

A

- 1 Which statement about the production of iron from iron oxide in a blast furnace is correct?
- A) Limestone is used to remove basic impurities.
B) The iron is obtained using carbon monoxide as an oxidising agent.
C) Molten iron floats on slag at the furnace base.
D) The iron oxide is reduced by carbon dioxide.
E) The reaction between the iron oxide and carbon monoxide liberates carbon dioxide.
- 2 A compound contains 75% carbon and 25% hydrogen, by mass.
What is the molecular formula of the compound?
- A) CH₄
B) C₂H₄
C) C₂H₆
D) CH₃
E) C₃H
- 3 The formulae of the ions of some elements are shown below.
N³⁻ O²⁻ F⁻ Li⁺ Mg²⁺
Which statement about these ions is correct?
They all have
- A) the same number of electrons in their outer shells.
B) the same number of protons in their nuclei.
C) the same electronic structure as a noble gas.
D) the same number of neutrons in their nuclei.
E) more electrons than protons.

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- 4 Which gas is formed when ammonium chloride is warmed with aqueous sodium hydroxide?
- A) ammonia
B) chlorine
C) hydrogen
D) nitrogen
E) oxygen
- 5 How many moles of oxygen, O₂, are needed for the complete combustion of two moles of butane, C₄H₁₀?
- A) 10
B) 8
C) 13
D) 2
E) 28
- 6 A colourless gas is denser than air. It neither burns nor supports the burning of a splint.
What could the gas be?
- A) chlorine
B) hydrogen
C) helium
D) carbon dioxide
E) oxygen

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- 7 An ion X^+ contains 23 particles in the nucleus and 10 electrons outside the nucleus.

What does the nucleus of the ion X^+ contain

	Protons	Neutrons
A)	9	14
B)	11	12
C)	10	13
D)	12	11
E)	13	10

- 8 Which statement about diamond and graphite is correct?

- A) The carbon atoms in graphite have a different number of electrons from those in diamond.
 B) Neither graphite nor diamond burns.
 C) Both graphite and diamond are used as abrasives.
 D) Graphite and diamond have different arrangements of carbon atoms.
 E) The carbon atoms in graphite have a different shape from those in diamond.

- 9 Which statement about the elements in the Periodic Table is correct?

- A) Group VII elements form negative ions.
 B) Group I elements form covalent chlorides.
 C) The elements become more metallic from left to right across a period.
 D) Group O elements are unreactive metals.
 E) The number of electrons in the outer shell decreases from left to right across a period.

- 10 After acidification with dilute nitric acid, a colourless solution of X reacts with aqueous silver nitrate to give a white precipitate.

What could X be?

- A) calcium iodide
 B) lead (II) bromide
 C) iron (II) iodide
 D) copper (II) chloride
 E) sodium chloride

- 11 Which statement is most likely to be true about the elements in Group I of the Periodic Table?

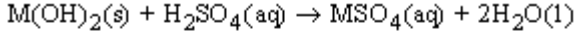
- A) They form chlorides of similar formulae.
 B) They become less metallic as the relative proton (atomic) number increases.
 C) They are equally reactive chemically.
 D) They occur uncombined in nature.
 E) The proton (atomic) number of an element is one greater than that of the element above it.

- 12 Which of the following occurs in the Contact process?

- A) sulphur dioxide is dissolved in dilute sulphuric acid
 B) sulphur dioxide is dissolved in water
 C) sulphur trioxide is dissolved in concentrated sulphuric acid
 D) sulphur trioxide is dissolved in water
 E) sulphur trioxide vapour is condensed.

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- 13 An aqueous solution of a sulphate is made from a solid hydroxide, of a metal M, by the reaction:



For which hydroxide would the method not work?

- A) iron (II) hydroxide
B) barium hydroxide
C) copper (II) hydroxide
D) magnesium hydroxide
E) zinc hydroxide
- 14 The proton (atomic) number of element X is 6; the proton (atomic) number of element Y is 9. What is the formula of a compound formed between X and Y?
- A) X_2Y_3
B) XY
C) XY_3
D) XY_4
E) X_3Y_2
- 15 Which of the following reacts both with an acid and with an alkali to give a salt and water?

