

**MRSPTU PhD Question Paper**

Entrance Examination (2020)

Duration:45 mins.  
40

Full Marks:

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**Discipline** .....

**Name** .....

**Fathers Name** .....

**Roll Number** **Date:** .....

**Signature of Candidate:** .....

**Signature of Invigilator** .....

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1. Limitation in package size in Precision winding is mainly due to
  - A. Coil angle approaches towards  $90^0$  with the build of the package
  - B. Tension level in the threads increases
  - C. Patterning in package
  - D. Energy consumption becomes greater
  
2. In sectional warping machine, variation in packing among sections over sectional warper can result in,
  - A. Uncontrolled let off motion in weaving machine
  - B. Warp yarn breakage
  - C. Uncontrolled cloth fell position
  - D. Pick variation
  
3. Effective shed dwell in shuttle loom is reduced in case of
  - A. Fixed heald staggering
  - B. Variable heald staggering
  - C. Troughing of shed
  - D. Cross shedding
  
4. Troughing of shed through raising cloth fell position is possible in one of the following loom
  - A. Automatic shuttle loom
  - B. Gripper loom
  - C. Multiphase loom
  - D. Non-automatic shuttle loom

5. In a loom running at the speed of 210 PPM shuttle travels through the shed during  $55^\circ$  of bottom shaft revolution. Shuttle traverse time will be
- A. 0.087 min
  - B. 0.87 sec
  - C. 0.087 sec
  - D. 0.044 sec
6. The limitation of dobby shedding to increase the number of heald shaft is mainly due to,
- A. Warp strain increases
  - B. Size of the dobby increases
  - C. Energy consumption increases
  - D. Open shedding not possible
7. The main limitation of increasing the speed of gripper loom is,
- A. Retarding and controlling the gripper becomes difficult
  - B. The gripper speed has already achieved its limiting value
  - C. Energy consumption becomes higher
  - D. Shedding motion can not run faster
8. A design is repeating on 10 cm along length and 6 cm along width of a fabric having 40 ends and 30 picks per cm, will require a jacquard capacity of
- A. 200
  - B. 240
  - C. 270
  - D. 330
9. At front centre of sley,
- A. Both velocity and acceleration are zero
  - B. Velocity is zero but acceleration is maximum
  - C. Both velocity and acceleration are maximum
  - D. None of the above
10. A loom is designed to run at 300 PPM. If the fabric width is 2.5 m and weft crimp on the loom is 8 %, the WIR in m/min on the loom will be,
- A. 700
  - B. 750
  - C. 790
  - D. 810

11. During progression of bumping pick spacing changes as
- Increases
  - Decreases
  - First increase then decrease
  - Remains unaltered
12. Relationship between beat-up intensity (I) and pick spacing (S) is as follows;
- $I \propto S$
  - $I \propto 1/S$
  - $I \propto 1/(S - S_{\min})$
  - $I \propto 1/(S + S_{\min})$
13. The accelerating force of sley during beat up of a shuttle weaving machine of eccentricity 'e' is proportional to
- $(1 + e)$
  - $(1 + e^2)$
  - $(1 - e)$
  - $(1 + e)^2$
14. Shear rigidity of a fabric, in which with application of P stress in biased direction results 'e' strain, can be approximated as
- $P/4e$
  - $P/e$
  - $2P/e$
  - None of the above
15. Inter-yarn friction will have very significant influence in one of the following;
- Fabric tensile strength
  - Tear strength
  - Bursting strength
  - Fabric elongation at break
16. In which fabric construction, constituent thread anchor more rigidly at cross over points
- 5 end sateen fabric
  - Double jersey weft knitted fabric
  - Rachel warp knitted construction
  - Leno fabric

