KUMARAGURU
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Register Number:…….

B.TECH DEGREE EXAMINATIONS: NOV/DEC 2014

(Regulation 2013)

Third Semester

TEXTILE TECHNOLOGY

U13TXT301: Manufactured Fibre Technology

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Match the following

P. Orientation	1. Visco elastic
Q. Amorphous	2. Birefringence
R. Dieswell	3. Stretch

a) P1,Q2, R3 b) P3, Q1, R2

c) P1, Q3, R2 d) P2, Q3, R1

2. In melt spinning, the purpose of manifold is to maintain ----------

3. Identify the statements which are true.

Statement 1. Viscose rayon has good lusture and wet strength.

Statement 2. Lyocell has improved moisture management properties and wet strength.

Statement 3. Encapsulation technique ensures slow release properties.

a) 1 and 2 b) 1 and 3

c) 2 and 3 d) 1, 2 and 3

4. The wall material in encapsulation technique is made of ----------

5. Match the following

P. wet spinning	1. polyester
Q. melt spinning	2. kevlar
R. gel spinning	3. viscose
S. dry-jet-wet spinning	4. HPPE

a) P2, Q4, R1, S3 b) P3, Q1, R2, S4

c) P1, Q3, R4, S2 d) P3, Q1, R4, S2

6. Dry-jet-wet technique is extensively used for the spinning of ---------- fibres

7. The molecular weight distribution of acrylic is ----------

   a) 18000-24000 b) 18000-30000

   c) 40000-100000 d) 100000 -300000

8. Fibre crystallinity can be measured by ----------

9. Statement 1. Texurized yarn has increased bulk and softness

   Statement 2. They are used in the elastics of innerwear

   a) Only statement A is true b) Only statement B is true

   c) Both statements are true d) Both statements are false

10. Heat setting of textile fibres increases ------ of the fibre

PART B (10 x 2 = 20 Marks)

(Not more than 40 words)

11. Outline the basic principles of fluid flow during fibre spinning.
12. List out various polymerization techniques used for manufacturing of synthetic fibres.
13. Enlist different cellulose derivative fibres and state their special characteristics.
14. Differentiate between staple and filament yarns with respect to their characteristics and method of manufacturing.
15. Name few specialty polyamide and polyester fibres and mention their special characteristics.
16. Mention the raw materials used in the production of Nylon6 and Nylon 66 and also give the chemical structure of these fibres.
17. Outline the method of carrying out end group analysis.
18. What are elastomeric fibres? State their types and special features.
19. Illustrate the process flow for tow to top and tow to yarn conversions.
20. Highlight the characteristics of textured yarns and list their applications.

PART C (5 x 14 = 70 Marks)

(Not more than 400 words)

Q.No. 21 is Compulsory

21. With neat sketches, explain the structure and functions of the different components of spinning process

22. a) Elaborate the various principles involved in the production of super absorbent fibres and bicomponent fibres with different cross sectional shapes

(OR)

b) With a flow chart, explain the various stages involved in the manufacturing process of viscose rayon fibre.

23. a) Elaborate the polymerization technique and manufacturing process of polyester fibre

(OR)

b) With suitable diagrams, discuss the manufacturing process of polypropylene and polyethylene fibres.

24. a) Explain the principle involved and the instruments used for characterization of thermal properties of fibres.

(OR)

b) Analyze the process variables and their influence on the manufacturing process of acrylic fibres and elastomeric fibres.

25. a) (i) Explain the need for drawing and heat setting and elaborate on their influence on the structural changes and properties of fibres. (8)

(ii) Explain in detail the feed material, structure and properties of air-jet textured yarn. (6)

(OR)

b) (i) Comprehensively discuss the various post spinning operations, stating the significance of each process. (10)

(ii) With a neat sketch explain the process of draw texturing process. (4)

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