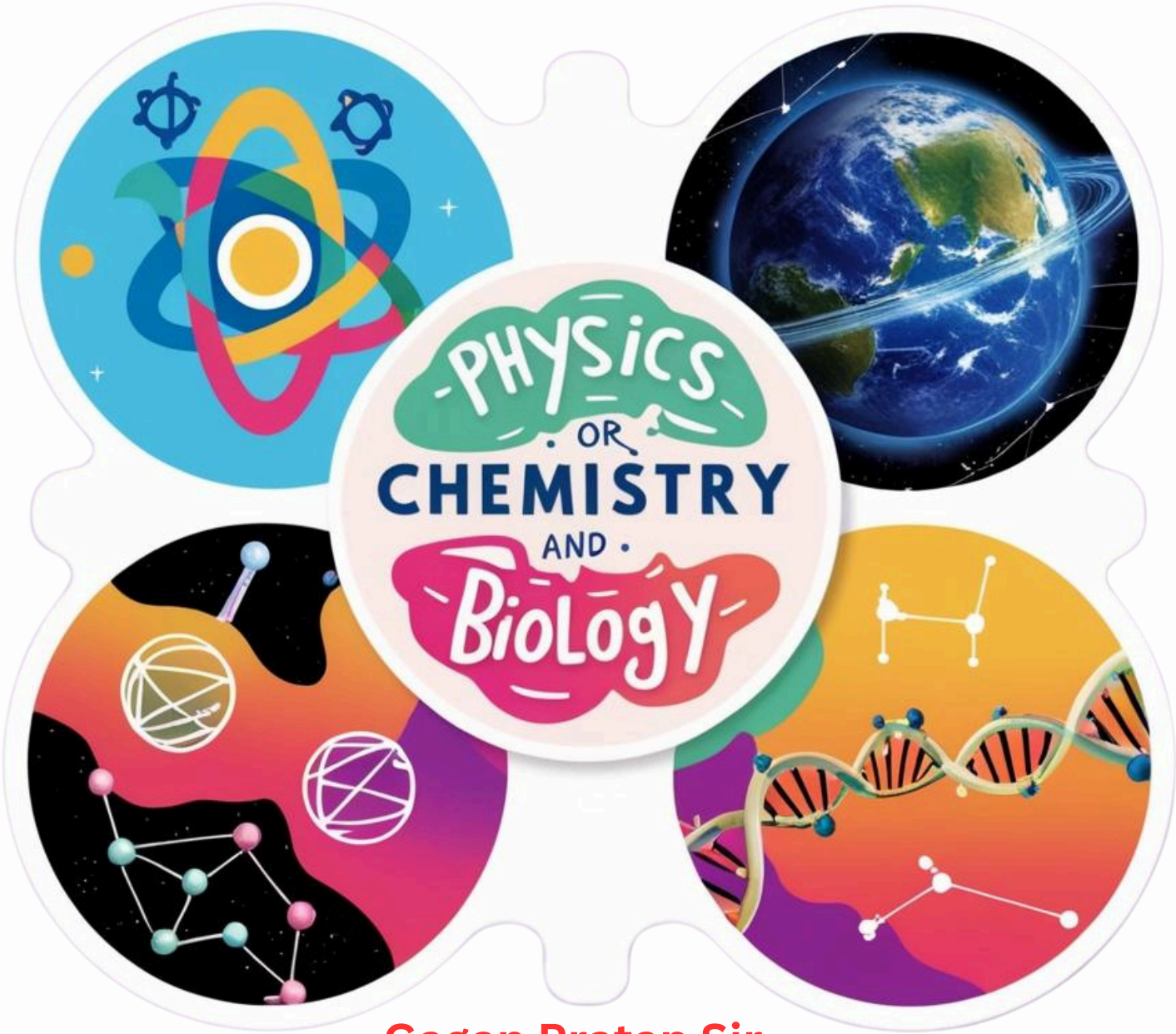
SSC 2024

COMPLETE SCIENCE PYQ'S E-BOOK

825+ Questions



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Physics

Combined Graduate Level Examination Tier I 2024

Q1) What is the SI unit of current?

A) Ohm B) Ampere C) Metre D) Volt

Correct Ans: B

Q2) What is the unit of measurement for optical power of the lens?

A) Yotta B) Katal C) Radian D) Diopter

Correct Ans: D

Q3) What is the unit of specific resistance?

A) Farad B) Ampere C) Coulomb D) Ohm meter

Correct Ans: D

Q4) Which famous experiment was done by Michael Faraday in 1831?

A) Discovery of quantum magnetometers B) Discovery of law of elasticity C) Discovery of electromagnetic induction

D) Discovery of natural radioactivity

Correct Ans: C

Q5) Which of the following is NOT a unit of energy?

A) Joule B) Calorie C) Newton D) Kilowatt hour

Correct Ans: C

Q6) Which of the following statements is NOT correct?

A) Light year is the unit of distance. B) Light year is the distance travelled by light in one year.

C) Light year is the unit of time. D) Angstrom is unit of length.

Correct Ans: C

Q7) What was the name of the wind measuring instrument invented for the first time in 1450?

A) Transmissometer B) Dropsonde C) Anemometer D) Ceiling Projector

Correct Ans: C

Q8) Identify the INCORRECT pair regarding motion and their examples?

A) Translatory motion – A ball falling from the cliff B) Periodic motion – Hands of a clock

C) Oscillatory motion – Earth moving around the sun D) Rotatory motion – blades of a fan

Correct Ans: C

Q9) Which of the following two quantities have the same dimensions?

A) Work and torque B) Power and moment of inertia C) Work and angular displacement

D) Power and radius of circular motion

Correct Ans: A

Q10) What happens when two forces act in the opposite directions on an object?

A) The net force acting on the object is the difference between the two objects.

B) The net force acting on the object is the difference between the two forces.

C) The net force acting on the object is the total of the two forces.

D) The net force acting on the object is the sum of the two objects.

Correct Ans: B

Q11) Name the phenomenon where an opaque object on the path of light becomes very small and where light has a tendency to bend around it and not walk in a straight line.

A) Reflection of light B) Diffraction of light C) Angle of refraction D) Angle of incidence

Correct Ans: B

Q12) If a bar magnet is hung from a string, in which direction does its north pole point?

A) West B) North C) East D) South

Correct Ans: B

Q13) A small object is placed on the focus on the left side of a convex lens. Where will be the image formed?

A) At the centre on the right side of the lens. B) At infinity on the left side of the lens.

C) At infinity on the right side of the lens. D) At the focus on the right side of the lens.

Correct Ans: C

Q14) In the Right-Hand Thumb Rule, the thumb is directed towards the direction of:

A) current B) electric field C) motion of the conductor D) magnetic field

Correct Ans: A

Q15) In the context of vernier calliper, an internal jaw is used to measure:

A) the length correct up to 1 mm B) the depth of a beaker C) the length of a rod and diameter of a sphere

D) the internal diameter of a hollow cylinder and pipes

Correct Ans: D

Q16) Calorimeter is a small container made of a thin sheet of _____ with good thermal conductivity.

A) silver B) platinum C) copper D) cesium

Correct Ans: C

Q17) An electric iron requires a _____ fuse to prevent short circuiting.

A) 4 A B) 3 A C) 2 A D) 5 A

Correct Ans: D

Q18) How long will a sound wave take to travel 1.5km, which has a frequency of 5 kHz and wavelength of 6 cm?

A) 2.5 seconds B) 50 seconds C) 5 seconds D) 25 seconds

Correct Ans: C

CHSL Exam 2024 Tier I

Q1) Which of the following is the correct relationship?

A) F = a/m B) F = m/a C) F = m^2a D) F = ma

Correct Ans: D

Q2) Which is the nearest planet to the Sun?

A) Uranus B) Jupiter C) Mercury D) Saturn

Correct Ans: C

Q3) Which of the following is NOT applicable to force?

A) Force may change the shape of an object B) Force may change the direction of a moving object

C) Force may increase the mass of the object D) Force may make an object move

Correct Ans: C

Q4) Who was the first to use the term 'horsepower' that refers to the power produced by an engine?

A) John Dalton B) Amedeo Avogadro C) Albert Einstein D) James Watt

Correct Ans: D

Q5) Which of the following statements is correct?

A) Mars is the warmest planet. B) The size of Jupiter and Mars is similar. C) The size of Earth and Venus is almost similar.

D) The density of Saturn is similar to that of Earth.

Correct Ans: C

Q6) For which of the following discoveries in 1827 was the German physicist, Georg Simon Ohm best known?

A) For clarifying the mathematical relationship between electrical current, resistance and voltage

B) For measuring the magnetic properties of nuclear particles

C) For invention of the magnetometer, which is a device capable of measuring the direction and strength of a magnetic field

D) For developing a device capable of amplifying and modulating electromagnetic signals that could also function as an oscillator

Correct Ans: A

Q7) Which device is used to measure the current flow using needle deflection caused by a magnetic field force acting upon a current-carrying wire?

A) Galvanometer B) Psophometer C) Potentiometer D) Ammeter

Correct Ans: A

Q8) In an electrical circuit, the ammeter reading decreases to _____ when the length of the wire is doubled.

A) one-sixth B) one-half C) one-fourth D) one-third

Correct Ans: B

Q9) Who proposed that 'Light is made up of waves propagating perpendicular to the direction of its movement'?

A) Newton B) Huygens C) Kepler D) Pauli

Correct Ans: B

Q10) What is the wavelength range of visible light?

A) 0.2 to 0.3 μm B) 0.7 to 0.9 μm C) 0.4 to 0.7 μm D) 1 to 2 μm

Correct Ans: C

Q11) Who among the following confirmed Maxwell's theories with the discovery of radio waves and also became the first person to transmit and receive controlled radio waves in 1886?

A) Guglielmo Marconi B) William Hopkins C) Michael Faraday D) Heinrich Hertz

Correct Ans: D

Q12) A circular coil having 'n' turns produces a field _____ times large as that produced by a single turn

A) 2n B) n C) 4n D) 3n

Correct Ans: B

Q13) If an object of mass 2 kg is dropped from a height of 10 metres, what will be the ratio of its potential energy and kinetic energy at the height of 5 metres ($g=10m/sec^2$)

A) 1:1 B) 4:1 C) 1:4 D) 1:2

Correct Ans: A

Q14) Who among the following discovered that a wire carrying electric current can attract or repel another wire next to it that's also carrying electric current?

A) Michael Faraday **B)** Andre-Marie Ampere **C)** Guglielmo Marconi **D)** James Maxwell

Correct Ans: B

Q15) Which of the following statements is INCORRECT regarding the Coriolis force?

A) It is absent at the equator. **B)** Deflection is less when the wind is high.

C) It deflects the wind to the right in the north and left in the south. **D)** It is directly proportional to the angle of altitude

Correct Ans: B

Q16) Who calculated the approximate location of the planet Neptune by studying gravity-induced disturbances in the motion of Uranus?

A) John Couch Adams **B)** Johann Gottfried Galle **C)** Urbain-Jean-Joseph Le Verrier **D)** Percival Lowell

Correct Ans: C

Q17) In which year did Galileo describe the regular, swinging motion of a pendulum by the action of gravity and acquired momentum?