- A) magnesium hydroxide
B) copper (II) hydroxide
C) iron (III) hydroxide
D) calcium hydroxide
E) zinc hydroxide

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- 16 Two different hydrocarbons each contain the same percentage by mass of hydrogen. It follows that they have the same

- A) empirical formula.
B) number of atoms in a molecule.
C) relative molecular mass.
D) number of isomers.
E) structural formula.

- 17 Why are the elements sodium and chlorine in the same period of the Periodic Table?

- A) The atoms of both elements have only three electron shells (energy levels) containing electrons.
B) Sodium and chlorine combine together to form a compound of formula NaCl.
C) The atoms of both elements have eight electrons in their second electron shell (energy level).
D) Sodium is a reactive metal and chlorine is a reactive non-metal.
E) The proton numbers (atomic numbers) of sodium and chlorine differ by less than eight.

- 18 What is the product formed when hydrogen reacts with an alkene?

- A) a carbohydrate
B) an organic acid
C) an alcohol
D) an alkane
E) a polymer

A

19 Ammonia gas is produced when solid ammonium chloride is heated with

- A) hydrochloric acid
- B) calcium hydroxide
- C) magnesium nitrate
- D) calcium sulphate
- E) water

20 Which gas is used for filling light bulbs?

- A) hydrogen
- B) carbon dioxide
- C) argon
- D) chlorine
- E) oxygen

21 Which gas is used in the manufacture of household bleach?

- A) ammonia
- B) hydrogen chloride
- C) carbon dioxide
- D) chlorine
- E) oxygen

22 Which of the following is an ester?

- A) soap
- B) nylon
- C) starch
- D) PVC
- E) terylene

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23 Which of the following reacts with water to form a soluble compound and an insoluble gas?

- A) calcium oxide
- B) ammonia
- C) potassium
- D) hydrogen chloride
- E) sulphur dioxide

24 Which of the following metallic ions forms a white hydroxide which dissolves in an excess of aqueous sodium hydroxide but not of aqueous ammonia?

- A) Fe^{2+}
- B) Al^{3+}
- C) Cu^{2+}
- D) Ca^{2+}
- E) Mg^{2+}

25 The element caesium, Cs, is in the same group of the Periodic Table as sodium and potassium.

Which of the following is likely to be a property of caesium?

- A) It does not conduct electricity.
- B) It forms an ionic chloride of formula $CsCl_2$.
- C) It forms an acidic oxide.
- D) It reacts vigorously with water giving off hydrogen.
- E) It forms an insoluble hydroxide.

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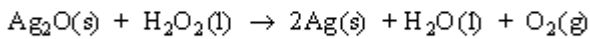
26 Which statement about graphite is correct?

- A) It conducts electricity because the graphite ions are free to move.
- B) It is a hard, transparent substance.
- C) It has the same structure as diamond.
- D) Its structure contains rings of 6 atoms.
- E) It has an ionic lattice.

27 Barium sulphate is insoluble in water. Which method could be used to prepare a pure sample of the salt from dilute sulphuric acid?

- A) add an excess of barium carbonate, filter, crystallise the filtrate
- B) add aqueous barium chloride, filter, crystallise the filtrate
- C) add an excess of barium hydroxide, filter, crystallise the filtrate
- D) add an excess of barium carbonate, filter, wash and dry the residue
- E) add aqueous barium chloride, filter, wash and dry the residue

28 Hydrogen peroxide, H_2O_2 , reacts with silver oxide according to the following equation.



In this reaction, hydrogen peroxide behaves as

- A) a dehydrating agent
- B) an acid
- C) an oxidising agent
- D) a catalyst
- E) a reducing agent

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29 An atom of argon has 18 electrons round its nucleus. Which of the following particles does not have 18 electrons round its nucleus?

- A) Cl^-
- B) O^{2-}
- C) K^+
- D) Ca^{2+}
- E) S^{2-}

30 Which of the following is an example of an addition polymer?

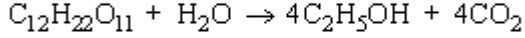
- A) poly(ethene)
- B) nylon
- C) protein
- D) starch
- E) sugar

31 The atoms of an element X have the electronic configuration 2, 8, 6. Which of the following statements about element X is correct?

