

TXL221: Yarn Manufacture I
Minor Test 1
Full Marks: 20

Date: February 6, 2018, Tuesday
Time: 4 pm - 5 pm, Venue: LH325

1) The following five questions are of multiple-choice type. You will get 1 mark if you write the correct answer, loose 0.25 mark for wrong answer, otherwise obtain 0 for that question. -1.25

(a) 2.5 % span length of 25 mm means that 2.5 % of the clamped fibers are
(i) 25 mm in length
(ii) 25 mm or shorter
(iii) 25 mm or longer
(iv) shorter than 25 mm

(b) Theoretically, maturity ratio ranges from
(i) 0 to 1
(ii) 0.2 to 1.2
(iii) 0.5 to 1.5
(iv) 0 to 100

(c) As compared to roller gin, saw gin
(i) leaves less linter on seeds
(ii) is more suitable for cleaner fibers
(iii) is more suitable for longer fibers
(iv) gives harsher treatment to fibers

(d) No. of fibers, each of 25 mm length and 1.6 dtex fineness, present in a tuft of 24 mg wt. is
(i) 600
(ii) 6000
(iii) 60000
(iv) 600000

(e) The sequence of machines in a conventional blowroom line is
(i) Bale opener → Fine-cleaner → Blender → Pre-cleaner → Aerofeed to card
(ii) Bale opener → Blender → Pre-cleaner → Fine-cleaner → Aerofeed to card
(iii) Bale opener → Blender → Fine-cleaner → Pre-cleaner → Aerofeed to card
(iv) Bale opener → Pre-cleaner → Blender → Fine-cleaner → Aerofeed to card

2) The following three questions are of short answer type. For each question, you will get 3 marks for fully-correct answer or partial marks for partially-correct answer, otherwise get 0 for that question.

- (i) The Cleanomat system CV14 offers progressive opening as well as progressive cleaning of fiber material. Do you agree with this statement? If yes, why or if not, why not?
- (ii) Justify the following statement: A multimixer with a greater number of compartments results in better blending.
- (iii) State three differences between a gentle opener and an intensive opener from the point of view of machine design.

3) The following two questions are of numerical problem type. For each question, you will get 3 marks for fully-correct answer or partial marks for correct steps, otherwise get 0 for that question.

- (i) Cotton fibers of 28 mm length and 1.5 dtex fineness are blended with polyester fibers of 40 mm length and 1.7 dtex fineness in accordance with a mass blend ratio of 40:60.

Calculate the mean length (in mm) of the fibers in the blend.

- (ii) A textile engineer inspects the warehouse and gathers the following information.

Category	No. of bales in warehouse	Variance of fiber length (mm ²)
1	40	90
2	60	95
3	20	85
4	20	90
5	60	95

He requires 20 bales for the laydown and follows optimum cost-variance category picking scheme. If he assumes same cost for all the bales in the warehouse then calculate how many bales he would select in each category for constituting the laydown.

[End of Question Paper]

dtex: deci-tex