

**DETAILED SYLLABUS FOR THE POST OF QUALITY CONTROL
OFFICER (GENERAL CATEGORY) IN KERALA STATE CO-
OPERATIVE COIR MARKETING FEDERATION LTD - DIRECT
RECRUITMENT**

(Cat.No: 155/2022)

Module I – Fibre (10 Marks)

Statistics of cultivation of coconut, production of coconut and coir fibre, production of white/brown fibre in World and India. Coconut husk, physical and chemical properties of Coir. General study of coir fibre, Method of fibre extraction, Grading of fibre, brown fibre, Bristle fibre, Mattress fibre, decorticated fibre, Gradation of brown fibre, Study of defibering and decorticating machines, Crushers, Ceylone type defibering drums, Japan and Ceylon type combing drums, mobile fibre extraction machine and its operation, Curled coir rope, Quality specifications for coir fibre, Specification for mechanically extracted coir fibres – IS 9308 Part 1 to 4. Treatment of mechanically extracted coir fibre/husk using coirret and biochem, Mechanism of Retting –microbiological action, preparation of vegetable oil in water emulsion and its application on unsoaked coir fibre, Softening/flexural rigidity of coir fibre

Module II - Spinning and Coir yarn (10 Marks)

Coir yarn, hard, medium and soft twisted yarn , Evolution of spinning machines in coir sector, Method of spinning, Hand spinning, Studies on spinning wheel, Wheel spinning, Treadle spinning, Automatic Spinning Machine, Treadle Ratt, Motorised Ratt, Motorised Traditional Ratt, Electronic Ratt, Versatile Spinning Machine without core thread (single strands). muppuri yarn, motorised spinning, modernisation in spinning of coir yarn, Difference between motorised traditional ratt and traditional ratt, Automatic spinning mechanism and other related machineries, Salem type spinning ratt, Electronics ratt and solar operated ratt, Quality specifications of coir yarn, Scorage, twist and Runnage, Different types of coir yarn its quality requirements, Specification for 2 ply coir yarn – IS 14596. Coir Rope, Hawser laid, shroud laid and cable laid ropes, Quality Specification for coir rope – IS 1410

Module III – Coir Pith (08 Marks)

Coir pith- Chemical and physical properties, composting of coir pith using pith plus and conversion of hillocks of coir pith into organic manure using perforated PVC pipes. Coir pith bricks, grow bags, briquettes. pH and Electrical conductivity of coir pith. Quality specification for coir pith – IS 17739/

Module IV – Dyeing and shade matching (12 Marks)

Dye stuffs for coir, Dyestuffs and their classifications, Chemistry of dyes and dyeing, Elements of colour mixing and shade matching, Effects of mixing dyes and pigments, General procedure for coir dyeing, Basic dyes, Acid dyes, Direct dyes, Natural dyes, Shade matching, Standing bath, Trade grades of textile dyes, Colour fastness, Standard shades. Reactive dyes and its dyeing on coir. Dye bath assistant. Different agencies for fastness of dyed coir. Blue wool standards. IS standards for testing fastness to light and its procedure, Bulk Dyeing, Bleaching by traditional /Mechanised bleaching, Problems in dyeing/bleaching, Advanced methods of coir dyeing. Synthetic and natural dyes, safe dyes, Traditional and mechanised dyeing of coir fibre/yarn, Treatment of effluents of dyeing/bleaching, Dyeing of coir with reactive and natural dyes and its fastness, special finishes including water repellency, fire retardancy to coir, colour fastness, ISO/AATCC standards for fastness to weathering and rubbing, water/ oil repellent finishes and fire retardant finishes to coir, Stenciling with paints & pigments.

