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CBSE
Class IX Science
Term 2
Sample Paper – 3

Chemistry

Q1.   A solution is made by dissolving 60 g of sodium chloride in 360 g of water. Find the mass percentage of the solution.
(a) 15.76%
(b) 17.56 %
(c) 14.28 %
(d) 18.36 %

Q2.   Which formula gives the maximum number of electrons in a shell?
(a) n^2
(b) $2n^2$
(c) $3n^2$
(d) $4n^2$
(e) $4n^2$

Q3.   How many free surfaces exist in the case of solids?
(a) 1
(b) 2
(c) 3
(d) Infinitely many

Q4.   2.8 g of calcium oxide prepared by heating limestone produces 0.8 g of oxygen. Calculate the mass percentage of calcium.
(a) 71.4%
(b) 61.4%
(c) 81.6%
(d) 91.2%

Q5. Which of the following are physical changes?
(i) Heating of iodine crystals
(ii) Burning of wood
(iii) Melting of wax
(a) Only (i) and (ii)
(b) Only (ii) and (iii)
(c) Only (i) and (iii)
(d) Only (ii)

Q6. At what temperature on the Kelvin scale does liquid nitrogen boil? (Its boiling point is – 196°C.)
(a) 469 K
(b) 273 K
(c) 330 K
(d) 77 K

Q7. Which of these is a pair of isobars?

(A) $_{6}^{12}C$; $_{8}^{16}O$ (B) $_{6}^{13}C$, $_{6}^{14}C$

(C) $_{20}^{40}Ca$, $_{18}^{40}Ar$ (D) $_{17}^{35}Cl$, $_{17}^{37}Cl$

Q8. What is the atomic radius of a hydrogen atom?
(a) 0.00925 nm
(b) 0.0185 nm
(c) 0.037 nm
(d) 0.074 nm

Q9. In which of the following is centrifugation method employed?
(a) Oil, Diary and Sugar industries
(b) Textile industry
(c) Nuclear plant
(d) Rubber industry

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Q10.   Which of the following is added to LPG to detect its leakage?
   (a) Naphthalene
   (b) Methyl ethyl sulphide
   (c) Benzene
   (d) Calcium

Q11.   What is the mass of one mole of cane sugar? (Formula of cane sugar is $C_{12} H_{22} O_{11}$.)
   (a) 342 g
   (b) 180 g
   (c) 360 g
   (d) 240 g

Q12.   Which of the following elements has an isotope that does not have a neutron in its nucleus?
   (a) Helium
   (b) Hydrogen
   (c) Beryllium
   (d) Magnesium

Q13.   What is the fifth state of matter called?
   (a) Rutherford – Einstein Condensate
   (b) Bhaba – Einstein Condensate
   (c) Bohr – Einstein Condensate
   (d) Bose – Einstein Condensate

Q14.   Find the element that has both minimum and maximum valencies.
   (a) Mg
   (b) Ne
   (c) P
   (d) Cl

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Q15.   In which of these applications are isotopes used?
        (i)   Uranium as fuel in nuclear reactors
        (ii)   Iodine in the treatment of goiter
        (iii)   Cobalt in the treatment of cancer
        (iv)   Laboratory preparation of oxygen
        (a) Only (i) and (ii)
        (b) Only (ii) and (iii)
        (c) Only (i), (ii) and (iii)
        (d) Only (i) and (iii)

Q16.   Which substances are incorrectly placed in the following table?

Liquid-Liquid mixtures	Lighter liquid	Heavier liquid
(A) Olive oil and water	Olive oil	Water
(B) Benzene and Carbon tetrachloride	Benzene	Carbon-tetrachloride
(C) Kerosene oil and water	Water	Kerosene oil
(D) Alcohol and water	Alcohol	Water

Q17.   Identify the factors affecting the rate of evaporation.
        (i)   Temperature and humidity
        (ii)   Amount of the liquid
        (iii)   Wind speed
        (iv)   Surface area exposed to the atmosphere
        (a) Only (i) , (ii) and (iv)
        (b) Only (ii), (iii) and (iv)
   (c) Only (i), (iii) and (iv)
        (d) Only (i), (ii) and (iii)

Q18.   What is the mass of 1 mole of $FeSO_4 . 7H_2O$?
        (a) 69.5 g
        (b) 278 g
        (c) 34.75 g
        (d) 139 g

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Q19. Identify the INCORRECT option.