A) 1605 **B)** 1600 **C)** 1599 **D)** 1602

Correct Ans: D

Q18) In 1835, who developed the process of applying a thin layer of metallic silver to one side of a clear glass pane and created the first mirror?

A) CV Raman **B)** Victor Francis Hess **C)** CH Townes **D)** Justus von Liebig

Correct Ans: D

Q19) In which year did Eric A. Cornell, Wolfgang Ketterle and Carl E. Wieman receive the Nobel Prize in Physics for the achieving 'Bose-Einstein condensation in dilute gases of alkali atoms'?

A) 2002 **B)** 2000 **C)** 2001 **D)** 2003

Correct Ans: C

Q20) Which type of electromagnetic radiation was discovered by Johann Wilhelm Ritter in 1801?

A) X-rays **B)** Ultraviolet rays **C)** Infrared rays **D)** Gamma rays

Correct Ans: B

Q21) Identify the INCORRECT pair regarding the material media and their refractive index?

A) Sapphire – 1.77 **B)** Kerosene – 1.44 **C)** Ruby – 1.71 **D)** Benzene – 2.42

Correct Ans: D

Q22) In which year did Hans Christian Oersted discover that a compass needle gets deflected when an electric current passes through a metallic wire placed nearby?

A) 1826 **B)** 1824 **C)** 1820 **D)** 1822

Correct Ans: C

MTS Non Tech Havaldar CBIC and CBN Examination 2024

Q1) Find the acceleration (in m/s^2) of a body which accelerates from 5 m/s to 10 m/s in 2 seconds.

A) 7.5 m/sec^2 **B)** 5 m/sec^2 **C)** 10 m/sec^2 **D)** 2.5 m/sec^2

Correct Ans: D

Q2) The average separation between the sun and the earth in terms of light years is 8.311 minutes. Here, minutes indicate:

A) time **B)** distance **C)** velocity **D)** speed

Correct Ans: B

Q3) What is the frequency (f) of a wave with a period of 0.04 seconds?

A) 25 Hz B) 40 Hz C) 100 Hz D) 50 Hz

Correct Ans: A

Q4) If four resistances of 4 ohm each are connected in parallel, what will be their effective resistance?

A) 4 ohm B) 10 ohm C) 1 ohm D) 16 ohm

Correct Ans: C

Q5) Calculate the Body Mass Index (BMI) of a person whose weight is 50 kg and height is 1.5 m.

A) 22.2 kg/m^2 B) 25.0 kg/m^2 C) 16.6 kg/m^2 D) 18.0 kg/m^2

Correct Ans: A

Q6) Which of the following options has all vector quantities?

A) Force, Velocity, Momentum, Energy and Power B) Force, Velocity, Momentum, Weight and Acceleration

C) Force, Velocity, Momentum, Energy and Acceleration D) Power, Momentum, Energy, Speed and Work

Correct Ans: B

Q7) At 1 bar pressure, the volume of a fixed amount of hydrogen gas is 2.27 litre. What will be the volume if the pressure is kept at 0.2 bar?

A) 11.35 cm^3 B) 12250 cm^3 C) 11350 cm^3 D) 10270 cm^3

Correct Ans: C

Q8) Why will a person weigh more at the north or south pole?

A) Due to variation in centripetal force of earth with latitude B) Due to variation in centrifugal force of earth with latitude

C) Due to Earth's distance from the sun D) Due to variation in centripetal force of earth with altitude

Correct Ans: B

Q9) Four resistors of equal resistance R each are connected in various possible ways both in series and/or parallel to get different combined resistances. Which of the following values of resistance cannot be achieved by using all the four resistors?

A) 2 R B) 1.33 R C) 0.25 R D) 2.5 R

Correct Ans: A

Q10) In a metro station, it was observed that on an average 20 people per minute were using the escalator to reach at a height of 15 metres. Calculate the power of the escalator assuming the average mass of people to be 50 kg and acceleration due to gravity to be 10 m/s^2.

A) 15 kW B) 150 kW C) 1.25 kW D) 2.5 kW

Correct Ans: D

Q11) When a sailor jumps out of a rowing boat, the boat moves backwards. This represents:

A) the Third law of motion B) rectilinear motion C) the First law of motion D) the Second law of motion

Correct Ans: C

Q12) Two masses of 1 kg and 2 kg were dropped from a height of 3.2 metres. Their respective velocities just before touching the ground will be:
(Assume acceleration due to gravity g = 10 m/s^2)

A) 4 m/s and 8 m/s B) 8 m/s and 4 m/s C) 8 m/s for both D) 3.2 m/s for both

Correct Ans: C

SSC CPO PAPER-1 2024

Q1) Which of the following forces can only be applied when in contact with an object?

A) Frictional force B) Gravitational force C) Electrostatic force D) Magnetic force

Correct Ans: A

Q2) Who discovered a principle that states that the buoyant force on an object is equal to the weight of the fluid displaced by the object?

A) Isaac Newton **B)** Niels Bohr **C)** Archimedes **D)** Galileo Galilei

Correct Ans: C

Q3) Which of the following statement/statements is/are true regarding the light year?

1.Light year is a unit of distance.

2.Light is a unit of time.

3.A light year is the distance that light travels in one Earth year.

4.Light year is the measurement of light intensity.

A) Only 1 is correct **B)** Only 1 and 3 are correct **C)** Only 2 is correct **D)** Only 1 and 2 are correct

Correct Ans: B

Q4) Identify the device used to change the resistance in an electric circuit.

A) Ammeter **B)** Rheostat **C)** Conductor **D)** Voltmeter

Correct Ans: B

Q5) Which of the following is used for determining the value of 1 ampere.

A) A=1C/s **B)** C= A/2s **C)** A=2C/s **D)** C= A×2s

Correct Ans: A

Q6) Which of the following pairs of physicists and their contributions/discoveries is INCORRECT?

A) Galileo Galilei – Wave theory of light **B)** Michael Faraday – Laws of electromagnetic induction

C) Heinrich Rudolf Hertz – Generation of electromagnetic waves **D)** Albert Einstein – Explanation of photoelectric effect

Correct Ans: A

Q7) _____ is commonly represented by the Greek letter ρ (rho).

A) Electrical resistivity **B)** Current **C)** Flow of charges **D)** Electrical conductivity

Correct Ans: A

Q8) Which of the following is NOT an example of inertia at rest?

A) Falling down backward when a vehicle starts immediately **B)** Falling down of dust particle while dusting a cloth

C) The detachment of leaves/fruits due to shaking **D)** The sudden application of brakes in a vehicle

Correct Ans: D

Q9) What kind of energy does a yo-yo have before it is released?

A) Potential energy **B)** Light energy **C)** Chemical energy **D)** Kinetic energy

Correct Ans: A

Q10) Who among the following physicists invented the voltaic pile, the forerunner of the modern battery, in 1800?

A) Andre-Marie Ampere **B)** George Simon **C)** Alessandro Volta **D)** Hans Christian Oersted

Correct Ans: C

Q11) Which wave oscillates parallel to the motion of the sound wave?

A) Mechanical wave **B)** Electromagnetic wave **C)** Transverse wave **D)** Longitudinal wave

Correct Ans: D

Q12) Which physicist is known to establish the relationship between mechanical work and heat transfer?

A) Hermann Helmholtz **B)** John Dalton **C)** James Prescott Joule **D)** William Henry

Correct Ans: C

Q13) Which part of the bifocal lens facilitates near vision?

A) Upper part with concave lens B) Lower part with concave lens C) Upper part with convex lens

D) Lower part with convex lens

Correct Ans: D

Constable GD Examination 2024

Q1) Which of the following is the SI unit of velocity?

A) kg/m B) kg/s C) s/m D) m/s

Correct Ans: D

Q2) Watt is the unit of _____.

A) Energy B) Momentum C) Resistance D) Power

Correct Ans: D

Q3) In which unit, noise pollution is measured?

A) Centimeter B) Hertz C) Decibel D) Ohm

Correct Ans: C

Q4) What is the basic unit of time?

A) Second (s) B) Hour(hr.) C) Minute/second (m/s) D) Minute(min.)

Correct Ans: A

Q5) When something accelerates along a circular path, _____ keeps it going in the circle.

A) Friction B) Velocity C) Centripetal force D) Elastic force

Correct Ans: C

Q6) Which Law of Newton states that for every action (force) in nature there is an equal and opposite reaction?

A) 4th B) 1st C) 3rd D) 2nd

Correct Ans: C

Q7) The loudness of sound is measured in which unit?

A) Hertz (Hz) B) Sound intensity C) Watt/sq. Metre (w/m^2) D) Decibel (dB)

Correct Ans: D

Q8) The number of oscillations per second is called _____ of oscillation.

A) pitch B) amplitude C) hertz D) frequency

Correct Ans: D

Q9) Which of the following device is used to measure the distance travelled by the vehicle?

A) Speedometer B) Tachometer C) Odometer D) Fuel gauge

Correct Ans: C

Q10) Which of the following is the SI unit of temperature?

A) Celsius (°C) B) Fahrenheit (F) C) Kelvin (K) D) Pascal (Pa)

Correct Ans: C

Q11) With the Theory of Relativity, _____ transformed the landscape of physics, this theory majorly contributed to designing the theory of Quantum Mechanics.

A) Paul G. Hewitt B) Galileo Galilei C) Albert Einstein D) Isaac Newton

Correct Ans: C

Q12) Which one of the following statements regarding magnetic field is correct?

A) Magnetic field lines are open curves B) two magnetic field lines are found to cross each other

C) Magnetic field is a quantity that has no direction and magnitude

D) Magnetic field lines are closed curves

Correct Ans: D

Q13) The motion of electric charges creates current and generates an electromagnetic force, resulting in _____.

A) Magnetism B) Gravity C) Optics D) Electricity

Correct Ans: A

Selection Post XII

Q1) Which of the following is a poor conductor of electricity?

A) Tap water B) Distilled water C) Water from pond D) Water from hand pump

Correct Ans: B

Q2) Which physicist is best known for his experiments on generating and confirming the existence of electromagnetic waves?

A) Heinrich Rudolf Hertz B) Albert Einstein C) Isaac Newton D) JJ Thomson

Correct Ans: A

Q3) Using Fleming's right-hand rule, in which direction will the current flow if the direction of magnetic field is towards north and the conductor is moving vertically upward?

A) Towards south B) Towards west C) Towards south-west D) Towards east

Correct Ans: B

Q4) A _____ is one billionth of a metre.

A) angstrom B) micrometre C) parsec D) nanometre

Correct Ans: D

Q5) An argon positive ion fired towards east gets deflected towards south by a magnetic field. The direction of magnetic field is:

A) towards north B) towards south C) upward D) downward

Correct Ans: C

Q6) When did the United Nations declare the World Physics Year, also known as the Einstein Year, to mark the 100th anniversary of the physicist Albert Einstein?

A) 2006 B) 2004 C) 2005 D) 2002

Correct Ans: C

Q7) Who is credited with inventing the reflecting telescope?

