

## PGAT EXAMINATION-2014 Textile Chemical Processing

1. Molecular weight of a fibre forming polymer should be more than \_\_\_\_.  
(A) 10000 (B) 20000 (C) 1000 (D) 2000
2. Fibres are \_\_\_\_ in nature.  
(A) isotropic (B) anisotropic (C) both a,b (D) elastic
3. Birefringence is the method to measure the \_\_\_\_ of fibre.  
(A) orientation (B) crystalline (C) Degree of Polymerization (D) amorphous structure
4. Birefringence value of wool is \_\_\_\_.  
(A) 0.08 (B) 0.10 (C) 0.18 (D) 0.20
5. Which internal property of fibre can not be measured by the X- ray diffraction?  
(A) crystalline (B) molecular weight (C) amorphous structure (D) orientation
6. \_\_\_\_ present in the fibre reduces brightness of fibre.  
(A) twist (B) elongation (C) ductility (D) crimp
7. Comparatively degree of molecular package in crystal region with respect to amorphous region is \_\_\_\_.  
(A) less (B) more (C) no relation (D) equal.
8. Which is a mineral fibre ?  
(A) Asbestos (B) Glass (C) Kapok (D) Casein
9. Specific gravity of wool fibre is \_\_\_\_  
(A) 1.5 (B) 1.54 (C) 1.31 (D) 1.26
10. Throwing of silk is \_\_\_\_ of silk fibre.  
(A) winding (B) doubling (C) brushing (D) twisting
11. Silk consists of two major components i.e. fibroin & \_\_\_\_.  
(A) sericin (B) lignin (C) glycine (D) serin

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12. Keratin is the main constituent of \_\_\_\_\_ fibre.
- (A) acrylic      (B) silk      (C) spandex      (D) wool
13. Solubility of silk is rapid in \_\_\_\_\_ acid.
- (A) sulphuric      (B) nitric      (C) hydrochloric      (D) acetic
14. Caprolactum, a raw material for the manufacture of nylon-6, is produced from
- (A) phenol      (B) naphthalene      (C) benzene      (D) pyridene
15. The monomer of poly vinyl chloride (PVC) is
- (A) chloroethene      (B) ethylene dichloride      (C) ethyl chloride      (D) chloroform
16. Buna-S is also known as
- (A) teflon      (B) PTFE      (C) SBR      (D) polycrylates
17. \_\_\_\_\_ tubes are good substitute for human blood vessels on heart by-pass operation.
- (A) PVC      (B) Polythene      (C) Teflon/dacron      (D) Polystyrene
18. 90% of the caprolactum is converted to nylon-6 on its condensation polymerisation in the reactor maintained at a temperature of \_\_\_\_\_ °C.
- (A) -10      (B) 10-30      (C) 250-280      (D) 500-600
19. Zeigler - Natta catalyst ( $AlR_3 - AlCl_3$ ) is used in the polymerisation of
- (A) vinyl acetate      (B) vinyl chloride      (C) propylene      (D) styrene
20. Reaction of dimethyl terephthalate (DMT) and ethylene glycol produces
- (A) nylon-6      (B) dacron      (C) nomex      (D) PVC
21. The synthetic fibres produced from \_\_\_\_\_ are known as rayon.
- (A) lignin      (B) cellulose      (C) polyamides      (D) PAN

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22. In a cross linked polymer, the monomeric units are linked together to constitute a three dimensional network. Which of the following is a cross-linked polymer ?

(A) Bakelite (phenol formaldehyde) (B) Polyester (C) Polythene (D) Nylon-6

23. Dacron (or terylene) fibres as compared to nylon fibres have

(A) better heat & acid resistant properties (B) poorer resistance to alkalis.

(C) poorer dyeability. (D) all (A), (B) and (C).

24. Orlon fibre which is used as a wool substitute is

(A) an amorphous polymer. (B) a natural polymeric fibre

(C) polyacrylonitrile. (D) polymethylmethacrylate (PMMA).

25. The organic acid monomer in nylon 66 is

(A) sebacic acid (B) terephthalic acid

(C) adipic acid (D) benzoic acid

26. Visco-elastic behaviour exhibited by plastics is a \_\_\_\_\_ like behaviour.

(A) solid (B) liquid (C) combination of solid & liquid (D) neither solid nor liquid

27. Nylon 6 as compared to Nylon 6, 6 has lower

(A) thermal stability. (B) adhesion to rubber (C) hardness (D) abrasion resistance.

