

## Glass Production and Optical Properties of Materials Quiz Questions and Answers

1. Which one of the following is wrong about glasses?
  - a) They are amorphous
  - b) They have thermodynamic stability
  - c) They have short range order
  - d) They have chemical stability
  - e) They are super-cooled
2. What is the purpose of water in sugar glass?
  - a) It decreases chemical stability of the glass
  - b) It increases the glass transition temperature of the glass
  - c) It decreases the cooling rate of the melt
  - d) It decreases the melting point of sugar
  - e) It increases to energy required to melt the sugar
3. What is the purpose of glucose (corn) syrup in sugar glass?
  - a) To make it easier to form an amorphous structure
  - b) To change the transparency of the glass
  - c) To decrease the chemical stability of the glass
  - d) To form crystals in the glass structure
  - e) To increase the glass transition temperature of the glass
4. Which one of the following is not a characteristic property of glasses?
  - a) Hardness
  - b) Brittleness
  - c) Ductility
  - d) Chemical stability
  - e) Transparency
5. Why do we need to evaporate water from the glass batch?
  - a) It decreases chemical stability of the glass
  - b) It increases the glass transition temperature of the glass
  - c) It decreases the cooling rate of the melt
  - d) It decreases the melting point of sugar
  - e) It increases to energy required to melt the sugar
6. Which objects do we see as black?
  - a) They reflect all the light
  - b) They transmit all the light
  - c) They scatter all the light
  - d) They diffract all the light
  - e) They absorb all the light

7. Which of the following wavelength and color is the easiest to see to human eye?

- a) 650 nm – Blue
- b) 500 nm – Blue
- c) 600 nm – Green
- d) 550 nm – Green
- e) 600 nm – Blue

8. How is the transparency of our specimens in visible light range?

- a) Standard glass: very low, blue cobalt glass: has a peak in the middle, sun glasses: very
- b) Standard glass: very low, blue cobalt glass: high, sun glasses: low
- c) Standard glass: very high, blue cobalt glass: high, sun glasses: has a peak in the
- d) Standard glass: very high, blue cobalt glass: low, sun glasses: low
- e) Standard glass: very high, blue cobalt glass: has a peak in the middle, sun glasses: low

9. What is electromagnetic spectrum?

- a) A continuum of electromagnetic waves
- b) Interaction of electromagnetic waves and matter
- c) Reflectance of electromagnetic waves from a surface
- d) Shortening of the wavelength of an electromagnetic wave
- e) Total energy of electromagnetic waves coming from the sun

10. Which type of radiation should sunglasses block?

- a) Visible light
- b) Infrared (IR)
- c) Radio waves
- d) Ultraviolet (UV)
- e) Gamma radiation

11. Which of the following is a characteristic property of glasses?

- a) They have long-range order
- b) They have thermodynamic stability
- c) They have low viscosity
- d) They are super-cooled
- e) They are chemically unstable

12. Which of the following is not one of the steps of glass production?

- a) Refining
- b) Conditioning
- c) Tempering
- d) Batch preparation
- e) Solution treatment

13. Which objects do we see as white?

- a) They absorb all the light
- b) They reflect all the light
- c) They diffract all the light
- d) They scatter all the light
- e) They transmit all the light

14. What can we measure using a UV-Visible spectrophotometer?

- a) Absorbance
- b) Chemical stability
- c) Viscosity
- d) Glass transition temperature
- e) Electromagnetic compatibility

15. Which radiation type do we expect a standard glass to transmit?

- a) Visible light
- b) Infrared (IR)
- c) Radio wave
- d) Ultraviolet (UV)
- e) Gamma radiation