Q 1 Multiple choice

1. What is the definition of heat?

A) A form of matter

B) Energy transferred due to a temperature difference

C) A type of radiation

D) The mass of an object

2. What happens when two systems at different temperatures come into contact?

A) Heat flows from the colder system to the hotter system

B) Heat flows from the hotter system to the colder system

C) No heat flows between them

D) Both systems become colder

3. What is thermal equilibrium?

A) When two systems have the same temperature

B) When two systems have the same mass and same temperature

C) When two systems have the same volume

D) When two systems have the same density

4. When 30°C metal balls are mixed with 20°C water, why is the final temperature not 25°C?

A) Because the mixture has the same mass

B) Because the mixture has the same specific heat

C) Because the mixture is made of substances with different masses and specific heats

D) Because the mixture is not stirred

5. How is heat transferred along a metal rod?

A) By convection B) By radiation

C) By conduction D) By evaporation

6. What is thermal conductivity?

A) The ability to reflect heat

B) The ability to absorb heat

C) The ability to transfer heat through a material

D) The ability to store heat

7. Which of the following is a good thermal conductor?

A) Wood B) Plastic C) Copper D) Cardboard

8. Why are cooking pot handles made of plastic or wood?

A) They are good conductors B) They are strong

C) They are cheap D) They are good insulators

9. How is heat transferred in fluids?

A) By conduction B) By radiation

C) By convection D) By insulation

10. Why are cooling systems used in electronic devices?

A) To increase performance B) To reduce noise

C) To remove excess heat D) To increase weight

11. What causes sea breeze during the day?

A) The land cools faster than the sea

B) The sea heats faster than the land

C) The land heats faster than the sea

D) The sea and land heat equally

12. How is heat transferred from the Sun to the Earth?

A) By radiation B) By convection

C) By conduction D) By reflection

13. Which type of clothing is preferred in summer?

A) Dark and tight B) Light and loose

C) Shiny and thick D) Black and heavy

14. What do all hot objects emit?

A) Light only B) Sound waves

C) Infrared radiation D) Ultraviolet rays

15. What is thermography used for?

A) Measuring mass B) Detecting heat radiation

C) Measuring volume D) Detecting sound

16. What is the scientific term for energy transferred due to temperature difference?

A) Work B) Light C) Power D) Heat

17. What is the state when two systems reach the same temperature?

A) Thermal expansion B) Thermal equilibrium

C) Thermal conduction D) Thermal radiation

18. How is heat transferred in a vacuum?

A) By conduction B) By convection

C) By radiation D) Not transferred

19. Which is a good heat insulator?

A) Iron B) Copper C) Wood D) Aluminum

20. What happens when an ice cube is placed in boiling water?

A) Heat flows from water to ice B) Heat flows from ice to water

C) No heat flows D) Ice gains energy from surroundings

21. How is heat transferred through ironing clothes?

A) By radiation B) By convection

C) By evaporation D) By conduction

22. Why does ice melt faster on some materials?

A) Due to color B) Due to higher thermal conductivity

C) Due to thickness D) Due to shape

23. Which material is a poor conductor of heat?

A) Aluminum B) Plastic C) Silver D) Copper

24. Why is the heating coil placed at the bottom of an electric kettle?

A) To heat water by convection B) To heat water by radiation

C) To heat water by conduction D) To reduce electricity use

25. In which case is heat transferred only by radiation?

A) Heating water on a stove B) Heating a rock by the Sun

C) Heating air in the room with a radiator D) Rubbing hands together

26. Why are houses in hot areas painted white?

A) To absorb heat B) To reflect heat

C) To conduct heat D) To store heat

27. How is heat transferred from a heater to a thermometer?

A) Conduction only B) Convection only

C) Radiation only D) All three methods

28. What is a physical change?

A) A change in chemical composition

B) A change in state or shape without altering composition

C) Formation of new substances

D) A change in color only

29. Which of the following is a chemical change?

A) Melting ice B) Dissolving sugar

C) Burning wood D) Breaking glass

30. What is a chemical reaction?

A) A change in state B) A process where new substances are formed

C) A change in shape D) A change in temperature

31. What indicates a chemical reaction between baking soda and vinegar?

A) Color change B) Formation of a precipitate

C) Gas bubbles D) Temperature decrease

32. What happens in a chemical reaction at the molecular level?

A) Atoms are destroyed B) Atoms are rearranged

C) Atoms are created D) Atoms remain unchanged

33. What indicates a chemical reaction when oil reacts with caustic soda?

A) Gas evolution B) Color change

C) Formation of a solid D) Emission of light

34. Which is NOT an indicator of a chemical reaction?

A) Change in texture B) Change in volume

C) Formation of a precipitate D) Emission of odor

35. What safety precaution is needed when burning magnesium?

A) Use a protective mask B) Use bare hands

C) Use a plastic container D) Use water to cool it

36. What indicates a chemical reaction when sugar is burned?

A) It melts B) It dissolves

C) It changes color and emits smoke D) It becomes harder

37. Is the expansion of water in a sealed bottle in a freezer a chemical reaction?

A) Yes, because it changes state

B) No, because no new substance is formed

C) Yes, because it changes volume D) No, because it is reversible

38. Why is adding food coloring to water not a chemical reaction?

A) Because it changes color

B) Because it forms a new substance

C) Because no new substance is formed

D) Because it is irreversible

39. What is the scientific term for a change that produces new substances?

A) Physical change

B) Chemical change

C) Reversible change

D) Temporary change

40. Which of the following is a physical change?

A) Rusting of iron B) Burning of bread

C) Melting of wax D) Turning milk into yogurt

41. A physical change is characterized by:

a) Produces new substances

b) The composition of the matter changes

c) The composition of the matter does not change

d) Accompanied by light emission

42. When iron is exposed to moist air, it undergoes:

a) Melting b) Evaporation c) Rusting d) Dissolving

43. The browning of an apple after cutting is considered:

a) A physical change b) A chemical reaction

c) A change of state d) Melting

44. When sugar is heated, it turns brown due to:

a) Dissolving b) Condensation

c) A chemical reaction d) Evaporation

45. When hydrochloric acid is added to magnesium, it produces:

a) Carbon dioxide b) Oxygen c) Hydrogen d) Nitrogen

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