28. Which of the following polymers belong to the class of formaldehyde resin ?

(A) Teflon (B) Melamine resins (C) Dacron (D) Nylon

29. In a linear polymer, the monomeric units are linked together to form long straight chains. The cross linked or branched chain polymers compared to linear polymers have higher

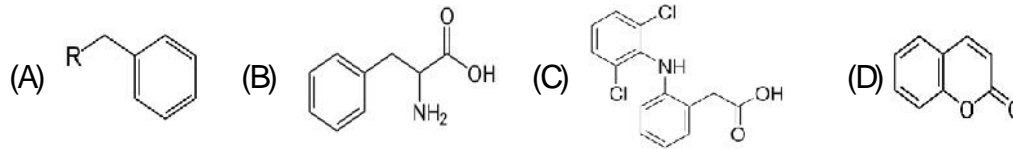
(A) densities (B) melting point (C) tensile strength (D) hardness, rigidity & brittleness

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30. Percentage reflectance value of goods is the highest when they are treated with.....

- (A)  $H_2O_2$  (B) Ultramine blue (C) Ranipol (D)  $TiO_2$

31. Optical brightening agent containing ..... group in its molecular structure.



32. Chemical used for UV-absorber.....

- (A) Tinopal (B)  $TiO_2$  (C)  $CaCO_3$  (D)  $MgO$

33. Eco-friendly cross linking agent is .....

- (A) DMDHEU (B) Acetic Acid (C) DMU (D) BTCA

34. CUEN test is carrying out for estimation of .....

- (A) Degree of crystallinity (B) degree of cross link  
(C) water proof (D) Moth proof

35. Pick out the wrong statement.

- (A) Polymeric fibres are never produced by addition polymerisation.  
(B) Property of tackiness is exhibited by uncured rubber.  
(C) Sharp melting point is not observed in thermoplastic polymers.  
(D) Polythene generally has an excellent resistance to ultra violet rays.

36. Long storage of urea formaldehyde resin causes fishy smell due to---

- (A) formaldehyde (B) tri-methylamine (C)  $NH_3$  (D) Urea

37. Cross linked polymers are

- (A) thermoplastic (B) thermosetting (C) either (a) or (b) (D) fibres only

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38. If 50 ml of 0.1 NaOH are added to 49ml of 0.1 HCl, the  $p^H$  of the resulting solution is

- (A) 8 (B) 10 (C) 11 (D) 12

39. Which aromatic bond shows fine structure ?

- A) Primary B) Secondary C) Tertiary D) Both B & C

40. If the temperature of saturated water is increased infinitesimally at constant entropy, the resulting state of water will be

- (A) Liquid (B) Liquid – vapor coexistence (C) Saturated vapor (D) Solid

41. Match the polymer in **Group I** to the polymer characteristic in **Group II**

### Group I

- P. Polyethylene  
Q. Phenol-formaldehyde polymer  
R. Polyisoprene  
S. Polyester

### Group II

- I. Elastomer  
II. Fiber  
III. Thermoplastic  
IV. Thermosetting polymer

(A) P-III, Q-IV, R-I, S-II

(C) P-III, Q-II, R-I, S-IV

(B) P-IV, Q-II, R-III, S-I

(D) P-IV, Q-III, R-I, S-II

42. For an exothermic reversible reaction, which one of the following correctly describes the dependence of the equilibrium constant ( $K$ ) with temperature ( $T$ ) and pressure ( $P$ ) ?

