**Course 12, “Size Press,” Final Quiz**

**Complete the following form and take the quiz to receive a certificate of course completion. Please enter your name information in the way you would like it to appear on your certificate. Send your completed form (in WORD or PDF format) as an email attachment to hubbe@ncsu.edu.**

**Your full name (print carefully or type):**

**Your affiliation (school, company, etc.):**

**Your email address:**

**Having taken this course will help me to…**

**This course could be improved by…**

**My idea for a future course in this series would be…**

FINAL QUIZ FOR COURSE 12 (ten questions)

1 – What problem related to offset printing is often reduced when a size press is being used?

1. Contamination of fountain solution, ink, *etc.* by particles
2. Build-up of viscosity of the inks (especially yellow)
3. Excessively high print density
4. Feathering of the process color images

2 – What do you call a pond-type size press in which the path of the paper through the nip is vertical?

1. Horizontal flooded nip
2. Inclined flooded nip
3. Vertical flooded nip
4. Film press

3 – What is the branched form of starch called?

1. Amylose
2. Amylopectin
3. Crosslinked
4. Converted

4 – An individual molecule of starch dissolved in water takes on what form?

1. Helical
2. Fibrillar
3. Globular
4. Micellar

5 – What is the cause of mist formation at the exit of a size press nip?

1. Evaporation and condensation in the high-humidity zone adjacent to the size press
2. Cavitation due to bubble implosion after the point of maximum vacuum as the nip opens
3. Nebulization due to tiny-amplitude vibrations at the size press nip
4. Stretching of filaments and their breakage into droplets due to capillary instability

6 – The Lucas-Washburn equation is based on what kind of model of porosity?

1. Cylindrical pores
2. Packed spheres in a bed
3. Styrofoam elbows
4. Random fibers

7 – Which of the following is a true statement about copolymers used at the size press for the purpose of making the paper more hydrophobic?

1. The copolymer includes both hydrophilic and hydrophobic parts.
2. The copolymer is completely hydrophilic.
3. The copolymer is completely hydrophobic.
4. The copolymer is hydrophilic in solution but becomes hydrophobic when attached.

8 – What property of a starch solution can be determined by a device that measures the bending of light in a prism system?

1. Solids
2. Turbidity
3. Optical activity
4. Precipitation from solution

9 – What do the terms “retrogradation” and “set back” mean?

1. Precipitation of starch from solution
2. Return to a less mature form of the starch, i.e. amylose
3. Conversion of part of the starch into its component sugars
4. Conversion of single-coil helices to double-coil helices

10 – What is one reason why the usage of nanocellulose at a size press can be expected to be challenging?

1. Nanocellulose always tends to form rainbow colors.
2. Nanocellulose tends to nucleate retrogradation.
3. Nanocellulose is incompatible with starch solutions.
4. Nanocellulose increases the viscosity of the mixture.