bedford cord design produced by pair of picks; Plain faced Bedford cord design produced by alternative picks; Twill face Bedford cord; Extra warp and extra weft figuring; Cross over the spot figures; Loose back and fast back pique</p> <p>Warp pile fabric Construction of different types of terry pile fabrics-3 pick, 4 pick, 5 pick & 6 pick terry pile; Weaving mechanism for producing terry pile structure</p> <p>Weft pile fabric Velveteen; Plain back velveteen; Twill back velveteen; Length of pile; Density of pile; Fast pile structure</p> <p>Back cloth design Principle of tying & stitching back cloth; Types of back cloth; Warp back; Weft back; Reversible back cloth; Warp wadded weft back cloth; Weft wadded warp back cloth</p> <p>Double cloth Classification of double cloth; Self stitched double cloth; Centre stitched double cloth; Thread interchange double cloth; Cloth interchanged double cloth; One side binding double cloth; Both side double cloth</p> <p>Gauze & Leno weaving Introduction of gauze & leno structure; Construction of doup healds & its uses</p>

	<p>Gauze & leno design; drafting, lifting plan & types of sheds</p> <p>Yarn & cloth calculation Influence of yarn diameter on cloth setting rules; Determination of cover factor & cloth particulars</p> <p>Jacquard designs Construction of jacquard design for side border & all over effect e.g. Bisymmetrical & multi symmetrical design; Different stages for transferring a small motif of the fabric; Arrangement of figured in jacquard design like-unit repeat drop principle satin</p> <p>Analysis of woven fabrics Identification of warp and weft; Brief discussion about the analysing procedures</p> <p>Calculation of weight of warp & weft</p> <p>Extra Warp and Extra Weft Designs</p>
<p>Textile Chemistry</p>	<p>Dyeing Classifications of dyestuff according to methods of application; Determination of water hardness; Scouring of cotton yarn; Bleaching of cotton yarn; Mercerization; Dyeing with Azofree dyes, Basic & Acid dye-general characteristics and methods of application; Reactive, Vat and Sulphur dye-general characteristics and methods of application. Combined scouring and bleaching of cotton & jute; jute bleach for white and use; Dyeing of jute materials; Dyeing of Silk; A brief study of some vegetable colour and their methods of application, Azo Free Dyes. Colour Fastness-washing, light, rubbing, perspiration, sublimation.</p> <p>Printing Preparation of cotton for printing. Common Printing paste ingredients and their functions, Various method and styles of printing direct discharge. Preparation of printing pastes with different dyestuff some common faults in printing and their rectifications. Sustainable Chemical Processing of Textiles.</p>
<p>Textile Testing</p>	<p>Moisture and Textiles Effect of moisture on textile processing and testing. Definition of absolute and relative humidity, moisture content & moisture regain and their relationship study of the methods for Determinations of relative humidity by wet & dry bulb hygrometer and Moisture content & moisture regain by conditioning oven & Shirley moisture meter</p> <p>Yarn Number Principle involved in determination of yarn number Determination of yarn number from yarn & cloth. Use of instruments for determination of yarn number knowledge balance. Quadrant balance and Beasley balance</p> <p>Yarn Twist Effect of twist on the quality of yarn and fabrics; Optimum twist and its essentiality Determination of twist of single and ply yarn</p> <p>Yarn Strength Testing Principle of difference methods; Study of yarn strength testing instruments- Lea Tester, Single thread twister, Ballistic tester</p> <p>Yarn evenness Meaning of random variation, periodic variation, short medium and long term variation. Index of irregularity in evenness determination Measurement of yarn evenness by-Back Board Test, Fielden Walker Test</p>

	<p>Fabric Testing Determination of fabric testing related to Thickness Weight Crimp Study of tear, tensile, bursting and abrasion properties of fabric. Air and water permeability test Crease Resistance and Crease Recovery.</p>
<p>Environment and Pollution Management</p>	<p>General concept Nature and scope of environmental problems Environmental Pollution Water pollution-types sources and their effects Occupational health-hazards related handloom industry process, various sources of water in wet processing, characteristics of waste water conservation Pollution Monitoring and control Principles and methods of waste water treatments, design of effluent treatments plant and disposal of water, Essential properties of Waste water such as, BOD, COD, TDS, pH, TSS, Turbidity etc.</p>
<p>Technical Textiles and Nonwovens</p>	<p>Definition & classifications of Technical Textiles, High Performance fibers, Definition, classifications of Nonwovens.</p>
<p>English</p>	<p>Basic Grammar [Madhyamik Standard]</p>
<p>Arithmetic & General Awareness</p>	<p>General Awareness, Arithmetic – Madhyamik Standard</p>

N.B.:-

The Syllabus is indicative only, candidates should be prepared to answer any question from essential qualification/degree mentioned in the advertisement for the relevant post.

Scheme for Screening Test for rectt. to the post of Technical Officer(Textiles) in the Directorate of Textiles (Handloom etc.) under the Department of M.S.M.E & Textiles, Govt. of W.B.[Advt. No. 04/2024]:-

- Screening Test will be objective type (MCQ) in 4 different series, viz., A, B, C & D.
- Number of questions: 100, each carrying 1 mark.
- Full marks: 100.
- Duration: 1 hour 30 minutes.

N.B.:- There will be **negative marking** for each wrong answer as per norms ($1/4^{th}$ of the marks for each wrong answer).

Multiple choice objective type questions on:-

- | | | |
|-------|--|------------|
| (i) | Textile Technology & Handloom
Technology and Textile Chemistry [Diploma Standard] | – 75 marks |
| (ii) | English [Basic Grammar - Madhyamik Standard] | – 15 marks |
| (iii) | General Awareness & Arithmetic
[Arithmetic - Madhyamik Standard] | – 10 marks |