22460

24225

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following : **10**

(a) Define the term "% Add-on" with one suitable example.

(b) Enlist any four machines used for mechanical finishing of fabrics.

(c) What is % Expression ? Give its formulae.

(d) Draw the structure of DMDHEU.

(e) State the significance of "White dyes".

(f) Write the chemical formula of 2 compounds used for temporary flame retardant finishing.

(g) Enlist any four desirable properties of good anti-microbial finish.

2. Attempt any THREE of the following : **12**

(a) Elaborate the types of anti-microbial finishes used for cotton finishing. Also elaborate and justify the selection of herbal antimicrobial finish for finishing of 100% cotton inner-garments with proper recipe.

(b) Enlist and elaborate the factors affecting flame retardancy of textile material.

(c) Describe the method of evaluating the effectiveness of a given OBA when applied on a given 100% cotton cambric fabric.

(d) Differentiate between pre-cure and post-cure process used in resin finishing.

3. Attempt any THREE of the following : **12**

(a) State a DMDHEU based resin finish formulation used for finishing of 100% cotton shirting fabric to meet the criteria of easy care finish. Also mention the function of each ingredient used in the formulation.

(b) Classify the stiffeners used in textile finishing. Enlist one property and one example of each.

(c) Explain the significance of LOI in textiles. Write down the LOI of wool and cotton.

(d) Elaborate the burning cycle and thermal behaviour of textile fibres with suitable example.

4. Attempt any THREE of the following : **12**

(a) Propose a finish formulation and procedure to be adopted for finishing of 100% cotton fabric used for curtains which is based on THPC. Enlist the function of each ingredient used in formulation.

(b) State the mechanism of creasing of cotton fabrics and also substantiate the removal of crease with the help of a crease resistant finish.

(c) Propose an instrument and procedure along with sample preparation which can be adopted in evaluating the efficiency of crease resistant finishing.

(d) Analyse the properties of silicone emulsion softeners and reactive softeners.

(e) 4000 mt 100% cotton fabric is finished for soft finish using 2-dip-2-nip process using following formulation :

Softener – 3% owf (Active content – 40%)

CH_3COOH – 0.5% owf

Find out the total solution required for finishing the given lot if % expression is 75%. Also find out the % add-on in this case. (Trough capacity is 50 lts.) Assume suitable data if required.

5. Attempt any TWO of the following : **12**

(a) Select set of machines and finishes for developing an embossed motif on a 100% twill woven cotton fabric so as to ensure a shrinkage of less than 0.5%. Explain the process with a proper recipe (if required) and diagram.

(b) Elaborate the selection criteria of softeners provided by four vendors. Enlist and explain the various parameters evaluated in the selection process.

(c) Suggest a formaldehyde free cross linking agent used for finishing of 100% shirting fabrics to achieve wrinkle free property. Also enlist any two features of the finish used.

6. Attempt any TWO of the following : **12**

(a) State the criteria for selecting the optical brightening agent for 100% cotton and P/C blended fabrics if applied by exhaust and padding method.

(b) Suggest the angular method and vertical method adoption criteria for which application of textile materials. Also state the procedure for both methods.

(c) Elaborate with proper justification, the test method adopted and procedure for evaluating the antimicrobial finish efficiency of 100% cotton shirting fabrics.