A) Galileo Galilei B) Isaac Newton C) Johannes Kepler D) Christiaan Huygens

Correct Ans: B

Stenographer Grade C and D Examination 2024

Q1) For domestic tariff, one unit of electrical energy consumption is equal to:

A) kilowatt-hour B) milliamps hour C) kilo joule hour D) kilo volt ampere hour

Correct Ans: A

Q2) Which of the following options represents only the units of energy?

A) Calorie, Kilowatt hour, Newton B) Joule, Calorie, Newton C) Joule, Newton, Kilowatt hour D) Joule, Calorie, Kilowatt hour

Correct Ans: D

Q3) Which physicist was famous for the gold foil experiment?

A) Ernest Rutherford B) Niels Bohr C) JJ Thomson D) John Dalton

Correct Ans: A

Q4) Coulomb's law is applicable for _____.

A) Between two distributed charges B) Between two point charges C) both distributed charges and point charges

D) neither point charges nor distributed charges

Correct Ans: B

Q5) How is the image formed by a plane mirror?

A) Virtual and inverted B) Virtual and erect C) Erect and inverted D) Laterally inverted and virtual

Correct Ans: B

SSC JE 2024 (Junior Engineer)

Q1) What is the SI unit of force?

A) Volt B) Joule C) Newton D) Watt

Correct Ans: C

Q2) What is the unit of electric current?

A) Ohm B) Ampere C) Watt D) Volt

Correct Ans: B

Q3) What is the acceleration due to gravity on the surface of the Earth?

A) 9.8 m/s² B) 3.0 m/s² C) 6.2 m/s² D) 12.5 m/s²

Correct Ans: A

Q4) Why is it always emphasised NOT to touch any electric switch board with wet hands?

A) Water can erode the switchboard. B) Combination of water and our body is a good conductor of electricity.

C) Wet hands can fade away the colour coat of the switchboard. D) Wet hands might slip from the switch.

Correct Ans: B

Q5) Pascal is the SI unit of _____, which is defined as a force of 1 N applied uniformly over an area of 1 m^2.

A) pressure B) energy C) mass density D) power

Correct Ans: A

Q6) The equipment used to record the intensity of an earthquake is _____.

A) seismograph B) pyrometer C) barometer D) calorimeter

Correct Ans: A

Q7) What is the value of 1 electron volt (eV), which is especially used for nuclear science?

A) 1.202×10^{-15} joules B) 2.202×10^{-11} joules C) 1.602×10^{-19} joules D) 1.902×10^{-10} joules

Correct Ans: C

Q8) It is difficult to carry a heavy shopping bag with thin handles by hand, but slightly easier when the handles are covered with a thick piece of cloth. What is the reason behind that?

A) Handles become stronger B) Cloth is colourful C) Increase in surface area reduces the force exerted

D) Chances of tearing are eliminated

Correct Ans: C

Q9) Why is it safer for our hands to use a wooden spoon while cooking in a hot pan instead of using a metallic spoon?

A) Wood is a good conductor of heat and helps in cooking. B) Wood adds nice flavours to the food being cooked.

C) Wood is an insulator and does not heat up. D) Wood helps the food cook faster.

Correct Ans: C

Q10) Which of the following is NOT a vector quantity?

A) Acceleration B) Velocity C) Force D) Mass

Correct Ans: D

Q11) Rama experiences a drop in temperature as she is getting higher and higher in the mountains while trekking. What could be the cause of this?

A) Rama's fatigue B) Less water C) Lower air pressure at altitude D) Higher air pressure at altitude

Correct Ans: C

Q12) What is u in the equation $s = ut + \frac{1}{2} at^2$, which represents the position-time relation?

A) Uniform acceleration B) Initial velocity C) Change in momentum D) Speed of the object

Correct Ans: B

Q13) What is the frequency of an object if we know that it oscillates 100 times in 5 seconds?

A) 50 Hz B) 100 Hz C) 200 Hz D) 20 Hz

Correct Ans: D

Q14) A milliamp is a unit of measurement of electric current, which is equal to how many amps?

A) 0.0001 AMP B) 0.001 AMP C) 0.01 AMP D) 0.00001 AMP

Correct Ans: B

Q15) Meera shifted to a new house and was fixing light bulbs in her apartment. One of the three bulbs she fixed did not light up. Upon testing she realised it was a case of fused bulb. So, she bought a new one which then lit up perfectly. Select the correct option that describes what happened to the fused bulb.

A) The switch for the bulb was not turned on B) Meera did not fix the bulb to the holder properly

C) The filament inside it was broken D) There was no connection between the bulb holder and the switch

Correct Ans: C

Q16) The SI unit of which fundamental physical quantity is named in the honour of Charles Augustin Coulomb?

A) Electric current density B) Electric field C) Electric charge D) Electric power

Correct Ans: C

Q17) If 'G', 'M' and 'R' represent the universal gravitation constant, mass of the earth and radius of the earth, respectively, then which of the following is the correct expression for the acceleration due to gravity (g) on the surface of the earth?

A) GM/R^2 B) GM^2/R C) GM/R D) GMR^2

Correct Ans: A

Q18) Sahil Sarabhai is standing in the middle. On one side, his wife Monisha is pulling him with a force of 100 N eastward, whereas his mother, Maya is pulling him with a force of 150 N westward. What will be the net force on Sahil and towards whom will he move in the end if at all?

A) 50N, Monisha B) 250N, will not move C) 50N, Maya D) −50N, Maya

Correct Ans: C

Q19) Sometimes when heated, solid changes into liquid at normal atmospheric pressure on reaching its melting point. What is the name of the amount of heat required?

A) Latent heat of diffusion B) Latent heat of fusion C) Latent melting point D) Latent change of state point **Correct Ans: B**

Q20) A nonstop train moving on a straight track with a uniform acceleration passed station A at a velocity of 'u' and reached the next station B at a velocity of '5u'. Its average velocity between the given stations is:

A) 2u B) 2.5u C) 3u D) 4u **Correct Ans: C**

Q21) A low pitched but louder sound has _____.

A) lower frequency and higher amplitude B) higher frequency and lower amplitude C) lower frequency and lower amplitude

D) higher frequency and higher amplitude

Correct Ans: A

Q22) The Greek letter 'Omega' is used to represent which physical quantity in the International System of Units (SI)?

A) Electric displacement field B) Electrical conductance C) Electric potential difference D) Electric resistance

Correct Ans: D

Q23) 5 stones were dropped from the top of a building. They all fell to the ground in straight lines. What can be said about their motion?

A) They had rectilinear motion B) They had curvilinear motion C) They had slow motion D) They had gravity free motion

Correct Ans: A

Q24) A cricket ball of mass 160 grams was dropped from a height of 50 metres. What would be its kinetic energy just before touching the ground? [use the value of acceleration due to gravity as 10 m/s^2]

A) 50 joules B) 80 joules C) 8 joules D) 160 joules **Correct Ans: B**

Q25) What balances the atmospheric pressure with equal force so that animals do not crumble under the high pressure exerted on them by the atmosphere?

A) Moon's gravitational pull B) Pressure because of sunlight C) Energy produced by the food consumed D) Blood Pressure

Correct Ans: D

Q26) In electricity overloading cannot be caused by:

A) connecting too many appliances to a single socket B) accidental hike in the supply voltage

C) the live wire coming in direct contact with the neutral wire

D) the live wire and the neutral wire coming into contact through a heavy resistance

Correct Ans: D

Q27) In 1800, which of the following experimental achievements was made by William Nicholson?

A) Discovery of water electrolysis B) Discovery of thermionic emission C) Discovery of low-cost filters for polarizing light

D) Discovery of electric bulb

Correct Ans: A

Q28) Otto von Guericke was the most prominent person known for which invention in the 17^{th} century?

A) Air pump B) Barometer C) Fluorescent electric lamp D) Diesel engine **Correct Ans: A**

Chemistry

Combined Graduate Level Examination Tier I 2024

Q1) What kind of radiation is absorbed by the ozone layer?

A) Green radiation **B)** Infrared radiation **C)** Visible radiation **D)** Ultraviolet radiation

Correct Ans: D

Q2) Identify the structural formula for magnesium hydroxide.

A) MgOH **B)** MgO_2 **C)** Mg_2H_2 **D)** $Mg(OH)_2$

Correct Ans: D

Q3) Which of the following chemical reactions takes place when quick lime reacts with water?

A) $CaO(s) + H_2O(l) \rightarrow Ca + H_2(aq)$ **B)** $C(s) + O_2(g) \rightarrow CO_2(g)$ **C)** $CaO(s) + H_2O(l) \rightarrow Ca(OH)_2(aq)$

D) $CH_4\ (g) + 2O_2\ (g) \rightarrow CO_2\ (g) + 2H_2O\ (g)$

Correct Ans: C

Q4) Which number is called Avogadro's constant, named after the 19^{th} century scientist Amedeo Avogadro?

A) 6.022×10^{23} **B)** 6.020×10^{20} **C)** 6.032×10^{19} **D)** 6.012×10^{21}

Correct Ans: A

Q5) 'Au' is the symbol for which of the following elements?

A) Gold **B)** Aluminium **C)** Silver **D)** Argon

Correct Ans: A

Q6) Which of the following elements is a metalloid?

A) Iron **B)** Oxygen **C)** Sodium **D)** Silicon

Correct Ans: D

Q7) Which gas is evolved when iron and water react?

A) Hydrogen **B)** Oxygen **C)** Ammonia **D)** Methane

Correct Ans: A

Q8) Which of the following is NOT a halogen gas?

A) F **B)** He **C)** Cl **D)** Br

Correct Ans: B

Q9) What is the product formed when zinc and sulphuric acid react?

A) Zinc sulphate **B)** Zinc hydroxide **C)** Zinc sulphide **D)** Zinc oxide

Correct Ans: A

Q10) Which of the following gases get released when dilute sulphuric acid (H_2SO_4) reacts with magnesium (Mg)?

A) SO_3 **B)** SO_2 **C)** O_2 **D)** H_2

Correct Ans: D

Q11) Identify a monoatomic molecule.

A) carbon monoxide **B)** Oxygen **C)** Helium **D)** Chlorine

Correct Ans: C

Q12) The cause of a redox reaction is the:

A) transfer of electrons between two reactants **B)** transfer of electrons between two products

C) transfer of neutrons between two reactants **D)** exchange of halogens between two reactants

Correct Ans: A

Q13) What is the gas evolved when zinc reacts with sulphuric acid?

A) Hydrogen **B)** Oxygen **C)** Carbon dioxide **D)** Hydrogen sulphide **Correct Ans: A**

Q14) A dense mass of water drops on smoke or dust particles in the lower atmosphere layers is referred to as:

A) mist **B)** blizzard **C)** frost **D)** smog **Correct Ans: D**

Q15) Which of the following is NOT a physical change?

A) Heating of iron rod to red hot **B)** Curdling of milk **C)** Evaporation of diesel **D)** Sublimation of NH_4Cl **Correct Ans: B**

Q16) Transition elements are the elements that are found in Groups 3-12 of the modern periodic table, that constitute the _____.