17. Which of the following quality parameter is independent of fabric thickness
- A. Flexural rigidity
  - B. Compression
  - C. Compressibility
  - D. Air permeability
18. Nonwoven fabric of very high bulk is possible through the manufacturing technique,
- A. Spunlace
  - B. Needle punched
  - C. Stitch bonded
  - D. Spunbonding
19. The strength of a single filament is 6 gf/denier. The strength of twisted multifilament yarn consist of 100 filaments will be
- A. 600 gf/denier
  - B. Less than 6 gf/denier
  - C. Greater than 6 gf/denier
  - D. Equals to 6 gf/denier
20. The RKM value of a yarn of 50 Nm and breaking load of 400 gf will be
- A. 50
  - B. 20
  - C. 40
  - D. none of the above
21. The level of yarn specific volume to derive diameter-count relationship ( $d = 1/27.2\sqrt{N}$ )
- A. 1.1
  - B. 0.90
  - C. 1.51
  - D. 1.16
22. Prewetting of yarn before sizing leads to
- A. Reduced size add-on
  - B. Increased size add-on
  - C. Increased hairiness
  - D. None of above

23. Yarn hairiness is directly proportional to –
- A. Yarn linear density
  - B. Twist level
  - C. Mean fibre length
  - D. Crimp level
24. The density of this fibre is highest
- A. Polyester
  - B. Nylon
  - C. Glass
  - D. Viscose
25. This type of spinning system utilizes a false twist action for yarn production
- A. Rotor spinning
  - B. Ring spinning
  - C. Air-jet spinning
  - D. Friction spinning
26. In ring-spinning the maximum linear traveler speed is directly proportional to-
- A. Square root of ring diameter
  - B. Ring diameter
  - C. Square of ring diameter
  - D. Cube of ring diameter
27. A ring frame traveler is moving in a circle of 5 cm-dia at 9000 rev/min offers a resistance to movement of 0.15 N. Work done/sec is \_\_\_\_\_J
- A. 3.01
  - B. 3.53
  - C. 3.84
  - D. 3.12
28. Osmometry is used to determine
- A. Number average molecular weight
  - B. Weight average Molecular weight
  - C. Viscosity average molecular weight
  - D. z-Average molecular weight

29. Dry jet wet spinning is used to manufacture
- A. Viscose Rayon
  - B. Polyester
  - C. Kevlar
  - D. Carbon
30. In a knitted fabric of stitch length  $l$ , composed of yarn of linear density  $T$  tex and stitch density  $S$ , mass of the cloth is proportional to
- A.  $T / S$
  - B.  $T S / l$
  - C.  $S l / T$
  - D.  $T l^2 S$
31. A sized polyester / cotton (70 / 30) fabric can be desized with
- A. Enzymatic desizing
  - B. Acid desizing
  - C. Hot mild detergent wash
  - D. Bromite desizing
32. Cotton is often bleached in
- A. Hypochlorite method
  - B. Peroxide method
  - C. Chlorite method
  - D. Peracetic acid method
33. Sulphur dyes are mostly applied on cotton in order to produce
- A. Light shades
  - B. Medium shades
  - C. Dark shades
  - D. None of these
34. Reactive dyes get attached with cotton through
- A. Covalent bond
  - B. Ionic bond
  - C. Hydrogen bond and vanderwalls force
  - D. None of these

35. Solubilised vat dyes are mainly used to produce
- A. Light shades on cotton
  - B. Light shades on nylon
  - C. Bright shades on wool
  - D. Fast shades on acrylic
36. Which one of the following sequences is followed in discharged style of printing
- A. Dyeing and printing are done simultaneously
  - B. Dyeing is done first followed by printing
  - C. Printing is done first followed by dyeing
  - D. None of these
37. To produce a multi-coloured heavy design, which one of the following gives best results
- A. Hand block printing
  - B. Roller printing
  - C. Screen printing
  - D. Transfer printing
38. Which one of the following is commercially used to produce anti-crease finish on cotton
- A. Silicones
  - B. THPC
  - C. DMEU
  - D. DMDHEU
39. Formability of fabric can determine
- A. Degree of stretchability of fabric
  - B. Tear strength of fabric
  - C. Fabric friction
  - D. Degree of tensile compression before buckling
40. For single sample variance study the following test statistics is to be used
- A. F test
  - B. t test
  - C. Z test
  - D.  $\chi^2$  test

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