	Type of mixture	Solute	Solvent	Solution
(A)	Solid - Solid	Tin	Copper	Bell metal
(B)	Liquid - Gas	Ammonia	Water	Ammonium hydroxide
(C)	Liquid - Liquid	Water	Acetic acid	Vinegar
(D)	Gas - Gas	Oxygen	Nitrogen	Air

Q20. Identify the isotopes of carbon.

(A) $^{12}_{6}C$, $^{16}_{6}C$ (B) $^{12}_{6}C$, $^{14}_{6}C$ (C) $^{24}_{6}C$, $^{16}_{6}C$ (D) $^{14}_{6}C$, $^{16}_{6}C$
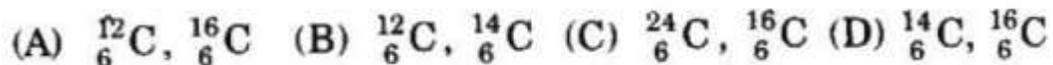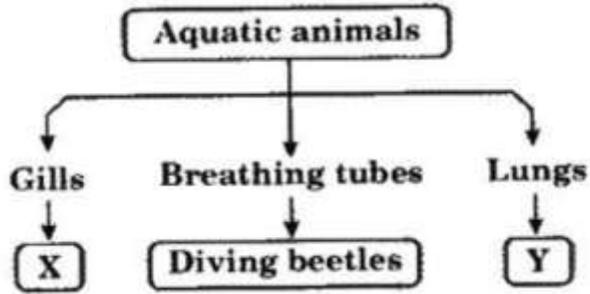
Biology

Q21. The given diagram shows a type of vascular tissue found in a tree trunk.
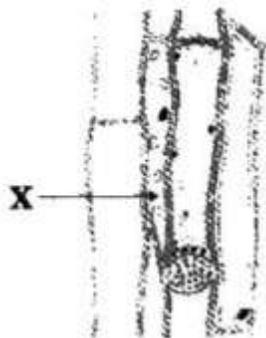
What is the part labeled X?
(a) Sieve tube
(b) Sieve plate
(c) Companion cell
(d) Sieve pore

Q22. Which of the following animals has exoskeleton made of chitin?
(a) Starfish
(b) Snail
(c) Cockroach
(d) Snake

Q23. Some aquatic animals are grouped according to the way they breathe.

Identify animals X and Y.

	X	Y
(A)	Tadpole	Dolphin
(B)	Whale	Fish
(C)	Dolphin	Whale
(D)	Frog	Fish

Q24. Which of the following is true about the sites of synthesizing and destroying sites of erythrocytes in an adult human being?
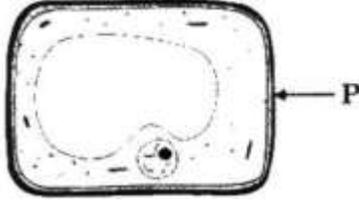
	Synthesising site	Destroying site
(A)	Bone marrow	Stem cells
(B)	Liver	Spleen
(C)	Bone marrow	Spleen
(D)	Lymph nodes	Bone marrow

Q25. Which of the following help to keep a healthy cardiovascular system?
   (i)   Avoid exercising
   (ii)   Maximise sodium intake
   (iii)   Minimize high cholesterol foods
   (iv)   Eat more fruits and vegetables
   (a) Only (i) and (ii)
   (b) Only (ii) and (iii)
   (c) Only (i) and (iv)
   (d) Only (iii) and (iv)

Q26. What is the feature of the fish that helps it overcome resistance during its movement in water?
(a) Having a small head.
(b) Having hollow bones
(c) Having a streamlined body.
(d) Having a fluid in the body cavity

Q27. In which of the following animals does respiration occur without any respiratory organ?
(a) Snake
(b) Fish
(c) Prawn
(d) Earthworm

Q28. I am an animal cell that needs to travel fast from one place to another in an organism. I need to be able to travel through small spaces quickly. I do not have a nucleus. My function is to distribute a gas essential for life. Who am I?
(a) Monocyte
(b) Leucocyte
(c) Erythrocyte
(d) Thrombocyte

Q29. Which of the following will result in loss of soil fertility?
(i)   Crop rotation
(ii)   Shifting cultivation
(iii)   Excessive use of chemical fertilisers
(a) Only (i) and (ii)
(b) Only (i) and (iii)
(c) Only (ii) and (iii)
(d) (i), (ii) and (iii)

Q30. Who proposed the cell theory?
(a) Schleiden and Schwann
(b) Watson and Crick
(c) Darwin and Wallace
(d) Mendel and Morgan

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Q31.   Look at the given cell.