A) d-block **B)** s-block **C)** p-block **D)** f-block **Correct Ans: A**

Q17) In the context of periodicity, a unit called picometre is used to measure the _____.

A) atomic radius **B)** molar mass **C)** atomic density **D)** spin quantum number **Correct Ans: A**

Q18) How many carbon dioxide and water molecules will be there in the product side, if the following equation is made balanced?

$C_2H_5OH+O_2 \rightarrow CO_2+H_2O$

A) 3 and 6, respectively **B)** 1 and 1, respectively **C)** 2 and 3, respectively **D)** 3 and 2, respectively **Correct Ans: C**

Q19) Which polyatomic ionic compound is a white, crystalline powder used in fire extinguishers and to neutralise acids and bases?

A) Sodium Bisulphite **B)** Sodium Thiosulphate **C)** Sodium Chromate **D)** Sodium Bicarbonate **Correct Ans: D**

Q20) Name the straight chain alkane having chemical formula C_9H_{20}, which is used as a research chemical and in making biodegradable detergents.

A) Nonane **B)** Dodecane **C)** Nonadecane **D)** Icosane **Correct Ans: A**

Q21) Which of the following is a saturated hydrocarbon?

A) C_3H_8 **B)** C_6H_6 **C)** C_2H_4 **D)** C_4H_8 **Correct Ans: A**

Q22) Which of the following is NOT a greenhouse gas?

A) Methane **B)** Carbon dioxide **C)** Nitrous oxide **D)** Nitric oxide **Correct Ans: D**

Q23) Which of the following is a straight-chain alkyl carboxylic acid with the chemical formula $CH_3CH_2CH_2CO_2H$?

A) Methanoic acid **B)** Propionic acid **C)** Ethanoic acid **D)** Butyric acid **Correct Ans: D**

Q24) A chemical reaction in which the rate of reaction is directly proportional to the first power of the concentration of the reacting substance is called:

A) zero order reaction **B)** third order reaction **C)** second order reaction **D)** first order reaction **Correct Ans: D**

Q25) Which of the following statements is INCORRECT regarding water remaining colder in an earthen pot (matka)?

A) Water gets evaporated at the surface of the earthen pot. **B)** The earthen pot is porous.

C) Environmental water vapour enters the pot through pores. **D)** The water oozes out through the pores in an earthen pot.

Correct Ans: C

Q26) Which type of radiation has very short ($<10^{-3}$ nm) wavelengths, produced by nuclear explosions, lightning and less dramatic activity of radioactive decay?

A) Gamma B) Infra-red C) Microwave D) Ultraviolet

Correct Ans: A

Q27) When electricity is passed through water, what kind of chemical reaction occurs?

A) Decomposition B) Displacement C) Double displacement D) Combination

Correct Ans: A

Q28) Which of the following statements are true based on the $4NH_3(g)+5O_2(g)\rightarrow 4NO(g)+6H_2O(g)$?

(a) N gets oxidized.
(b) O gets oxidized.
(c) N gets reduced.
(d) O gets reduced.

A) (a) and (d) B) (a) and (b) C) (c) and (d) D) (b) and (c)

Correct Ans: A

Q29) Which of the following gases plays an important role in welding titanium, aluminium, stainless steel, and magnesium?

A) Fluorine B) Neon C) Argon D) Chlorine

Correct Ans: C

Q30) In Newlands' Octaves, the properties of lithium and _____ were found to be the same.

A) sodium B) aluminium C) magnesium D) beryllium

Correct Ans: A

Q31) Which of the following statements is INCORRECT?

A) Fats and oils get reduced over time and smell bad. B) Fats and oils are oxidised, they become rancid.

C) Antioxidants are added to foods containing fats and oil to prevent oxidation.

D) Chips manufacturers usually flush bags of chips with Nitrogen to prevent the chips from getting ranicid.

Correct Ans: A

Q32) Ernest Rutherford used about _____ thick gold foil for alpha scattering experiments.

A) 500 atoms B) 1000 atoms C) 900 atoms D) 700 atoms

Correct Ans: B

Q33) According to Mendeleev's Periodic Table, which elements' properties matched up remarkably well with eka-silicon?

A) Gallium B) Scandium C) Titanium D) Germanium

Correct Ans: D

Q34) To which group do the alkaline earth metals such as radium, barium and strontium belong?

A) Group 5A B) Group 2A C) Group 1A D) Group 3A

Correct Ans: B

Q35) Which of the following is Fisher's equation of exchange?

A) $MV=PT$ B) $MT=VP$ C) $M=S+I$ D) $\frac{M}{V}=\frac{T}{P}$

Correct Ans: A

Q36) Which allotrope of carbon was discovered by Robert F Curl, Harold W Kroto and Richard E Smalley in 1985?

A) Graphene **B)** Lonsdaleite **C)** Carbophene **D)** Fullerene

Correct Ans: D

Q37) Why does the milkman add a very small amount of baking soda to fresh milk?

A) To reduce the pH of the fresh milk from 6 to slightly more acidic

B) To increase the pH of the fresh milk from 6 to slightly alkaline **C)** To maintain the pH of the fresh milk at 6 for a longer time

D) To reduce the pH of the fresh milk from 6 to slightly alkaline

Correct Ans: B

Q38) Find out why white silver chloride turns grey in sunlight.

A) Due to rusting of silver in presence of oxygen **B)** Due to redox reaction

C) Due to the decomposition of silver chloride into silver and chlorine by light

D) Due to the displacement of silver chloride to silver oxide

Correct Ans: C

Q39) Who reconciled Dalton's atomic hypothesis with Gay-Lussac's results on the combination of volumes in 1811?

A) Robert Boyle **B)** Amadeo Avogadro **C)** Fred Hoyle **D)** Jacques Charles

Correct Ans: B

Q40) Grignard reagent is represented as:

A) CH_3-Ca-F **B)** CH_3-Be-F **C)** CH_3-Mg-Cl **D)** H-Mg-H

Correct Ans: C

Q41) Which of the following is the most acidic?

A) HCOOH **B)** C_2H_5COOH **C)** C_3H_7COOH **D)** CH_3COOH

Correct Ans: A

Q42) Calculate the oxidation number of 'S' in $H_2S_2O_7$.

A) 3 **B)** 7 **C)** 6 **D)** 2

Correct Ans: C

Q43) The chemical formula of glucose is $C_6H_{12}O_6$. The weight % of carbon in glucose is:

A) 40 **B)** 72 **C)** 53 **D)** 25

Correct Ans: A

Q44) What was Antoine-Laurent Lavoisier's most important contribution to chemistry in 1789?

A) Law of Conservation of Mass **B)** Law of Multiple Proportions **C)** Law of Definite Proportions

D) Law of Conservation of Energy

Correct Ans: A

Q45) Identify an example of plasma as a state of matter.

A) Blood **B)** Dry ice **C)** Freon **D)** Neon sign bulbs

Correct Ans: D

Q46) When you take Lead nitrate powder in a boiling tube and heat it, you will observe the emission of brown fumes that are of _____.

A) Nitrous oxide **B)** Nitric oxide **C)** Nitrogen dioxide **D)** Dinitrogen trioxide

Correct Ans: C

Q47) For a chemical reaction with rise in temperature by 10°, the rate constant becomes nearly _____.

A) Double **B)** Triple **C)** one-fourth **D)** half

Correct Ans: A

Q48) Who first stated the principle of refraction that postulates that every substance has a specific bending ratio – 'refractive index'?

A) Dennis Gabor **B)** Thomas Young **C)** Willebrord Snellius **D)** David Brewster

Correct Ans: C

Q49) Which of the following gases emits red light when electricity is passed through it?

A) Neon **B)** Hydrogen **C)** Argon **D)** Helium

Correct Ans: A

Q50) As per Mendeleev's prediction, atomic mass of eka-aluminium was:

A) 100 **B)** 44 **C)** 72 **D)** 68

Correct Ans: D

Q51) The type of reaction that is typically found when a material that is required for the reaction to proceed, such as a surface or a catalyst, is saturated by the reactants is called a _____ order reaction.

A) first **B)** second **C)** zero **D)** third

Correct Ans: C

Q52) Exfoliation is a form of _____.

A) physical weathering **B)** chemical weathering **C)** mass wasting **D)** biochemical weathering

Correct Ans: A

Q53) When haloalkanes and aryl and vinyl halides react with magnesium metal they yield which reagent?

A) Hinsberg reagent **B)** Grignard reagent **C)** Tollens' reagent **D)** Fehling reagent

Correct Ans: B

Q54) Who developed the theory of combustion as a chemical reaction with oxygen in the 18th century, that excluded phlogiston theory?

A) Antoine Lavoisier **B)** Robert Boyle **C)** Friedrich Wöhler **D)** Johann Becher

Correct Ans: A

Q55) The decomposition of gaseous Ammonia on a hot platinum surface is a _____ order reaction at high pressure.

A) two **B)** zero **C)** three **D)** one

Correct Ans: B

Q56) What is the IUPAC name of tertiarybutyl alcohol?

A) 2-Methylpropan-2-ol **B)** 1-propylpropan-3-ol **C)** 1-Methylpropan-3-ol **D)** 1-ethylpropan-3-ol

Correct Ans: A

Q57) Which of the following is a correct order of basicity?

A) LiOH>NaOH>KOH>CsOH **B)** LiOH>KOH>CsOH>NaOH **C)** KOH>CsOH>NaOH>LiOH **D)** CsOH>KOH>NaOH>LiOH

Correct Ans: D

Q58) Palladium on barium sulphate ($Pd/BaSO_4$) is also known as:

A) a Hillman reaction catalyst **B)** a Cannizzaro reaction catalyst **C)** the Rosenmund catalyst **D)** an aldol reaction catalyst

Correct Ans: C

Q59) Which of the following decomposition reactions is NOT a redox reaction?

A) Decomposition of dihydrogen monoxide **B)** Decomposition of sodium hydride **C)** Decomposition of potassium chlorate

D) Decomposition of calcium carbonate

Correct Ans: D

Q60) An organic reaction used to convert an aryl diazonium salt into an aryl halide using a copper(I) halide catalyst is called:

A) Finkelstein reaction B) Gattermann reaction C) Sandmeyer reaction D) Balz-Schiemann reaction

Correct Ans: C

Q61) Which two organic chemists are known for observing the peroxide effect in adding reagents to unsaturated compounds in 1933?

A) Morris S Kharasch and Frank R Mayo B) C John Cadogan and Luis M Campos

C) B Steven Bachrach and Roald Hoffmann D) Justus von Liebig and Friedrich Wöhler

Correct Ans: A

Q62) In which musical note did Newland put the metals Co and Ni with halogens?

A) Fa B) Do C) Re D) Mi

Correct Ans: B

CHSL Exam 2024 Tier I

Q1) Which of the following isotopes is used as a fuel in nuclear power plants for generating electricity?

A) Uranium- 235 B) Arsenic-74 C) Carbon-14 D) Sodium-24

Correct Ans: A

Q2) Identify a carbohydrate but does not fit into the definition.