- (A)  $K$  is independent of  $T$  and  $P$   
(B)  $K$  increases with an increase in  $T$  and  $P$   
(C)  $K$  increases with  $T$  and decreases with  $P$   
(D)  $K$  decreases with an increase in  $T$  and is independent of  $P$

43. The local velocity of a fluid along a streamline can be measured by

- (A) Pitot tube (B) Venturi meter (C) Rotameter (D) Orifice meter

44. The chemical that is used to convert soda cellulose to sodium cellulose xanthate in the manufacture of viscose rayon is

- (A) Sodium hydroxide (B) Sodium xanthate  
(C) Sodium sulphide (D) Carbon disulphide

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45. A typical curve between equilibrium dye uptake and dyeing temperature goes through a maximum. After the maximum, the dye uptake decreases because

- (A) Kinetic energy increases rapidly (B) Pressure in the dye bath increases  
(C) Saturation value is reached (D) Dyeing is an exothermic process

46. The density of a given polyester filament sample is  $1.38 \text{ g/cm}^3$ . Consider the density of fully crystalline polyester as  $1.455 \text{ g/cm}^3$  and that of fully amorphous polyester as  $1.335 \text{ g/cm}^3$ . The percent crystallinity of the sample is \_\_\_\_\_.

- (A) 38-39 (B) 39-40 (C) 40-41 (D) 41-42

47. Match the following.

**Group 1**

**Group 2**

- |                 |                           |
|-----------------|---------------------------|
| (P) Viscosity   | (1) Pyrometer             |
| (Q) Pressure    | (2) Hot wire anemometer   |
| (R) Velocity    | (3) Rheometer             |
| (S) Temperature | (4) Piezoelectric element |

- (A) P-4, Q-3, R-1, S-2 (B) P-3, Q-4, R-2, S-1  
(C) P-3, Q-4, R-1, S-2 (D) P-4, Q-3, R-2, S-1

48. Tetra oxane curing is done at---- temp.

- (A)  $120^\circ\text{C}$  (B)  $160^\circ\text{C}$  (C)  $100^\circ\text{C}$  (D)  $180^\circ\text{C}$ .

49. LOI of Wool is-----

- (A) 25.9 (B) 25.2 (C) 26.5 (D) 35.3

50. Concentration of alkali in hot mercerization-----

- (A) 140 g/lit (B) 190g/lit (C) 270 g/ lit (D) 300 g/lit

51. Woolenisation of jute can be done by.....

- (A) NaOH (B)CaO (C)CS<sub>2</sub> (D) Na<sub>2</sub>CO<sub>3</sub>

52. During H<sub>2</sub> O<sub>2</sub> bleaching of cotton ----- chemical is used as partial stabilizing agent.

- (A) Na<sub>2</sub>SiO<sub>3</sub> (B) Na<sub>2</sub>CO<sub>3</sub> (C) NaCl (D) NaOH

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53. Oligomers in a polymer-----

- (A) Increases dye-ability      (B) Increases Tg Temp.  
(C) Increase thermal stability      (D) Non of them

54. LOTUS finish on fabric is a type of .....

- (A) Water repellent      (B) soil release  
(C) antistatic      (D) Wash-n-Wear

55. Organdi finish is carried out by.....

- (A) NaOH      (B) H<sub>2</sub>SO<sub>4</sub>      (C) CS<sub>2</sub>      (D) NaCl

56. Enzymatic desizing of cotton fabric ----- chemical is used as thermal stabilizing agents.

- (A) CH<sub>3</sub>COOH      (B) NaCl      (C) HCOOH      (D) HCHO

57. Urea is used in wool bleaching for.....

- (A) Swelling of wool      (B) surface itching  
(C) moisture absorbency.      (D) acts as Builders.

58. Which component of jute fiber absorbs uv light.....

- (A) -cellulose      (B) hemi-cellulose      (C) lignin      (D) -cellulose

59. BAN of properly mercerized cotton fabric is .....

- (A) 100      (B) 110      (C) 180      (D) 140

60. Self cleaning of fabric can be possible, when fabric is treated.....

- (A) TiO<sub>2</sub>      (B) Tinopal      (C) MgO      (D) KMnO<sub>4</sub>

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## ANSWER SHEET

Question no.	Answer	Question no.	Answer	Question no.	Answer
1	A	21	B	41	A
2	B	22	A	42	D
3	A	23	D	43	A
4	B	24	C	44	D
5	D	25	C	45	D
6	A	26	C	46	B
7	B	27	D	47	B
8	A	28	B	48	B
9	C	29	D	49	B
10	B	30	C	50	C
11	A	31	D	51	A
12	D	32	B	52	D
13	C	33	D	53	A
14	C	34	B	54	A
15	A	35	A	55	B
16	C	36	B	56	B
17	C	37	B	57	B
18	B	38	C	58	C
19	C	39	B	59	D
20	B	40	A	60	A