# TXL 241: TECHNOLOGY OF TEXTILE PREPARATION AND FINISHING

**Major Test** **Max. Marks-40** **10:30-12:30 /10-05-2018/LH325**

**Use separate answer sheet for PART-A and PART-B**

## PART A

1. Answer the following questions: [6×2]

a) Technically distinguish the two: (i) Blueing agent (ii) OBA.
b) For acid desizing of cotton fabric, one should keep on eye on the temperature variation –why?
c) Can we use the same cotton bleaching agents and the recipe for wool fibre?
d) Pectinase treatment helps to improve the water absorbance of cotton fibre- illustrate.
e) If a cotton fabric contents mixture of starch and high MW. PVA, select a desizing agent. Give explanation behind your selection.
f) Do you require any special care for mercerization of cotton/viscose blend?

$4 \times 100 = 9 \times 60$ $\quad n = \frac{400}{60}$

2. Calculate the BAN of unmercerized cotton. In a continuous scouring operation using J-Box the cotton fabric has to be treated with 4% NaOH with 100% wet add-on. If the desized cotton before entering the saturator contains 60% wet add-on, what should be the concentration of NaOH in the saturator? [1+1]

$\text{Add on} = \frac{\text{Liquor}}{M:F} \times \frac{\text{WNAOH}}{\text{Liq.}}$

3. With **suitable reasons**, explain whether the following statements are **'True'** or **'False'** [1×6]

a) High substantivity OBAs are suitable for application by continuous method
b) In raw stage (loose fibres), the wool scouring should be carried at 80 - 90°C using $Na_2CO_3$ while in fabric stage temperature should not go beyond 60°C
c) Sodium Chlorite should be the chosen bleaching agent for wool as it is stable in acidic pH
d) It may sometimes require to use the mixture of emulsifier instead of one to remove oily impurities
e) Theoretically after degumming operation, water absorbance of silk decreases
f) Oxidative desizing of cotton should be carried out in alkaline media

## PART B

1. Giving **reasons**, state whether the following statements are **true** or **false**,

a) Epichlorohydrin crosslinks with cellulose because it has two epoxy groups.
b) Expander bars rotate on curved axis and are used on open-width processing machines.
c) Permanent setting of wool is achieved through breaking and reformation of di-sulphide linkage.
d) Wurlan process is used to mask the scales with nylon 6, 10.
e) The surface speed of Kiss-roll must always be the same as the speed of the fabric.
f) Efficiency of sealed tube heat exchangers is poor. [6]

2. Cotton fabric (150 GSM) is to be processed in a typical stenter. Calculate, a) the energy consumed (k cal/kg water) in evaporation of water and b) the weight add-on (%) if ,

i) The ambient temperature is 30 $^0$C , the temperature of stenter 120$^0$ C and the temperature of the fabric at the exit is also 110$^0$ C,

ii) Specific heat of
water = 1.0 k cal/$^0$C / kg
air = 0.24 k cal/$^0$C / kg
vapour = 0.46 k cal/$^0$C / kg
fabric = 0.32 k cal/$^0$C / kg
and latent heat of evaporation of water = 540 k cal/ kg

iii) Wet expression is 100% with the solution containing 10% Borax boric acid mixture.
iv) Whole of the added water has been evaporated
v) The exhaust has 0.1 kg water / kg exhaust [4]

3. Write short notes on any five of the following topics [10]

a) The fire cycle
b) Heat setting of synthetics
c) Low-liquor application
d) Soil release and antistatic finishing of Polyester
e) Waste heat recovery systems
f) Silicon softeners
g) Dual action fluorochemicals
h) Sanforization
i) Relationship between WLL (work of cohesion) and WSL (work of adhesion)
j) Moth-proofing of wool