

Jimma Institute of Technology
B.Sc. Materials Science and Engineering
Tutorial - Multiple Choice Questions

Model Exam - 3

29.05.2023

Name of the student	Register number

Answer the following questions.

1. Which strengthening mechanism involves aligning the polymer chains in a specific direction?
(a). Crystallinity (b). Crosslinking (c). Orientation (d). Steric hindrance
2. Which strengthening mechanism involves the formation of covalent bonds between polymer chains?
(a). Crystallinity (b). Crosslinking (c). Orientation (d). Steric hindrance
3. Which strengthening mechanism involves the packing of polymer chains in an ordered structure? (a). Crystallinity (b). Crosslinking (c). Orientation (d). Steric hindrance
4. Which strengthening mechanism involves the physical entanglement of polymer chains?
(a). Crystallinity (b). Crosslinking (c). Orientation (d). Steric hindrance
5. Which strengthening mechanism involves the addition of small molecules to the polymer to increase its strength?
(a). Blending (b). Reinforcing (c). Toughening (d). Plasticizing
6. Which strengthening mechanism involves the addition of rubbery materials to the polymer to increase its toughness?
(a). Blending (b). Reinforcing (c). Toughening (d). Plasticizing
7. Which strengthening mechanism involves the addition of small molecules to the polymer to increase its flexibility?
(a). Blending (b). Reinforcing (c). Toughening (d). Plasticizing
8. Which strengthening mechanism involves the use of heat and pressure to mold the polymer into a desired shape?
(a). Extrusion (b). Injection molding (c). Compression molding (d). Blow molding

9. Which strengthening mechanism involves the stretching of the polymer beyond its elastic limit? (a). Strain hardening (b). Strain softening (c). Work hardening (d). Work softening
10. Which strengthening mechanism involves the softening of the polymer under stress?
(a). Strain hardening (b). Strain softening (c). Work hardening (d). Work softening
11. What are the primary benefits of polymer products in modern life?
(A) Durability, flexibility, and cost-effectiveness (B) Lightweight, biodegradability, and low toxicity (C) High heat resistance, rigidity, and easy recycling (D) All of the above
12. What is the most significant advantage of polymer products in the medical industry?
(A) Low cost (B) Biocompatibility (C) High strength (D) Low toxicity
13. How do polymer products impact the environment?
(A) They are biodegradable and easily decompose (B) They release harmful toxins into the environment (C) They are recyclable and have a low carbon footprint (D) They have no impact on the environment
14. Which of the following is an example of a polymer product used in the automotive industry?
(A) Ceramic brakes (B) Steel frames (C) Carbon fiber body panels (D) Lead-acid batteries
15. What is the most significant disadvantage of polymer products in construction?
(A) They are not durable enough (B) They are expensive to manufacture (C) They have poor fire resistance (D) They are not aesthetically pleasing
16. How do polymer products impact the packaging industry?
(A) They allow for more efficient and cost-effective packaging (B) They are not durable enough for packaging applications (C) They are too heavy for shipping purposes (D) They are not biodegradable and contribute to waste

17. What is the most common polymer used in 3D printing?
(A) Polystyrene (B) Polyethylene (C) Polypropylene (D) Polylactic acid (PLA)
18. What is the primary advantage of using polymer products in the textile industry?
(A) Durability (B) Water resistance (C) Comfort and flexibility
(D) Biodegradability
19. Which of the following properties of polypropylene makes it inferior, when compared with polyethylene?
(a) brittleness (b) tensile strength (c) clarity (d) stress cracking resistance
20. Which among the following polymers is more prone to oxidation or aging?
(a) LDPE (b) HDPE (c) Polypropylene (d) None of the mentioned