- A) It has 6 protons in the outer shell of an atom.
- B) It is a metal.
- C) It forms an ion of charge 2+.
- D) It only reacts with non-metals.
- E) It forms an ionic compound with sodium.

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- 32 When sugar ($M_r = 342$) is fermented using yeast, the following reaction takes place



What volume of carbon dioxide, at r.t.p., would be produced by the complete fermentation of 1 kg (1000 g) of sugar?

- A) $\frac{342 \times 4 \times 24}{1000} \text{ dm}^3$
B) $\frac{1000 \times 4 \times 24}{342} \text{ dm}^3$
C) $\frac{1000 \times 24}{342 \times 4} \text{ dm}^3$
D) $\frac{342 \times 24}{1000 \times 4} \text{ dm}^3$
E) $\frac{1000 \times 4}{342 \times 24} \text{ dm}^3$
- 33 In which of the following changes is the nitrogen reduced?
- A) N^{3-} to N_2
B) NH_3 to NO
C) NH_3 to NO_3^-
D) N_2 to NH_3
E) N_2 to NO_2
- 34 Which of the following is a characteristic property of acids in aqueous solution?
- A) They liberate carbon dioxide from carbonates.
B) They liberate ammonia from ammonium salts.
C) They give hydrogen with any metal.
D) They have a pH greater than 7.
E) They turn red litmus paper blue.

A

- 35 A chloride ion, Cl^- , has the same total number of electrons as

- A) a fluoride ion, F^-
B) a sodium ion, Na^+
C) a bromine atom, Br
D) an argon atom, Ar
E) a sulphur atom, S

- 36 A mistake at an oil refinery caused petrol and paraffin to become mixed. What is the best method of separating and collecting them?

- A) evaporation
B) condensation
C) crystallisation
D) filtration
E) fractional distillation

- 37 Which test could be used to show that a sample of water is pure?

- A) It turns cobalt (II) chloride paper pink.
B) When it reacts with sodium, hydrogen is formed.
C) It turns anhydrous copper (II) sulphate blue.
D) It freezes at exactly $0^\circ C$.
E) When it evaporates, it leaves no residue.

A

38 The following three different solutions were electrolysed using inert electrodes.

solution 1 aqueous sodium chloride
solution 2 concentrated hydrochloric acid
solution 3 dilute sulphuric acid

Which of the solutions produce hydrogen at the cathode?

- A) 2 only
- B) 1 and 2 only
- C) 1 only
- D) 1, 2 and 3
- E) 2 and 3 only

39 A solid deposit of element X is formed at the cathode when an aqueous solution containing ions of X is electrolysed.

Which statement about element X must be correct?

- A) X forms negative ions.
- B) X is a non-metal.
- C) X ions gain electrons at the cathode.
- D) X is above hydrogen in the reactivity series.
- E) X ions lose electrons at the cathode.

40 How many moles of hydrogen atoms does 3.2g of methane, CH₄, contain?

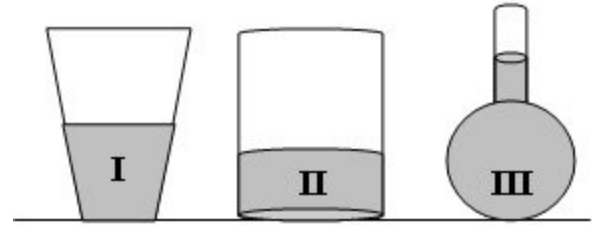
- A) 0.02
- B) 0.8
- C) 0.2
- D) 0.4
- E) 2.0

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41 Which of the following statement is WRONG?

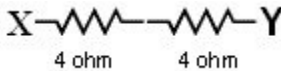
- A) Ammeter measures current in a circuit.
- B) A battery converts chemical energy into electrical energy.
- C) Resistance is inversely proportional to current.
- D) Gold is a good conductor of electricity.
- E) Like charges attract each other.

42



Equal volume of the same liquid is placed in the containers above. Which of the following is correct for the pressure exerted by the liquid at the bottom of each container?

- A) $P_I > P_{II} > P_{III}$
- B) $P_I < P_{II} < P_{III}$
- C) $P_{II} < P_{III} = P_I$
- D) $P_I = P_{II} = P_{III}$
- E) $P_{II} > P_I > P_{III}$

43 

If voltage of 40v is applied between points X and Y what will be the current flowing through the circuit?