A) Maltose B) Sucrose C) Fructose D) Rhamnose

Correct Ans: D

Q3) Which of the following is an example of a 'solid in a liquid' type of solution?

A) Tincture of iodine B) Vinegar C) Brass D) Bronze

Correct Ans: A

Q4) Milk of magnesia is a suspension of _____ in water.

A) magnesium oxalate B) magnesium hydroxide C) magnesium chlorate D) magnesium bromide

Correct Ans: B

Q5) What is the IUPAC name of the compound CH_3NH_2?

A) Propan-1-amine B) Methanamine C) 2-Methyl propan-l-amine D) Ethanamine

Correct Ans: B

Q6) The reaction of an acid and a metal gives:

A) hydrogen gas and salt B) carbon dioxide, salt and water C) salt and water D) carbon dioxide, salt and hydrogen gas

Correct Ans: A

Q7) Which of the following devices is used to accelerate charged particles to high velocities?

A) cryotron B) copatron C) cosmotron D) cyclotron

Correct Ans: D

Q8) Which of the following contains small droplets of liquid or particles of solid dispersed in a gas?

A) Gel B) Vapour C) Aerosol D) Foam

Correct Ans: C

Q9) Which of the following planets' atmosphere is made up of thick white and yellowish clouds of sulphuric acid?

A) Venus **B)** Neptune **C)** Mars **D)** Jupiter

Correct Ans: A

Q10) Select the olfactory indicator from among the given options.

A) Petunia **B)** Clove oil **C)** Turmeric **D)** Cabbage juice

Correct Ans: B

Q11) Who discovered the atomic number based on X-ray wavelength in 1913?

A) AEB de Chancourtois **B)** Dmitri Mendeleev **C)** Henry Moseley **D)** RA Millikan

Correct Ans: C

Q12) Why is the six membered cyclic structure of glucose called a pyranose structure?

A) Pyran is a non-cyclic organic compound, with one oxygen atom and five carbon atoms in the ring.

B) Pyran is a cyclic organic compound, with one oxygen atom and five carbon atoms in the ring.

C) Furan is a five membered non-cyclic compound, with one oxygen and four carbon atoms.

D) Furan is a five membered cyclic compound, with one oxygen and four carbon atoms.

Correct Ans: B

Q13) The method of separating a mixture of soluble solids by dissolving them in a suitable hot solvent and then lowering the temperature slowly is called:

A) fractional crystallisation **B)** dephlegmation **C)** azeotropic distillation **D)** sublimation

Correct Ans: A

Q14) Which of the following statements best describes the Hardy Schulze rule?

A) The ions are removed from the solution by the phenomenon of diffusion through a permeable membrane.

B) The partial pressure of a component in a liquid mixture is proportional to its mole fraction in that mixture.

C) This is applied to obtain a colloidal solution of metals such as gold, silver or platinum.

D) The amount of electrolyte required for the coagulation of a definite amount of a colloidal solution is dependent on the valency of the coagulating ion.

Correct Ans: D

Q15) Which of the following reactions leads to the formation of glucose pentaacetate from acetic anhydride?

A) Acetylation of glucose **B)** Oxidation **C)** Addition of ketone **D)** Reduction

Correct Ans: A

Q16) In which of the following liquids would anthracene dissolve easily?

A) Benzene **B)** Sodium chloride **C)** Methane **D)** Water

Correct Ans: A

Q17) Electrochemical cell is a device which converts chemical energy into electrical energy in a/an _____.

A) oxidation reaction **B)** reduction reaction **C)** direct redox reaction **D)** indirect redox reaction

Correct Ans: D

Q18) A proton bonds to the oxygen atom of a solvent water to give a _____ hydronium ion.

A) square pyramid **B)** trigonal pyramidal **C)** tetrahedral **D)** square planar

Correct Ans: B

Q19) In 1960, which isotope was used to define the standard measure of length?

A) Krypton-86 **B)** Krypton-88 **C)** Krypton-83 **D)** Krypton-90

Correct Ans: A

Q20) In which year did Johannes Nicolaus Bronsted and Thomas Martin Lowry propose the fundamental concept of acids and bases?

A) 1928 **B)** 1921 **C)** 1925 **D)** 1923 **Correct Ans: D**

Q21) Which non-essential amino acid is synthesised by the hydroxylation of phenylalanine in a reaction catalysed by phenylalanine hydroxylase?

A) Glutamine **B)** Tyrosine **C)** Cysteine **D)** Glycine **Correct Ans: B**

Q22) In which year did Robert Brown observe the zigzag movement of colloidal particles in solution?

A) 1829 **B)** 1826 **C)** 1828 **D)** 1827 **Correct Ans: D**

MTS Non Tech Havaldar CBIC and CBN Examination 2024

Q1) The liquid water present in oceans, lakes and rivers gets converted to the gaseous form in the presence of sunlight in the water cycle. This step is called:

A) Condensation **B)** Melting **C)** Precipitation **D)** Evaporation **Correct Ans: D**

Q2) Limestone is composed of:

A) iron oxide **B)** sodium carbonate **C)** aluminium oxide **D)** calcium carbonate **Correct Ans: D**

Q3) Which of the following gases is generally used to flush bags of chips by the manufacturers?

A) Nitrogen **B)** Oxygen **C)** Compressed air **D)** Carbon dioxide **Correct Ans: A**

Q4) What is the name of the process of organic matter being broken down into simpler compounds by decomposers?

A) Respiration **B)** Fermentation **C)** Decomposition **D)** Photosynthesis **Correct Ans: C**

Q5) Which substance is commonly added to tap water to make it safe for drinking by killing harmful microorganisms?

A) Fluoride **B)** Calcium **C)** Iron **D)** Chlorine **Correct Ans: D**

Q6) What is the primary acid found in citrus fruits like oranges and lemons?

A) Citric acid **B)** Tartaric acid **C)** Acetic acid **D)** Lactic acid **Correct Ans: A**

Q7) Which of the following is the compound with the chemical formula H_2SO_4?

A) Sulfurous Acid **B)** Hydrogen Sulfide **C)** Nitric Acid **D)** Sulfuric Acid **Correct Ans: D**

Q8) What is the charge of an electron?

A) Neutral **B)** Variable **C)** Negative **D)** Positive **Correct Ans: C**

Q9) What is the chemical reaction that occurs when sugar is heated and turns into a caramel syrup?

A) Precipitation **B)** Caramelisation **C)** Maillard reaction **D)** Neutralisation **Correct Ans: B**

Q10) What is the process of a substance changing directly from a solid to a gas without passing through the liquid state called?

A) Sublimation **B)** Evaporation **C)** Fusion **D)** Condensation **Correct Ans: A**

Q11) When the pH value of soils is more than 7.5, they are considered to be:

A) neutral soils **B)** alkaline soils **C)** strongly acidic soils **D)** slightly acidic soils **Correct Ans: B**

Q12) Which of the following statements about nutrients are correct?

Statement A: C, H, O, N, P and K are macro nutrients.
Statement B: Fe, Mn, Ni, Co and Mo are micronutrients.
Statement C: Micronutrients are not essential for our body.

A) All statements A, B and C **B)** Only statements A and C **C)** Only statements B and C **D)** Only statements A and B

Correct Ans: D

Q13) The property of rock or soil that indicates the ability of allowing fluids to flow through it is called:

A) Plasticity **B)** Density **C)** Permeability **D)** Stability **Correct Ans: C**

Q14) Meher had two large chunks of coal. She set fire to the first chunk and broke the second one into pieces. Help Meher understand what kind of changes happened to the two chunks of coal at the end of the activity by choosing all the applicable statements.

A. Both chunks of coal underwent physical changes only.
B. The changes were reversible for the first chunk of coal only.
C. Only physical changes took place for the second chunk of coal.
D. Both chunks of coal underwent chemical changes only.
E. The first case is an example of chemical changes.

A) Only A and B **B)** Only B and D **C)** Only C and E **D)** Only D **Correct Ans: C**

Q15) The elements that are liquid at room temperature (25°C) are:

A) helium and mercury **B)** bromine and chlorine **C)** bromine and mercury **D)** helium and chlorine **Correct Ans: C**

Q16) On boiling an egg, why does the outer part become opaque and white?

A) The heat causes a reaction of the egg with water and makes it opaque.

B) The heat causes denaturation, hardening the albumin and colouring it opaque white

C) The heat causes a change in the crystal structure of egg yolk. **D)** The heat causes a change in the structure of egg protein.

Correct Ans: B

Q17) What is the chemical formula for potassium permanganate?

A) KMn_2O_7 **B)** $KMnO_4$ **C)** K_3MnO_4 **D)** K_2MnO_3 **Correct Ans: B**

Q18) Which element is known for having the highest electronegativity on the periodic table?

A) Hydrogen **B)** Oxygen **C)** Carbon **D)** Fluorine **Correct Ans: D**

Q19) What is denatured alcohol?

A) Ethanol mixed with little methanol **B)** Pure Ethanol **C)** Propanol **D)** Pure Methanol **Correct Ans: A**

Q20) The elements in Group 17 of the periodic table are known as:

A) noble gases **B)** alkali metals **C)** transition metals **D)** halogens

Correct Ans: D

Q21) What is the chemical formula for sodium bicarbonate?

A) $NaHCO_3$ **B)** Na_2CO_3 **C)** NaCl **D)** NaOH

Correct Ans: A

Q22) What is the atomic number of uranium (U)?

A) 94 **B)** 90 **C)** 104 **D)** 92

Correct Ans: D

Q23) What is the chemical name for the compound responsible for the cooling sensation in mint leaves?

A) Caffeine **B)** Ethanol **C)** Capsaicin **D)** Menthol

Correct Ans: D

Q24) Which element is located in Group 18 of the periodic table and is known for its lack of chemical reactivity?

A) Chlorine **B)** Fluorine **C)** Helium **D)** Oxygen

Correct Ans: C

Q25) A molecule with the chemical formula C_2H_6 is a/an _____ molecule.

A) methane **B)** butane **C)** propane **D)** ethane

Correct Ans: D

Q26) Which of the following represents the chemical formula for sulphur hexafluoride?

A) SF_6 **B)** S_6F **C)** S_2F_6 **D)** SF_2

Correct Ans: A

Q27) Which of the following two properties of metals are exploited to prepare very thin sheets of silver to decorate sweets?

A) Malleability and sonorous **B)** Ductility and lustre **C)** Malleability and lustre **D)** Lustre and sonorous

Correct Ans: C

Q28) Which of the following statements are correct postulates of Dalton's atomic theory?

A. All matter is made up of atoms. These atoms participate in chemical reactions.
B. Atoms might be created or destroyed during a chemical reaction.
C. Atoms of different elements vary in mass and chemical properties.
D. Compounds are combination of atoms in the ratio of whole or fractional numbers.
E. A compound will always have constant relative number and kind of atoms.

A) B, C, D **B)** B, D, E **C)** A, C, E **D)** A, B, D

Correct Ans: C

Q29) The temperature of −273.15°C is called _____.