Module V – Mats (12 Marks)

Types of mats, Frame Mats, Corridor Mat, Mesh Mat, Sinnet Mat, Rope mat, Carnatic & Creel Mats General Procedure of weaving, Weaving of Rod Mat, Loop mat, Bit Mat, Creel Mat 2 chain, Creel Mat three chain – Carnatic Mat, Improved weaving techniques for Carnatic Mat, Weaving defects and its remedies , Specification of standard Mat Loom , Quality specifications and quality parameters as per IS Standards of Coir Mats, Corridor mat, Mesh mat, Sinnet mat , Rope mat, Carnatic & Creel Mats, Finishing operations, Difference between mats & matting looms, Rod inlaid mats, Fibre Mat-single chain and double chain, Loop Mat – full and tile, Tile formation on Carnatic Mat, Finishing operations, Preparation of loom sketch for Rod inlaid Mat, Fibre Mats, FM1, FM2 and FM3, Specialty mats, Tufted Mat, Rubber backed Mat, Moulded coir mat, finishing of edges of brush mats, matting mat and its finishing, stenciled mat, manufacture of mats from blends of coir and allied fibre. Quality specifications of mats as per IS standards, Specification for coir mats IS 11420, Tufting of coir on PVC/Rubber base, Specification for PVC/ Latex tufted Coir mats IS 17734.

Module VI – Matting (10 Marks)

Matting/mat loom, its parts of loom and functions, passage of warp thread through loom parts, Bobbin/cops winding machine, Creel arrangement, warp and weft interlacement, ends, picks and score of matting, fundamentals of weaving, Plain weave, Modifications of plain weave, Basket weave, Twill weave, 3 shaft twill, 4 shaft twill, Modifications of twill weave-herring bone, diamond, loop matting, knotted matting Uday loom, Use of graph paper for structural designs, Pattern preparation. Specification of standard Matting Loom, finishing operations, Spot matting, Butterfly matting, Biscuit Matting , Star design in 3 shaft matting, Dobby shedding mechanism, Jacquard shedding mechanism, Mourzouk weaving, Alleppey Carpet, Coir belt, Improved looms, 4 shaft carpet, Coir tube, Plotting of design on graph

paper, study of power loom matting. Quality specification and IS standards for Coir Matting, mourzouks and carpets – IS 12503.

Module VII - Coir geotextiles (10 Marks)

Different types of coir geo-textiles, woven coir geotextiles and its grades, non woven coir geotextiles, Coir stitched blankets, cocolog, coir needled felt. Grades of coir geotextiles, mass per unit area(gsm) of coir geotextiles, Application of coir geo-textiles in geo-technical application, road construction, road/railway embankments, canal bank stabilisation, erosion control, quality parameters of Geo-textiles, Anugraha /Semi Automatic loom/ Power loom, Anupam and pneumatic Anugraha loom, Cocolog making machineries, cocolawn and its manufacture, properties. Quality standards for coir geotextiles IS 15868, IS 15869. Guidelines on application of coir geotextiles IS 15871, IS 15872.

Module VIII - Rubberised coir (10 Marks)

Curled coir rope, its production, IS Standard and specification for curled coir rope IS 9308 Part4, Coir needled felt, preparation of coir needled felt, Different grades, Quality requirements for coir needled felt IS 15340, rubberized coir, Different types of rubberised coir, curled, sandwiched, and from needle felt, Quality requirements for each type of rubberised coir, density, Indentation hardness index, IS specification, IS 8391 – Part 1 to 3, different grades of rubberised coir, moulded rubberised coir cushioning, quality requirements for moulded rubberised coir for cushioning IS 11060. Natural Rubber latex, compounding of NR, DRC of rubber latex, additives in latex compounding, spraying of latex, vulcanising of rubberised coir.

Module IX - Coir composites and other diversified coir products (10 Marks)

Manufacture and application of coir composites, Coir ply, different types of coir ply, quality requirements, Moulded coir products, packing materials from coir, Coir plastic composite products, Garden articles from coir, moulding, coir pots. handmade paper and coir jewellery/ ornaments, Coir handicrafts. General procedure for brush making, Preparation of coir fibre for brush, Description of different varieties of brushes- Commode brush, Floor Sweeping brush, Bottle cleaning, Scrubbing brush, Table cleaning, Foam cleaning, Basin cleaning brush.,

Module X - Other natural fibres and blending of coir (08 Marks)

Types and classification of natural fibres, physical and chemical properties of Coir, Jute, Cotton, Wool, Banana, pineapple and Sisal. Blending of coir fibre with allied natural fibres and spinning of blends of coir & allied fibre, manufacture of handicraft articles like coir bags, jackets, umbrellas, chappals, coir painting.

NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may

also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper