

THE TEXTILE ASSOCIATION (INDIA)

GMTA EXAMINATION – 2020

SECTION – C PAPER – C.2

POLYMER TECHNOLOGY

Date: 25.12.20

MARKS: 100

Time: 10.00 am to 1.00 pm

Instructions:

1. Attempt any Six questions out of which **Q.1 is Compulsory**
2. Answer each next question on new page
3. Figures to the right indicate full marks
4. Illustrate your answers with neat sketches & flow charts wherever necessary
5. Use of non-programmable electronic pocket calculator is permissible
6. Mobile and any other communication devices are not allowed in the Examination hall.
7. Assume suitable data wherever necessary

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|------------|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Q 1 | Attempt any five | 20 |
| | a | What is fibre? Explain properties of polymer required to be a textile fibre |
| | b | What is polymerization reaction? Classify the polymerization reactions. |
| | c | Explain rheology of polymers. |
| | d | What are poly-functional polymers? |
| | e | Explain glass transition temperature of a polymer and explain its importance i Textiles. |
| | f | What is effect of time and temperature on mechanical behavior of Polymer |
| Q 2 | Discuss rheology of polymers. Explain significance of different flow with reference to stress and strain properties. | 16 |
| Q 3 | Write short notes on the following: | 16 |
| | a. | Initiators in Polymerization reaction. |
| | b. | Aging of polymers. |
| | c. | Classification of polymers. |
| | d. | Recycling of polymers. |
| Q 4 | a | Explain graft and block copolymerization 08 |
| | b | Describe thermal characterization of polymers. 08 |
| Q 5 | a | Define weight average and number average molecular weight distribution of polymers. Discuss the significance of them. 08 |
| | b | Discuss polymerization reaction with a suitable example. 08 |
| Q 6 | | What is polymer degradation? Explain various types of polymer degradation. 16 |
| Q 7 | a | Explain tacticity of polymer. 08 |
| | b | Discuss conducting polymers and their application. 04 |
| | c | Explain the use of inhibitors and antioxidants in polymer industry. 04 |
| Q 8 | a | Explain manufacturing process of Nylon 6. 08 |
| | b | What is polymer degradation? Explain various types of polymer degradation. 08 |

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