A) freezing point of water **B)** zero-point energy **C)** standard temperature **D)** absolute zero temperature

Correct Ans: D

Q30) Select the imbalanced chemical equation from the following.

A) $10\ KClO_3 + 3\ P_4 \rightarrow 3\ P_4O_{10} + 10\ KCl$ **B)** $3\ CaCl_2 + 2\ Na_3PO_4 \rightarrow Ca_3(PO_4)_2 + 6\ NaCl$

C) $6\ HClO_4 + P_4O_{10} \rightarrow 4\ H_3PO_4 + 6\ Cl_2O_7$ **D)** $3\ Hg(OH)_2 + 2\ H_3PO_4 \rightarrow Hg_3(PO_4)_2 + 6\ H_2O$

Correct Ans: C

Q31) A four-carbon chain with a triple bond is called _____.

A) butene **B)** butyne **C)** butanol **D)** butanal

Correct Ans: B

Q32) Select the INCORRECT statement regarding Ozone.

A) Ozone is a deadly poison **B)** Ozone (O_3), like oxygen, is a life-supporting gas. **C)** Ultraviolet radiation causes skin cancer.

D) Ozone is formed from oxygen in the presence of ultraviolet radiation.

Correct Ans: B

Q33) What is the chemical formula for the compound commonly known as 'laughing gas'?

A) NO **B)** N_2O_3 **C)** N_2O **D)** NO_2 **Correct Ans: C**

Q34) What is the primary gas responsible for the leavening effect in bread when yeast ferments sugars?

A) Carbon dioxide **B)** Oxygen **C)** Nitrogen **D)** Helium **Correct Ans: A**

Q35) Below are two chemical equations:

$Zn\ (s) + CuSO_4\ (aq) \rightarrow ZnSO_4\ (aq) + Cu\ (s)$

$Pb\ (s) + CuCl_2\ (aq) \rightarrow PbCl_2\ (aq) + Cu\ (s)$

Why does copper get separated from its compound form in both the cases?

A) Zinc and Lead are unstable in element form. **B)** Zinc and Lead are more reactive than Copper.

C) Copper compounds break down under high pressure. **D)** Copper is more reactive than Zinc and Lead.

Correct Ans: B

Q36) JJ Thomson is known for developing which model in 1898?

A) Plum pudding model **B)** Double-slit model **C)** Gold foil model **D)** Oil drop model **Correct Ans: A**

Q37) Which chemical compound is commonly utilised as a preservative in tomato sauce?

A) Carnosic Acid **B)** Sodium Benzoate **C)** Vinegar **D)** Green Tea Extract **Correct Ans: B**

Q38) The chemical compound present in turmeric is:

A) carotene **B)** curcumin **C)** capsaicin **D)** tartaric acid **Correct Ans: B**

Q39) When a large amount of carbon dioxide dissolves in a water body, the water becomes acidic because of the formation of which of the following acids?

A) Carboxylic acid **B)** Carbolic acid **C)** Carbonic acid **D)** Carbamic acid **Correct Ans: C**

Q40) Select the INCORRECT statement from the following.

A) Evaporation is a surface phenomenon. **B)** Both boiling and evaporation are bulk phenomena.

C) Boiling is a bulk phenomenon. **D)** Evaporation causes cooling.

Correct Ans: B

Q41) How does salt contribute to the preservation of food?

A) By acting as an antioxidant. **B)** By inhibiting the growth of microorganisms through osmosis.

C) By reducing the pH of the food. **D)** By promoting the Maillard reaction.

Correct Ans: B

Q42) Suspended solids in water can increase the haziness of the water. Which of the following represents the measurement of haziness of water?

A) Solubility **B)** Turbidity **C)** Salinity **D)** Viscosity

Correct Ans: B

Q43) Select the INCORRECT pair of molecule/formula units and their molar mass from the following.

A) HCl - 36.5 **B)** CH_4 - 16 **C)** HNO_3 - 62 **D)** NaCl - 58.5

Correct Ans: C

Q44) At what temperature do Celsius and Fahrenheit scales have the same value?

A) $32^{\circ}C$ **B)** $-32^{\circ}C$ **C)** $40^{\circ}C$ **D)** $-40^{\circ}C$

Correct Ans: D

Q45) Which gas is released when you combine vinegar and baking soda in a balloon, causing it to inflate?

A) Carbon dioxide **B)** Oxygen **C)** Nitrogen **D)** Hydrogen

Correct Ans: A

Q46) Select the correct order of the following metals in terms of their increasing reactivities.

A) K, Cu, Mg and Au **B)** Au, Mg, Cu and K **C)** K, Mg, Cu and Au **D)** Au, Cu, Mg and K

Correct Ans: D

Q47) In the number 0.002609, the number of significant figures is _____.

A) four **B)** seven **C)** six **D)** three

Correct Ans: A

Q48) A group of natural substances with variable phenolic structures, which are found in fruits, vegetables, and grains is called:

A) Flavonoids **B)** Resins **C)** Pectins **D)** Hopanoids

Correct Ans: A

Q49) According to Newland's Law of Octaves, every eighth element has properties similar to those of the first element. Which of the following elements has properties similar to those of N?

A) Al **B)** B **C)** P **D)** S

Correct Ans: C

Q50) Select the synthetic indicator from among the given options.

A) Turmeric **B)** Methyl orange **C)** Cabbage juice **D)** Litmus solution

Correct Ans: B

Q51) Which of the following is an alarming effect of thermal pollution in water bodies?

A) The random changes in pH values **B)** Increasing amount of carbon dioxide **C)** Changes in turbidity

D) The amount of dissolved oxygen decreased significantly

Correct Ans: D

Q52) Select the correct order of processes used for water purification in waterworks.

1. Filtration
2. Chlorination
3. Suspended impurity sedimentation
4. Solid impurity sedimentation

A) 2-1-4-3 **B)** 1-2-3-4 **C)** 4-3-2-1 **D)** 4-3-1-2

Correct Ans: D

Q53) Ortho-sulphobenzimide is one of the artificial sweeteners. It is also known as _____.

A) alitame **B)** sucralose **C)** saccharin **D)** aspartame **Correct Ans: C**

Q54) How many covalent bonds are present between the constituent atoms in the molecules of Butane and Hexane, respectively?

A) 11 and 19 **B)** 10 and 16 **C)** 13 and 19 **D)** 14 and 20 **Correct Ans: C**

Q55) What is the product of the following chemical reaction?

$NaCl + H_2O + CO_2 + NH_3$

A) Gypsum **B)** Baking soda **C)** Washing soda **D)** Bleaching powder **Correct Ans: B**

Q56) The condition when the amount of dissolved oxygen in a water body is alarmingly decreased is called:

A) anoxia **B)** hypothermia **C)** acidification **D)** hypoxia **Correct Ans: D**

Q57) Which of the following is an example of a physical change? In this example, there is no change in chemical composition of matter.

A: Coal changing into coal ash on burning

B: Preparing a sweet drink by mixing sugar in water

C: White washing walls using a solution of lime and water

D: Mixing salt and lemon juice in a beaker

A) Only D **B)** Only A **C)** Only C **D)** Only B **Correct Ans: D**

Q58) In which year did John Dalton present his atomic theory, the second part of which states that all atoms of a particular element are equal?

A) 1825 **B)** 1808 **C)** 1811 **D)** 1800 **Correct Ans: B**

Q59) In the periodic table, what is the trend for atomic radius as you move from left to right across a period (horizontal row)?

A) Atomic radius remains constant **B)** Atomic radius decreases **C)** Atomic radius exhibits irregular behaviour

D) Atomic radius increases

Correct Ans: B

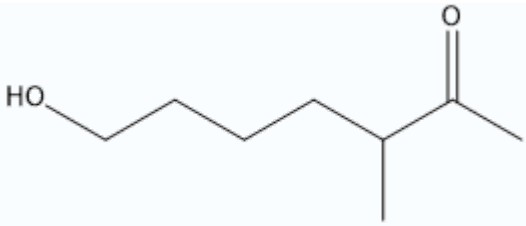
Q60) At 10×10^4 Pa pressure and 300 K temperature, the volume of 0.09 mol CO_2 gas is 22.4×10^{-3} m^3. What will be the volume of the gas if the pressure is decreased to 2×10^4 Pa?

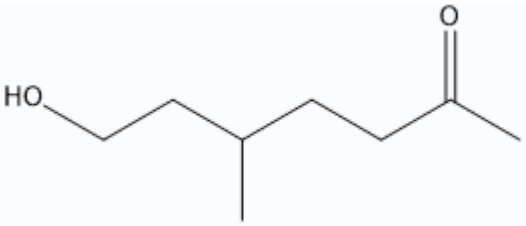
A) 112.0×10^{-3} m^3 **B)** 37.4×10^{-3} m^3 **C)** 56.3×10^{-3} m^3 **D)** 28.1×10^{-3} m^3 **Correct Ans: A**

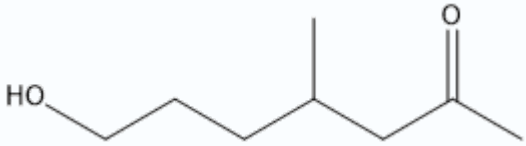
Q61) The space-filling model emphasises the relative size of each atom based on its _____.

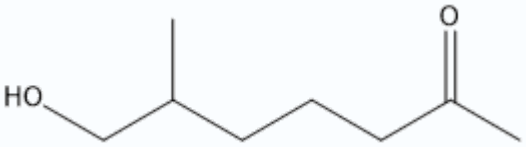
A) van der Waals radius **B)** fixed radius for all atoms **C)** ionic radius **D)** covalent radius **Correct Ans: A**

Q62) Which of the following structures has the IUPAC name 7-hydroxy-5-methylheptan-2-one?

A) 

B) 

C) 

D) 

Correct Ans: B

Q63) Which type of molecules show dipole-dipole interaction?

A) Non-polar molecules **B)** Molecules possessing permanent dipole **C)** Molecules possessing transient dipole **D)** Ionic molecules

Correct Ans: B

Q64) Which of the following is a natural indicator for acid and base?

A) Curry tree **B)** China rose **C)** Fungi **D)** Algae

Correct Ans: B

Q65) The element with atomic number 59 lies in which block of the Periodic Table?

A) The f-block **B)** The p-block **C)** The s-block **D)** The d-block

Correct Ans: A

Q66) The property by virtue of which carbon can form a C-C covalent bond is called _____.

A) covalency **B)** catenation **C)** allotropy **D)** tetravalency

Correct Ans: B

Q67) Which of the following statements is correct?

A) Fluorine has the highest electron affinity, while chlorine has the highest electronegativity.

B) Chlorine has the highest electron affinity, while fluorine has the highest electronegativity.

C) Fluorine has the highest electron affinity, while bromine has the highest electronegativity.

D) Fluorine has the highest electron affinity and the highest electronegativity.

Correct Ans: B

Q68) Which of the following is a molecular compound?

A) $MgSO_4$ **B)** NaCl **C)** CaO **D)** CO_2

Correct Ans: D

Q69) The structure of methanol is CH_3OH. This kind of representation is known as _____.

