

(Translate English into Chinese, 1pt/question)

1. Syndiotactic 间规
 2. Plasticizer 塑化剂
 3. Isotactic 等规
 4. Compression molding 模压成型
 5. Injection molding 注射成型
 6. Glass Transition T. 玻璃化转变温度
 7. Monomer 单体
 8. Amorphous 无定形
 9. Degree of Polymerization 聚合度
 10. Specific Strength 比强度
 11. Viscoelasticity 粘弹性
 12. Vulcanization 硫化
 13. Degree of Crystallization 结晶度
 14. Unsaturated 不饱和的
 15. Thermoplastic Rubber 热塑型橡胶/ 或 热塑性弹性体
 16. Adherent 被粘物 或 附着的
17. (2pt) Most polymers possess an advantage over ceramics in _____.
A) Modulus B) High-temperature property
C) Toughness D) Hardness
18. (2pt) The major function of _____ is to prevent the degradation of polymers caused by free radicals.
A. Plasticizer B. Colorants C. Stabilizers D. Filler
19. (2pt) Which of the following can not be used to compare the molecular weights of two polymers derived from the same monomer?
A. Degree of Crystallinity, B. Average molecular weight
C. The number of repeating units, D. Degree of polymerization
20. (2pt) Thermoplastics plastics are generally better than thermosetting in _____.
A) Impact strength B) Creep resistance
C) Thermal resistance D) Fire retardance
21. (2pt) Which of the following polymers is the most flammable?
A) Fluorocarbons B) Cellulosics C) Phenolics D) Polyimides
22. (2pt) A thermoplastic polymer:
A) melts or softens when heated;
B) becomes brittle if cooled below its glass transition temperature;
C) does not involve covalent crosslinks;
D) may be amorphous, semicrystalline, or crystalline, depending on the polymer;
E) all of the above.
23. (2pt) A key factor in adhesive selection is the ability of the adhesive to ____ the substrate material.
A) Crosslink B) Wet C) Cure D) Reinforce

24. (2pt) Which of the following is not true about Thermoplastic rubbers?
A) Physical crosslinks, B) Ease of processibility,
C) **Non-recyclable**, D) No vulcanization
25. (2pt) What of the following elastomers has a low permeability to gases?
A) **Butyl rubber** B) Neoprene
C) Nitrile butadiene rubber D) Polyisoprene
26. (2pt) Which of the following rubbers is not oil resistant?
A) Acrylonitrile-butadiene rubber (NBR) B) **Styrene-butadiene Rubber (SBR)**
C) Polychloroprene (CR) D) Polyurethane (PU)
27. (2pt) Which of the following polymers does not require curing? ()
A) Epoxy resin (B) **Styrene-butadiene-styrene (SBS)**
C) Natural Rubber (NR) (D) Styrene-butadiene Rubber (SBR)
28. (2pt) Which of the following polymers is/are crystalline?
A) **Polypropylene (PP)** B) Natural Rubber (NR)
C) Polycarbonate (PC) D) Polymethyl methacrylate(PMMA)
29. (2pt) Which of the following polymers go through "Mixing – Shaping – Vulcanization" process?
A) Polypropylene (PP) B) **Natural Rubber (NR)**
C) Polycarbonate (PC) D) Polymethyl methacrylate(PMMA)
30. (2pt) (T or F) Stronger secondary forces between polymer chains will allow greater compacting, hence leading to higher crystallinity.
31. (2pt) (T or F) Styrene-butadiene-styrene (SBS) can be processed and recycled like thermoplastics.
32. (2pt) (T or F) High degree of crosslinking in a polymer means high strength and low elongation.
33. (2pt) (T or F) Opacity is increased with crystallinity in thermoplastics.
34. (2pt) (T or F) The hardness of plastics closely correlates to wear or abrasive resistance.
35. (6pt) A) Viscoelasticity is a property unique to polymers and has two aspects: B) Viscosity refers to the nature of a liquid's resistance to flow; and C) Elasticity refers to the ability of a material to return to its original size and shape once a load is removed.
36. (4pt) The basic requirements of monomers for polymerization are A) unsaturated and B) functional group.

37. (8pt) Nylon is produced by A) condensation polymerization, also named as B) step-reaction polymerization, while PMMA can be polymerized by C) Chain-Reaction polymerization, also named as D) addition polymerization.

(注: A,B 的顺序可以互换, C, D 的顺序可以互换)

38. (15 pt) Categorize the materials listed in Group I according to the grouping system listed in Group II, and name all the materials in group I in Chinese.

Group I 1) PVC 2) PC 3) NBR 4) Phenolics 5) Nylon
 6) SBR 7) PMMA 8) EPR 9) Epoxy 10) IIR

Group II

a. Thermoplastics

1) PVC; 2) PC; 5) Nylon; 7) PMMA. (聚氯乙烯, 聚碳酸酯, 尼龙, 聚甲基丙烯酸甲酯)

b. Thermosets

4) Phenolics; 9) Epoxy. (酚醛树脂, 环氧树脂)

c. Rubber

3) NBR; 6) SBR; 8) EPR; 10) IIR. (丁腈橡胶, 丁苯橡胶, 乙丙橡胶, 丁基橡胶)

39. (15 pt) Choose the BEST term to match the definition and translate the selected term into Chinese.

A. Accelerators

F. Hysteresis

B. Antioxidant

G. Glass transition

C. Flame retardant

H. Vulcanization

D. Adhesion

I. Viscoelasticity

E. Cohesion

J. Creep resistance

1) Additives are applied in curing systems to speed up the sulfur vulcanization.

Accelerators (硫化) 促进剂

2) Energy loss through heating in elastomers.

Hysteresis 滞后

3) The additive used for preventing oxygen reaction and by improving charring.

Flame retardant 阻燃剂

4) A chemical process used to crosslink rubber.

Vulcanization (橡胶的) 硫化

5) Attraction of molecules inside the adhesive.

Cohesion 内聚力

括号里的是可有可无，都算正确