

THE TEXTILE ASSOCIATION (INDIA)
GMTA EXAMINATION – 2020
SECTION – D PAPER – D.3
ENGINEERING DESIGN AND YARN STRUCTURE

Date: 26.12.2020

MARKS: 100

Time: 2.00 pm to 5.00 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

- Q1 Match the following by choosing most appropriate option. 20**
- | | | | |
|----|---------------------------------------|---|--------------------------|
| 1 | 64 Ne yarn having 32 TPI | a | Rotor |
| 2 | Twist factor increase from 2.5 to 4.5 | b | Strength of blended yarn |
| 3 | Maximum Yarn Packing Factor | c | Z |
| 4 | OE Spinning | d | Ring |
| 5 | Contraction in yarn length | e | Hexagonal packing |
| 6 | Projection microscope | f | Twist Factor = 4.0 |
| 7 | Single Yarn Twist | g | $Tan \vartheta$ |
| 8 | Hamburger Model | h | Increased hairiness |
| 9 | Helix angle | i | 1 |
| 10 | Yarn geometry | j | Yarn Diameter |
| | | k | Increased hairiness |
| | | l | Yarn Twist |
| | | m | Twist Factor = 3.5 |
- Q2 With a neat diagram, explain ideal yarn geometry. Describe the relationship between yarn count and twist. 16**
- Q3 Explain packing factor of yarn. How is it measured? 16**
- Q4 With a neat diagram, explain measurement of yarn diameter by shadow projection method. 16**
- Q5 What is twist contraction in yarn? Explain the influence of twist on yarn strength. 16**
- Q6 List the conditions for occurrence of fibre migration. Describe the effects of fibre migration on dyeing and surface properties of yarn 16**
- Q7 Explain mechanics of blended yarns with the Hamburger's model. 16**
- Q8 What is spinnability of textile fibres? Explain its relation with end breakage rate. 16**