A) complete structural formula **B)** wedge-and-dash representation **C)** condensed structural formula **D)** bond-line structural representation

Correct Ans: C

Q70) The black coating formed on silver jewellery is:

A) $AgNO_3$ B) Ag_2CO_3 C) AgCl D) Ag_2S **Correct Ans: D**

Q71) Which of the following raw materials is NOT used to prepare the baking soda?

A) NH_3 B) Na_2CO_3 C) NaCl D) H_2O **Correct Ans: B**

Q72) The iodine value of oil and fat indicates:

A) number of C atoms present B) degree of saturation C) degree of unsaturation D) number of iodine atoms present

Correct Ans: C

Q73) Which property of an element is inversely related to its ionisation energy?

A) Atomic radius B) Electronegativity C) Electron affinity D) Atomic mass **Correct Ans: A**

Q74) Moseley observed that the plot of $\sqrt{\nu}$ against atomic number (Z) gave a straigth line. What does ν indicate here?

A) Frequency of γ-rays emitted B) Frequency of α-rays emitted C) Frequency of X-rays emitted

D) Frequency of β-rays emitted

Correct Ans: C

Q75) 0.25 g of an organic compound, on treatment with fuming nitric acid followed by $AgNO_3$, gave 0.22 g of AgBr. The percentage of bromine in the compound is _____.

A) 88.00% B) 50.00% C) 37.45% D) 34.04% **Correct Ans: C**

Q76) To which of the following classes of compounds does cyclohexane belong?

A) Heterocyclic compound B) Non-benzenoid aromatic compound C) Benzenoid aromatic compound D) Alicyclic compound

Correct Ans: D

Q77) Non-polar molecules possess _____.

A) partial charge B) no dipole moment C) permanent dipole moment D) instantaneous dipole moment **Correct Ans: D**

Q78) The approximate number of water molecules present in 9 gm of water is _____.

A) 6.022×10^{23} B) 6.022×10^{22} C) 3.011×10^{23} D) 9.023×10^{23} **Correct Ans: C**

Q79) 0.25 g of an organic compound gave 0.20 g of CO_2 after complete combustion. The percentage composition of carbon is _____.

A) 80.00% B) 78.18% C) 21.82% D) 4.60% **Correct Ans: C**

Q80) Which of the following pollutants is responsible for the acidification of ocean?

A) Carbon monoxide (CO) B) Carbon dioxide (CO_2) C) Nitrogen Dioxide (NO_2) D) Sulphur dioxide (SO_2) **Correct Ans: B**

Q81) The amount of dissolved oxygen in water becomes lowest at what time of the day?

A) In the dawn B) In the evening C) At night time D) In the afternoon **Correct Ans: A**

Q82) The IUPAC name of CH_3-$(CH_2)_{18}$-CH_3 is _____.

A) decane B) icosane C) triacontane D) dodecane **Correct Ans: B**

Q83) 0.25 g of an organic compound gave 0.13 g of water after complete combustion. The percentage composition of hydrogen is _____.

A) 52.00% **B)** 11.11% **C)** 5.78% **D)** 4.58%

Correct Ans: C

Q84) Which inorganic compound is known to undergo solid state reaction to form urea?

A) Ammonium phosphate **B)** Ammonium cyanate **C)** Ammonium acetate **D)** Ammonium nitrate

Correct Ans: B

Q85) What is the percentage of 's' character in the carbon atom of acetylene?

A) 75% **B)** 25% **C)** 50% **D)** 33.33%

Correct Ans: C

Q86) Helium gas can be converted to the liquid form by the _____.

A) dipole-dipole forces of attraction **B)** London forces of attraction **C)** dipole-induced dipole forces of attraction

D) hydrogen bonding interaction

Correct Ans: B

SSC CPO PAPER-1 2024

Q1) The signs of charges of electron, proton and neutron are _____, respectively.

A) negative, neutral and positive, **B)** negative, positive and neutral, **C)** neutral, positive and negative,

D) positive, negative and neutral,

Correct Ans: B

Q2) Identify a substance that is NOT an allotrope of carbon.

A) Diamond **B)** Graphite **C)** Buckminsterfullerene **D)** Phosphorus

Correct Ans: D

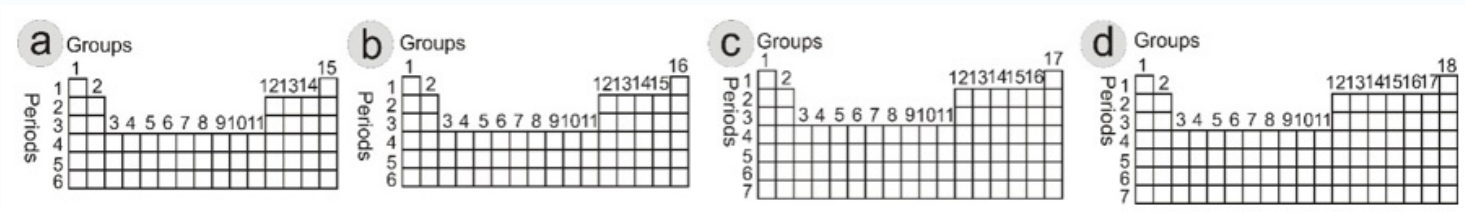
Q3) Match column A with column B.

Column-A	Column-B
i. Lemon	a. Tartaric acid
ii. Milk	b. Citric acid
iii. Vinegar	c. Lactic acid
iv. Tamarind	d. Acetic acid

A) i-d, ii-c, iii-b, iv-a **B)** i-a, ii-b, iii-c, iv-d **C)** i-b, ii-a, iii-c, iv-d **D)** i-b, ii-c, iii-d, iv-a

Correct Ans: D

Q4) Which of the following depicts the Modern Periodic Table?



A) c **B)** d **C)** a **D)** b

Correct Ans: B

Q5) Match Column-A with Column-B.

Column-A	Column-B
a. Alkanes	i. Ethane
b. Alkenes	ii. Butyne
c. Alkynes	iii. Propene
d. Aldehyde	iv. Methanal

A) a-iv, b-iii, c-ii, d-i **B)** a-i, b-iii, c-ii, d-iv **C)** a-i, b-iii, c-iv, d-ii **D)** a-iii, b-iv, c-ii, d-i

Correct Ans: B

Q6) How many electrons does a hydrogen molecule have in its K shell?

A) 4 **B)** 2 **C)** 1 **D)** 3

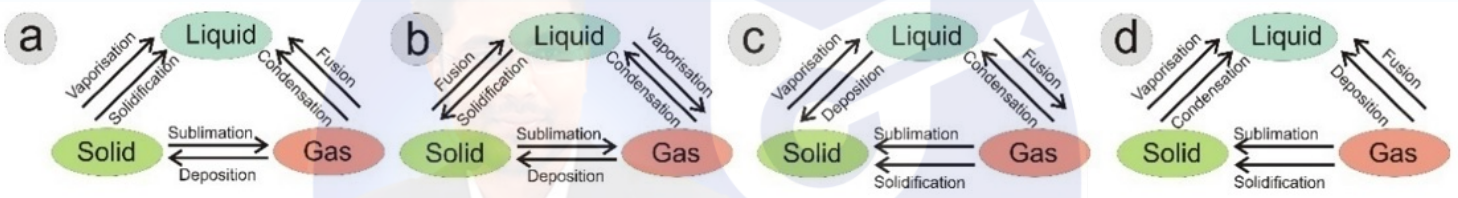
Correct Ans: C

Q7) One mole of Aluminium Sulphate $Al_2(SO_4)_3$ contains:

A) 3 moles of oxygen atoms **B)** 6 moles of oxygen atoms **C)** 4 moles of oxygen atoms **D)** 12 moles of oxygen atoms

Correct Ans: D

Q8) Which of the following figures accurately depicts the inter-conversion of the three states of matter?



A) c **B)** d **C)** b **D)** a

Correct Ans: C

Q9) What is the chemical formula for butane?

A) C_4H_8 **B)** C_2H_{10} **C)** C_2H_6 **D)** C_4H_{10}

Correct Ans: D

Q10) What is the correct way to mix acid and water?

A) The water must be added to the acid. **B)** The water must be heated before mixing.

C) The acid must be heated before mixing. **D)** The acid must be slowly added to the water.

Correct Ans: D

Q11) What is the number of protons present in beryllium.

A) 4 **B)** 2 **C)** 1 **D)** 3

Correct Ans: A

Q12) What are bases that are soluble in water called?

A) Alkenes **B)** Acids **C)** Alkalis **D)** Alkanes

Correct Ans: C

Q13) How much will be 59°F in Celsius?

A) 30°C **B)** 15°C **C)** 45°C **D)** 59°C

Correct Ans: B

Q14) Which of the following scientists grouped the elements into triads?

A) Dimitri Mendeleev **B)** John Newlands **C)** Henry Moseley **D)** Johann Wolfgang Dobereiner

Correct Ans: D

Q15) Identify the number of electrons found in the outermost shell of halogen.

A) Two **B)** One **C)** Five **D)** Seven

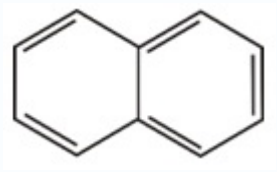
Correct Ans: D

Q16) Which of the following is the main active ingredient of clove oil?

A) Eugenol **B)** Curcuma **C)** Malic acid **D)** Tartaric acid

Correct Ans: A

Q17) What is the name of the aromatic compound in the given figure?



A) Naphthalene **B)** Tropone **C)** Cyclohexene **D)** Tetrahydrofuran

Correct Ans: A

Q18) The tendency of an atom or a functional group to attract a shared pair of electrons toward itself, is known as:

A) electronegativity **B)** electron affinity **C)** electro-positivity **D)** electro attraction

Correct Ans: A

Q19) Select the name of the hydrocarbon with a structural formula $CH_3 – CH_2 – CH_2 – CH_2– CH_2– CH_3$.

A) 2-Methylpentane **B)** n-Hexane **C)** 2,2-Dimethylbutane **D)** 3-methyl hexane

Correct Ans: B

Q20) Which of the following is an open chain organic compound?

A) Acetaldehyde **B)** Tetrahydrofuran **C)** Benzene **D)** Toluene

Correct Ans: A

Q21) Which phenomenon is opposite to solidification?

A) Condensation **B)** Fusion **C)** Vaporisation **D)** Sublimation

Correct Ans: B

Q22) Which of the following compounds is an Alicyclic compound?

A) Ethane **B)** Isobutane **C)** Acetic acid **D)** Cyclopropane

Correct Ans: D

Q23) Name the white precipitate formed in the reaction of sodium sulphate and barium chloride.

A) Sodium chloride **B)** Sodium oxide **C)** Barium hydroxide **D)** Barium sulphate

Correct Ans: D

Q24) According to Mendeleev's Periodic Table, which element's properties matched up remarkably well with eka-aluminium?