Identify the function of the part labeled P.

(a) It forms the cell plate during cell division

(b) It controls all the activities of the cell.

(c) It contains many small parts

(d) It prevents desiccation of the cell.

Q32.   Which of the following includes the production and management of fish?

(a) Aquaculture

(b) Pisciculture

(c) Horticulture

(d) Sericulture

Q33.   What is the function of flame cells in Platyhelminthes?

(a) To dissolve the wastes.

(b) To produce the wastes.

(c) To excrete the wastes.

(d) To burn the wastes.

Q34.   How do animals get their nitrogen?

(a) By absorbing nitrogen gas through their skin.

(b) By eating carbohydrates like sugars and starch.

(c) From nitrates in their drinking water.

(d) By eating plants and other animals.

Q35.   The figure given shows a part of the carbon cycle.
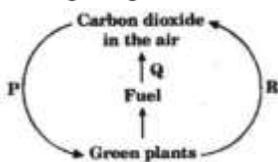
Which of the following processes is represented by P?

(a) Respiration

(b) Photosynthesis

(c) Combustion

(d) Transpiration

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Q36. Abhi observed the following cell p arts of two different cells under a microscope. He recorded his observation in the table given.

Parts of cell	Cell X		Cell Y	
	Present	Absent	Present	Absent
Cell wall	✓			✓
Cytoplasm	✓		✓	
Nucleus	✓		✓	
Cell membrane	✓		✓	
Chloroplast		✓		✓

Identify X and Y.

	X	Y
(A)	Animal cell	Plant cell
(B)	Plant cell	Animal cell
(C)	Fungal cell	Animal cell
(D)	Animal cell	Fungal cell

Q37. Which of the following describes about the first line defense?
(a) It involves lymphocytes in the blood.
(b) It involves phagocytic white blood cells.
(c) In involves skin and mucous membrane
(d) It produces antibodies that destroy bacteria and viruses.

Q38. What do the conducting tissues of a plant have?
(i) Xylem
(ii) Phloem
(iii) Cortex
(iv) Epidermis
(a) Only (i) and (ii)
(b) Only (ii) and (iv)
(c) Only (i) and (iii)
(d) Only (iii) and (iv)

Q39. Which of the following always involve the process of diffusion in living things?
(i) The movement of minerals from the soil into root hair cells.
(ii) The movement of water into the cells of living things
(iii) The movement of dissolved oxygen from the surrounding water into an amoeba.
(iv) The movement of carbon dioxide from the air into leaf cells.
(a) Only (i) and (ii)
(b) Only (i) and (iii)
(c) Only (ii) and (iii)
(d) Only (iii) and (iv)

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Q40.   Lysosomes are reservoirs of
(a) Fat
(b) RNA
(c) Hydrolytic enzymes
(d) Cellulose.

Physics

Q41.   The acceleration due to gravity on planet A is nine times the acceleration due to gravity on planet B. A man jumps to a height 2 cm on the surface of A. What is height of jump by same person on planet B?

(a) 2/3 m
(b) 2/9 m
(c) 18 m
(d) 6 m

Q42.   A ball is released from the top of a tower of height h metres. It takes T seconds to reach the ground. What is the position of the ball at $\frac{T}{3}$ second.
(a) 8h/9 metres from the ground
(b) 7h/9 metres from the ground
(c) h/9 metres from the ground
(d) 17h/18 metres form the ground

Q43.   An automobile travelling with a speed of 60 km/h, can brake to stop within a distance of 20 m. If the car is going twice as fast i.e., 120 km/h, the stopping distance will be
(a) 60 m
(b) 40 m
(c) 20 m
(d) 80 m

Q44.   The motion of a particle is described by the equation u = at. The distance travelled by particle in first 4 sec is
(a) 4a
(b) 12a
(c) 6a
(d) 8a

Q45.   A rider on horse falls back when horse starts running, all of a sudden because
(a) Rider is taken back
(b) Rider is suddenly afraid of falling

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(c) Inertia of rest keeps the upper parts of body at rest while lower part of the body moves forward with the horse

(d) None of these

Q46. A man getting down a running bus falls forward because

(a) Due to inertia of rest, road is left behind and man reaches forward

(b) Due to inertia of motion upper part of body continues to be in motion in forward direction while feet come to rest as soon as they touch the road

