ANSWER KEYS TEXTILE:

1-Answer: a) The part of the plant they come from

2-Answer: c) Aramid

3- Answer: b) Determines elasticity

4-Answer: a) Crystallinity

5- Answer: a) Hexamethylene diamine and adipic acid

6- Answer: c) Synthetic fibers

7- Answer: a) To increase its strength

8- Answer: a) Differential scanning calorimetry (DSC)

9- Answer: a) Crystalline fibers are generally stronger than amorphous fibers.

10- Answer: a) Moisture regain

11- Answer: a) Remove impurities from the fibers

12- Answer: a) Remove short fibers and impurities

13- Answer: c) Winding

14- Answer: a) The amount of twist per unit length

15- Answer: a) The movement of fibers within the yarn

16- Answer: d) All of the above

17- Answer: b) Wind yarn onto a package in a random pattern

18- Answer: a) Remove impurities from the yarn

19- Answer: d) All of the above

20- Answer: a) Control the selection of warp yarns for each shed

21- Answer: a) Stop the loom if a warp yarn breaks

22- Answer: a) The method of weft insertion

23- Answer: b) Loop yarn to form a fabric

24- Answer: d) A loose, open structure with a net-like appearance

25- Answer: d) All of the above

26- Answer: b) Shirley Analyzer

27- Answer: d) Tensile Tester

28- Answer: a) Uster Tester

29- Answer: d) Synthetic fibers

30- Answer: a) Show the distribution of data

31- Answer: d) Monitor process variation

32- Answer: c) Evaluate fabric hand

33- Answer: a) Applying a protective agent to prevent the dye from dyeing certain areas

34- Answer: b) Applying a discharge agent to remove the dye from certain areas

35- Answer: d) Polyester

36- Answer: a) Digital printing

37- Answer: b) Wool

38- Answer: b) Wool

39- Answer: c) Reduce the static charge on the fabric

40- Answer: c) Make the fabric easier to clean

As second fan Examiner

04-29-24

MAHARAJA RANJIT SINGH PUNJAB TECHNICAL UNIVERSITY, BATHINDA

Ph.D. Entrance Examination of TEXTILE ENGINEERING

Q1. What is the primary difference between bast fibers and leaf fibers?
a) The part of the plant they come from
b) Their chemical composition
c) Their strength
d) Their length

Q2. Which man-made fiber is known for its high strength and heat resistance?
a) Nylon
b) Acrylic
c) Aramid
d) Polyester

Q3. What is the primary function of a fiber's amorphous phase?
a) Provides strength
b) Determines elasticity
c) Affects moisture absorption
d) Influences color

Q4. Which physical property of a fiber is measured using X-ray diffraction?
a) Crystallinity
b) Birefringence
c) Density
d) Moisture regain

Q5. Which polymer is used to produce nylon-66?
a) Hexamethylenediamine and adipic acid
b) Caprolactam
c) Ethylene glycol and terephthalic acid
d) Acrylonitrile

Q6. Melt spinning is primarily used for:
a) Natural fibers
b) Regenerated cellulosic fibers
c) Synthetic fibers
d) All of the above

Q7. What is the purpose of drawing a fiber?
a) To increase its strength
b) To improve its elasticity
c) To reduce its diameter
d) To enhance its luster

Q8. Which technique is used to measure the glass transition temperature (Tg) of a polymer?
a) Differential scanning calorimetry (DSC)
b) Dynamic mechanical analysis (DMA)
c) Thermogravimetric analysis (TGA)
d) X-ray diffraction

Q9. What is the relationship between fiber structure and mechanical properties?
a) Crystalline fibers are generally stronger than amorphous fibers.
b) Amorphous fibers are always more elastic than crystalline fibers.
c) The orientation of polymer chains has no effect on mechanical properties.
d) Moisture absorption has no influence on mechanical properties.

Q10. The ability of a fiber to absorb and release moisture is known as:
a) Moisture regain
b) Hydrophilicity
c) Hydrophobicity
d) Hygroscopic

Q11. The primary function of opening and cleaning in yarn manufacture is to:
a) Remove impurities from the fibers
b) Blend different fibers together
c) Align the fibers parallel to each other
d) Twist the fibers into a yarn

Q12. The primary purpose of combing is to:
a) Remove short fibers and impurities
b) Blend different fibers together
c) Increase the twist level of the yarn
d) Reduce the diameter of the yarn

Q13. The mechanism used to build a bobbin in a roving frame is called:
a) Drafting
b) Twisting
c) Winding
d) Spinning

