

[Total No. of Questions - 9] [Total No. of Printed Pages - 2]
(2125)

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B. Tech 7th Semester Examination
Post Spinning Operations (NS/OS)

TE-415 / TE - 7005

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Candidates are required to attempt five questions in all selecting one question from each of the section A, B, C and D of the question paper and all the subparts of questions in section E. Use of non-programmable calculators are allowed.

SECTION - A

1. State the influence of draw ratio, drawing speed and history of feed material on mechanical properties of fibres. (20)
2. Discuss the objectives of post spinning operations. Also brief the operations involved in the post spinning processes. (20)

SECTION - B

3. (a) Mention the events that occur during heat setting in a polymer structure. (10)
(b) Categorise the set according to their nature. (10)
4. Provide in detail any one method of tow-to-top conversion. (20)

SECTION - C

5. Why bulky yarns are produced? Compare the structure and properties of bulk acrylic yarns with normal ones. (20)

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6. Describe friction bush and disc type false twist texturizing process. Also compare its products with that from pin type false twist texturizing process. (20)

SECTION - D

7. How properties of air textured yarns are affected by variations in feed material and process parameters? (20)
8. Explain mechanism of air-jet texturing process. Also discuss the design aspects of an air jet texturizing machine. (20)

SECTION - E

9. (i) Define the yield stress and strain.
(ii) How does the draw ratio affect the position of neck w.r.t feed roller nip?
(iii) What do you understand by thermal healing?
(iv) How does the pre-twist level affect the bulk of air textured yarn?
(v) Name the feed material characteristics which have significant effect on textured yarn properties.
(vi) Draw a line diagram of draw texturizing machine.
(vii) Draw the crimped yarn structure formed by using stuffer box.
(viii) How draw ratio and molecular discontinuities are related?
(ix) State the suitable range of stretch ratios for LOY, POY and HOY.
(x) Comment on critical dissolution time method for measurement of extent of set. (10×2=20)