(c) He leans forward as a matter of habit

(d) Of the combined effect of all the three factors stated in (a), (b) and (c)

Q47. The heart is pumping blood at x kg per unit time, with constant velocity v. The force needed is

(a) xv

(b) $v\dfrac{dx}{dt}$

(c) $x\dfrac{dv}{dt}$

(d) $zero$

Q48. A parrot is sitting on the floor of a closed glass cage which is in a boy's hand. If the parrot starts flying with a constant speed, the boy will feel the weight of the cage as

(a) Unchanged

(b) Reduced

(c) Increased

(d) Nothing can be said

Q49. The mass of moon is 1/81 of earth's mass and its radius ¼ of the earth. If the escape velocity from the earth's surface is 11.2 km/sec. its value for the moon will be

(a) $0.14\ kms^{-1}$

(b) $0.5 kms^{-1}$

(c) $2.5\ kms^{-1}$

(d) $5.0\ kms^{-1}$

Q50. The potential energy of a satellite of mass m and revolving at a height R above the surface of earth where $R_e = radius\ of\ earth\ is$

(a) $-mgR_e$

(b) $\dfrac{-mgR_e}{2}$

(c) $\dfrac{-mgR_e}{3}$

(d) $\dfrac{-mgR_e}{4}$

Q51. Two particles m_1 and m_2 are at initially at rest at infinite separation. They start moving towards each other due to mutual force of gravitation. Find their relative velocity of approaches when separation between them is 'd'.

(a) $\sqrt{\dfrac{2G\ (m_1+m_2)}{d}}$

(b) $\sqrt{\dfrac{2G\ (m_1-m_2)}{d}}$

(c) $\sqrt{\dfrac{3G\ (m_1+m_2)}{d}}$

(d) $\sqrt{\dfrac{3G\ (m_1-m_2)}{d}}$

Q52. Three particles of masses 1 kg, 2 kg and 3 kg are placed on the verticals of an equilateral of side 2m. now these masses are moved towards the vertices of an equilateral triangle of side 1 m, then find the work done.

(a) $9.184 \times 10^{11} J$

(b) $9.185 \times 10^{10} J$

(c) $9.183 \times 10^{11} J$

(d) $9.185 \times 10^{11} J$

Q53. A wave of frequency 100 Hz is sent along a string towards a fixed end. When this wave travels back reflection a node is formed at a distance of 10 cm form the fixed end of the string. The speeds of incident (and reflected) waves are

(a) 5m/s

(b) 10 m/s

(c) 20 m/s

(d) 40 m/s

Q54. What is the effect of humidity on sound waves when humidity increases?

(a) Speed of sound waves is more

(b) Speed of sound waves is less

(c) Speed of sound waves remains same

(d) Speed of sound waves becomes zero

Q55. Two waves having the intensities in the ratio of 9: 1 produce interference. The ratio of maximum to the minimum intensity is equal to

(a) 2 : 1

(b) 4 : 1

(c) 9 : 1

(d) 10 : 8

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Q56.   A spring has a force constant k, and a m is suspended from one of the halves. Is the frequency of vibration the same before and after the spring is cut? How the frequencies are is related?

(a) $\frac{1}{\sqrt{3}}$

(b) $\frac{1}{\sqrt{5}}$

(c) $\frac{1}{\sqrt{2}}$

(d) $\frac{1}{\sqrt{3}}$

Q57.   A child builds a tower from there three blocks. The blocks are uniform cubes of side 2 cm. The blocks are initially al lying on the same horizontal surface and each block has a mass of 0.1 kg. The work done by the child is

(a) 4 J

(b) 0.04J

(c) 6J

(d) 0.06J

Q58.   A particle of mass m moves from rest under the action of a constant force F which acts for two seconds. The maximum power attained is

(a) 2 kw

(b) 5 w

(c) 200 w

(d) 1 kw

Q59.   Consider the following two statements:

I.   Linear momentum of a system of particles is zero.

II.   Kinetic energy of a system of particles is zero.

Then

(a) I implies II but II does not imply I.

(b) I does not imply II implies I.

(c) I implies II and II implies I.

(d) I does not imply II and II does not imply I.

Q60.   A body of mass m moving with velocity v makes a head on elastic collision with another body of mass 2 m which in initially at rest. The loss of kinetic energy of the colliding body (mass m) is

(a) 1/2 of its initial kinetic energy

(b) 1/9 of its initial kinetic energy

(c) 8/9 of its initial kinetic energy

(d) 1/4 of its initial kinetic energy