- A) 20 A
- B) 5 A
- C) 16 A
- D) 10 A
- E) 160 A

A

44 Which of the following statements is WRONG?

- A) The human ear can not detect ultrasonic sound.
- B) Sound waves travel best in solid mediums.
- C) Intensity, loudness and tone allow us to distinguish different sound.
- D) Unlike light waves sound waves can not reflect from a solid surface.
- E) Intensity of sound is measured in decibel.

45 2.5 m east, 200 cm west

What is the sum of the above vector quantities?

- A) 0.5 m west
- B) 500 cm west
- C) 500 cm east
- D) 50 cm west
- E) 0.5 m east

46 BLUE - GREEN - RED

Which of the following is WRONG about the above colours?

- A) They all mix to give White.
- B) Mixing any two of these colours will give a secondary colour.
- C) They are the colours of the rainbow.
- D) Blue and red mix to give Magenta.
- E) They are primary colours.

A

47 Which of the following is equal to 250ml. of a liquid?

- A) 250 cm³
- B) 25L
- C) 25 cm³
- D) 0.25 cm³
- E) 2.5L

48

Substance	Melting Point (°C)	Boiling Point (°C)
X	-70	80
Y	-20	140
Z	20	60

Substances X,Y and Z, initially at -40°C, are heated until the temperature change by 110°C. Which substance(s) go/goes from SOLID - LIQUID - GAS, during this process?

- A) X and Y
- B) Only X
- C) Only Z
- D) Y and Z
- E) X, Y and Z

49 A worker applies a force of 250 N at the end of a spanner of length 30 cm. What moment is applied to the nut?

- A) 0
- B) 75Nm
- C) 750Ncm
- D) 7500Nm
- E) 750Nm

A

50 Which of the following actions does NOT result in a turning effect?

- A) Pulling the knob to close the door.
- B) Cycling on a bike.
- C) Straightening a picture frame on the wall.
- D) Spinning a wheel.
- E) Pinning a picture onto a notice board.

51 Choose the incorrect statement below.

- A) Sulphur dioxides and nitrogen oxides cause acid rain.
- B) Acid rain causes harm to buildings, soil, plants and people.
- C) Carbon dioxide causes global warming.
- D) Chloro flourocarbons cause thinning of the ozone layer.
- E) Global warming causes increase in skin cancer.

52 10 Which is not true for near sightedness

- A) can be corrected by using diverging lenses
- B) Is caused by large or elongated eyeballs
- C) occurs because the image is formed in front of the retina
- D) Usually occurs when the eye lens cannot get thin enough
- E) is referred to as long sight

A

53 Which is not found in the middle ear.

- A) ear canal
- B) Eustachian tube
- C) stapes
- D) malleus
- E) oval window

54 Choose the correct definition.

- A) Aerobic respiration is the breakdown of glucose using oxygen to produce energy.
- B) Mutations are random changes in the structure of DNA of an organism.
- C) Absorption in the digestive system involves mixing of food with blood.
- D) Plants produce their own food in the presence of sunlight by photosynthesis.
- E) All of the above.

55 A man and woman both with normal colour vision have a colour blind son. Using this information choose the correct statement below.

- A) The woman is a carrier for this disease.
- B) The woman is homozygous.
- C) The man is homozygous.
- D) The man is a carrier for this disease.
- E) All of the above.

A

56 All the organisms living in a habitat is called

- A) population
- B) community
- C) ecosystem
- D) species
- E) novliving factors

57 carries urine to the bladder

- A) Ligament
- B) Urethra
- C) Ureter
- D) Kidney
- E) Urinary bladder

58 Which of the gases does not cause global warming?

- A) methane
- B) carbondioxide
- C) hydroflourocarbons
- D) chloroflourocarbons
- E) none of the above

59 Which of the following is a function of the cerebellum?

- A) controls balance
- B) controls breathing
- C) regulates heart beat
- D) memory
- E) vision

A

60 In which of the following locations are slightly movable joints found?

- A) Shoulder
- B) Hip
- C) Elbow
- D) Knee
- E) Neck

TEST BİTTİ
CEVAPLARINIZI KONTROL EDİNİZ