Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐☐   Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(Textile Engg.) (2011 Onwards)   (Sem.–4)
YARN MANUFACTURE-I
Subject Code : BTTE-401
M.Code : 71644

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :
 1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
 2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
 3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1.   **Answer briefly :**

   a) A sliver of 2.75 is drafted in a drawing frame using 6 doubling and 8 draft. The sliver is passes thrice through the drawframe. Calculate the linead density of the output sliver in tex after third passage.

   b) Name the different elements of a roller gin involved in ginning operation.

   c) What is the basic principle of an automixer?

   d) Deduce the relation between denier and tex.

   e) How do you assess the performance of a card? Is it possible to parallelize fibre in a card?

   f) What is the approximate combined cleaning efficiency of card and blowroom? Also state the cleaning efficiency of each machine.

   g) In a 3 zone drafting system, state the role of the middle zone in the drafting operation.

   h) With a neat diagram, discuss the teeth disposition at the cylinder doffer junction in a card alongwith the direction of rotation of each roller.

   i) Define TREX system in card giving a suitable sketch.

   j) State the principles of the working of different autoleveller.

SECTION-B

2. What do you mean by openness value (OV)? How it is used to assess the performance of the blowroom operation? Discuss the other parameters, which can be judged to assess the performance of a blowroom.

3. Show the passage of fibre in the card clearly showing the direction of rotation of rollers and tooth disposition in the rollers. State also the objects of the different sections / zones of a revolving flat card.

4. The production of a card is 12 lb per hour. There are 20 cards that are running to process similar type of material. Waste taken out at each card is 5%. The hank of the lap fed is 0.0012. Calculate at what speed, the 9 inches lap roller of a scutcher should run with an efficiency of the machine being 90%.

5. With the help of a neat sketch describe the working of a closed loop autoleveller.

6. State two recent developments each in blowroom and in card. Discuss the significance of such developments.

SECTION-C

7. What are the objects of blending? At which stage would you prefer to blend to produce a polyester cotton blended yarn- explain with appropriate justification and mention the implication of blending at other stages besides the suggested one.

8. a) What are the fibre quality requirements for ring spinning? How the requirement is different in other spinning system? In the light of conventional spinning, give an assessment of the influence of each parameter in deciding the quality of the product.

   b) The front roller speed of a drawframe is 1960 rpm and its diameter is 38 mm. The applied tension draft is 1.03. Calculate the production per machine for 8 hours with 80% efficiency and 013 hank of delivered sliver.

9. a) Discuss the working principle of any opener used in a blowroom. Support your answer with necessary sketch.

   b) What is drafting force? State the factors which can influence it. Write a short note on drafting wave and roller slip wave, suggesting the measures to minimize these.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.