Q14. The twist factor of a yarn is a measure of:
a) The amount of twist per unit length
b) The diameter of the yarn
c) The strength of the yarn
d) The irregularity of the yarn

Q15. Fiber migration in a yarn refers to:
a) The movement of fibers within the yarn
b) The loss of fibers from the yarn
c) The change in orientation of fibers within the yarn
d) The change in diameter of the yarn

Q16. The primary function of a compact spinning machine is to:
a) Reduce yarn hairiness
b) Increase yarn strength
c) Improve yarn evenness
d) All of the above

Q17. A random winding machine is used to:
a) Wind yarn onto a package in a precise pattern
b) Wind yarn onto a package in a random pattern
c) Wind yarn onto a package in a step-wise pattern
d) Wind yarn onto a package in a tensioned pattern

Q18. The purpose of a yarn clearer is to:
a) Remove impurities from the yarn
b) Increase the tension of the yarn
c) Measure the diameter of the yarn
d) Control the speed of the yarn

Q19. The purpose of sizing is to:
a) Improve the strength of the yarn
b) Improve the abrasion resistance of the yarn
c) Improve the weaving performance of the yarn
d) All of the above

Q20. The function of a dobby shedding mechanism is to:
a) Control the selection of warp yarns for each shed
b) Control the insertion of weft yarn
c) Control the tension of the warp yarns
d) Control the take-up of fabric

Q21. The primary function of a warp stop motion is to:
a) Stop the loom if a warp yarn breaks
b) Stop the loom if a weft yarn breaks
c) Control the tension of the warp yarns
d) Control the take-up of fabric

Q22. The primary difference between a shuttle loom and a shuttleless loom is:
a) The method of weft insertion
b) The type of shedding mechanism
c) The type of fabric produced
d) The size of the loom

Q23. The primary function of a weft knitting machine is to:
a) Interlace warp and weft yarns
b) Loop yarn to form a fabric
c) Bond fibers together to form a fabric
d) Cut and sew yarn to form a fabric

Q24. A gauze weave is characterized by:
a) A high density of warp and weft yarns
b) A looped structure
c) A bonded structure
d) A loose, open structure with a net-like appearance

Q25. The thickness of a woven fabric is influenced by:
a) The diameter of the yarns
b) The density of the fabric
c) The type of weave
d) All of the above

Q26. The fineness of a fiber is measured using:
a) HVI
b) Shirley Analyzer
c) Uster Tester
d) Ball Tester

Q27. The tensile strength of a yarn is measured using:
a) Count Tester
b) Twist Tester
c) Hairiness Tester
d) Tensile Tester

Q28. Evenness testing of slivers is done using:
a) Uster Tester
b) Classimat
c) Tensile Tester
d) Thickness Tester

Q29. Heat setting is a finishing process applied to:
a) Cotton
b) Wool
c) Silk
d) Synthetic fibers

Q30. Frequency distributions are used to:
a) Show the distribution of data
b) Measure the correlation between variables
c) Test the significance of differences
d) Analyze the variation in data

Q31. Control charts are used to:
a) Show the distribution of data
b) Measure the correlation between variables
c) Test the significance of differences
d) Monitor process variation

Q32. The Kawabata Evaluation System (KES) is used to:
a) Measure yarn count
b) Test fabric thickness
c) Evaluate fabric hand
d) Measure fabric air permeability

Q33. Resist printing involves:
a) Applying a protective agent to prevent the dye from dyeing certain areas
b) Applying a discharge agent to remove the dye from certain areas
c) Applying a transfer paper to the fabric
d) Applying a pigment paste to the fabric

Q34. Discharge printing involves:
a) Applying a protective agent to prevent the dye from dyeing certain areas
b) Applying a discharge agent to remove the dye from certain areas
c) Applying a transfer paper to the fabric
d) Applying a pigment paste to the fabric

Q35. Transfer printing is primarily used for:
a) Cotton
b) Wool
c) Silk
d) Polyester

Q36. Inkjet printing is a type of:
a) Digital printing
b) Screen printing
c) Roller printing
d) Block printing

Q37. Milling is a finishing process applied to:
a) Cotton
b) Wool
c) Silk
d) Polyester

Q38. Decatizing is a finishing process applied to:
a) Cotton
b) Wool
c) Silk
d) Polyester

Q39. Antistatic finishing is used to:
a) Reduce the flammability of the fabric
b) Reduce the pilling of the fabric
c) Reduce the static charge on the fabric
d) Improve the crease resistance of the fabric

Q40. Soil release finishing is used to:
a) Improve the water repellency of the fabric
b) Improve the crease resistance of the fabric
c) Make the fabric easier to clean
d) Make the fabric more flame-resistant