A) Scandium **B)** Gallium **C)** Titanium **D)** Germanium

Correct Ans: B

Q25) The depositional pattern of $CaCO_3$ and other materials that extend upwards from the floor of a limestone cavern is known as:

A) Stalactite **B)** Dripstone **C)** Stalagmite **D)** Hatectite

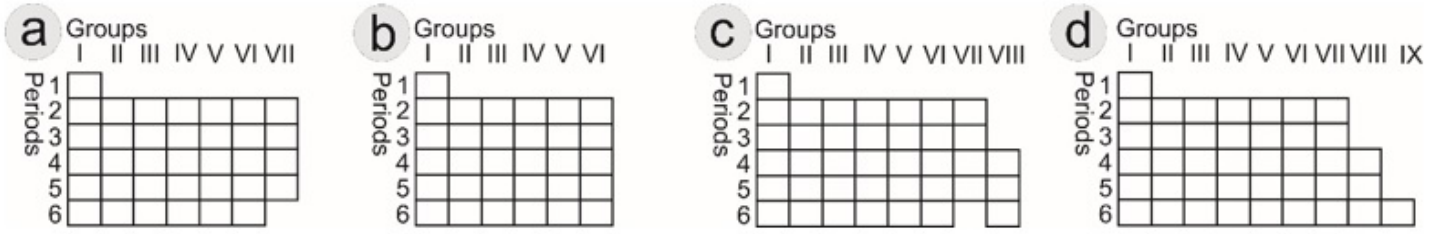
Correct Ans: C

Q26) Which of the following organic compounds is a benzenoid?

A) Aniline **B)** Hexane **C)** Propane **D)** Acetaldehyde

Correct Ans: A

Q27) Which of the following figures represents Mendeléev's Periodic Table that was published in a German journal in 1872?



A) c **B)** d **C)** a **D)** b

Correct Ans: A

Q28) Which of the following is the IUPAC name of m-Dichlorobenzene?

A) 3,4-Dichlorobenzene **B)** 1,2-Dichlorobenzene **C)** 2,3-Dichlorobenzene **D)** 1,3-Dichlorobenzene

Correct Ans: D

Q29) 2-Methylpropan-2-ol is commonly known as:

A) prim-propyl alcohol **B)** tert-butyl alcohol **C)** ethyl alcohol **D)** methanol

Correct Ans: B

Q30) According to Dalton, which of the following represents the Phosphorus element?

A) b **B)** a **C)** c **D)** d

Correct Ans: C

Q31) In the IUPAC name of a compound, the _____indicates the total number of carbon atoms present in the longest carbon chain belonging to the compound.

A) Infix **B)** Suffix **C)** Root **D)** Prefix

Correct Ans: C

Q32) Which of the following polyhalogen compounds is used in the production of the freon refrigerant R-22?

A) Chloroform **B)** Carbon Tetrachloride **C)** Methylene Chloride **D)** Dichlorodiphenyltrichloroethane

Correct Ans: A

Q33) In which of the following years did Antoine Lavoisier discover the law of conservation of mass and state that mass is conserved in a chemical reaction?

A) 1787 **B)** 1786 **C)** 1788 **D)** 1789

Correct Ans: D

Constable GD Examination 2024

Q1) H_2 is a Molecular Formula of which of the following elements?

A) Platina **B)** Lead **C)** Sulphur **D)** Hydrogen

Correct Ans: D

Q2) Definite shape, distinct boundaries are the characteristics of which state of matter?

A) Solid **B)** Semisolid **C)** Liquid **D)** Gas

Correct Ans: A

Q3) What is the atomic number of Helium according to the modern periodic table?

A) 5 **B)** 4 **C)** 3 **D)** 2

Correct Ans: D

Q4) Washing soda, sodium carbonate decahydrate, efflorescent crystals used for washing, especially textiles, is a compound of _____.

A) sodium B) carbon C) oxygen D) hydrogen

Correct Ans: A

Q5) What is the chemical formula for barium hydroxide?

A) $Ba(OH)_3$ B) $Ba(OH)_2$ C) Ba_2OH D) BaOH

Correct Ans: B

Q6) Which of the following statement is correct regarding rate of diffusion of liquids?

I. Rate of diffusion of liquids is higher than that of solids.

II. This is due to the fact that in the liquid state, particles move freely and have greater space between each other as compared to particles in the solid state.

A) Neither I nor II B) Both I and II C) Only I D) Only II

Correct Ans: B

Q7) Liquids flow and change shape, they are NOT rigid and thus they are also called as _____.

A) liquefied B) Mixtures C) fluid D) Solution

Correct Ans: C

Q8) How many horizontal rows are present in the modern periodic table?

A) 7 B) 11 C) 5 D) 9

Correct Ans: A

Q9) How many vertical columns are present in the modern periodic table?

A) 16 B) 14 C) 20 D) 18

Correct Ans: D

Q10) What is the other name for solid carbon dioxide?

A) White ice B) Ice at room temperature C) Dry ice D) Freezed ice

Correct Ans: C

Q11) Mendeleev's Periodic Law was modified, and _____ was adopted as the basis of the Modern Periodic Table.

A) Atomic mass B) Molar mass C) Atomic number D) Similar properties

Correct Ans: C

Q12) Elements in the Modern Periodic Table are arranged in _____ vertical columns called groups and _____ horizontal rows called periods.

A) 18, 7 B) 16, 7 C) 18, 9 D) 16, 9

Correct Ans: A

Q13) How many elements are present in the first period of the periodic table?

A) Five B) Three C) Four D) Two

Correct Ans: D

Q14) In the periodic table, which group consists of elements known as the noble gases?

A) Group 17 B) Group 1 C) Group 18 D) Group 7

Correct Ans: C

Q15) Which element has the highest atomic number and is the heaviest naturally occurring element?

A) Thorium (Th) B) Uranium (U) C) Plutonium (Pu) D) Neptunium (Np)

Correct Ans: B

Q16) In 1866, John Newlands, an English scientist, arranged the then known elements in the order of _____. It is known as 'Newlands' Law of Octaves'.

A) decreasing atomic masses B) decreasing atomic number C) increasing atomic masses D) increasing atomic number

Correct Ans: C

Q17) The Modern Periodic Table has 18 vertical columns known as 'groups' and_____horizontal rows known as 'periods'.

A) 7 B) 6 C) 8 D) 12

Correct Ans: A

Q18) Which of the following statement is 'true' for 'dobereiner's triads'?

I. Triads were in order of atomic masses.

II. Atomic mass of middle element was roughly the average of atomic masses of other two elements.

A) Only II B) Neither I nor II C) Both I and II D) Only I

Correct Ans: C

Q19) _____ of a substance is the temperature and pressure at which three phases (gas, liquid, and solid) of that substance may coexist in thermodynamic equilibrium.

A) Tri-state B) Amphibious C) Triple-point D) Allotropic

Correct Ans: C

Q20) Philosophers classified matter in the form of how many basic elements?

A) 6 B) 8 C) 4 D) 5

Correct Ans: D

Q21) Which physical law states that the pressure and temperature of a gas are inversely proportional, provided the volume and the number of gas molecules remain constant?

A) Charles's law B) Boyle's law C) Gay-Lussac's law D) Avogadro's law

Correct Ans: B

Q22) At absolute zero (0 K or -273.15°C), the particles of matter:

A) Vibrate in fixed positions B) Stop moving C) Move at the speed of light D) Undergo fusion

Correct Ans: B

Q23) Non-metals, are electronegative. They tend to form bonds by _____electrons.

A) subtracting two B) gaining C) substituting D) losing

Correct Ans: B

Q24) When Mendeleev started his work, how many elements were known at that time?

A) 36 B) 29 C) 47 D) 63

Correct Ans: D

Q25) Which chemical compound is used in car batteries and has the formula $PbSO_4$?

A) Lead sulphide B) Lead oxide C) Lead sulfate D) Sulfuric acid

Correct Ans: C

Q26) _____ is a form of matter in which many of the electrons wander around freely among the nuclei of the atoms.

A) Plasma B) Solid C) Liquid D) Gas

Correct Ans: A

Q27) Which of the following gases, when cooled and compressed, can change from a gas to a supercritical fluid state?

A) Steam B) Carbon dioxide (CO_2) C) Hydrogen (H_2) D) Oxygen (O_2)

Correct Ans: B

Q28) In Charles Law:

A) Pressure is kept constant

B) Number of moles of gas is constant

C) Volume is directly proportional to temperature

A) Both A and C is true B) Both A and B is true C) A, B, C are true D) Only B and C is true

Correct Ans: C

Q29) Which of the following elements is a part of the P block of the periodic table?

A) Silver B) Hydrogen C) Oxygen D) Rhodium

Correct Ans: C

Q30) Consider the following statements :

A) A gas that follows Boyle's law, Charles' law and Avogadro law is called an ideal gas.

B) As per Gay Lussac's law, at constant volume, pressure of a fixed amount of a gas varies directly with the temperature.

C) Silicon is present in group 14 and period 3 of the periodic table.

A) Both A and C is true B) A, B, C are true C) Only B and C is true D) Both A and B is true

Correct Ans: B

Q31) Newlands law of octaves was only applicable upto which element?

A) Ca B) Mg C) K D) Na

Correct Ans: A

Q32) Which of the following is NOT a p block element of the periodic table?

A) Phosphorous B) Silicon C) Iodine D) Magnesium

Correct Ans: D

Q33) Direct change of gas to solid without changing in to liquid is called _____.

A) Sublimation B) Vaporization C) Evaporation D) Deposition

Correct Ans: D

Q34) Which of the following is a 's' block element?

A) Vanadium B) Scandium C) Titanium D) Rubidium

Correct Ans: D

Q35) How many triads were mentioned in Dobereiner's Triads?

A) Four B) Eight C) Two D) Six

Correct Ans: A

Q36) How many major theories have been established on the origin of iron in India?

A) Two B) Three C) Five D) Four

Correct Ans: A

Q37) Consider the following statements:

A) Calcium is present in S-block of the periodic table.

B) Metals comprise more than 78% of all known elements and appear on the left side of the Periodic Table.

C) d- Block elements are also known as inner-transition electrons.

A) Both A and B is true B) A, B, C are true C) Both A and C is true D) Only B and C is true

Correct Ans: A

Selection Post XII

Q1) Which of the following bacteria grow in milk and convert it to curd?

A) Salmonella typhi B) Salmonella lactae C) E. curdae D) Lactic acid bacteria

Correct Ans: D

Q2) Which metallic element is called 'ferromagnetic' because of its strong attraction?

A) Gold B) Molybdenum C) Aluminium D) Iron

Correct Ans: D

Q3) Which is a colourless, odourless gas of the alkane series of hydrocarbons with a chemical formula of C_3H_8?

A) Propane B) Pentane C) Ethane D) Butane

Correct Ans: A

Q4) Select the correct statement.

A) The pyramid of energy is always upright. B) The pyramid of number is always upright.

C) The pyramid of biomass is always inverted. D) The pyramid of mass is always upright.

Correct Ans: A

Q5) In ethylene (C_2H_4), hybridisation of carbon atoms is:

A) sp^3d B) Sp C) sp^2 D) sp^3

Correct Ans: C

Q6) The likelihood of a neutral atom gaining an electron is known as:

A) electron affinity B) electro positivity C) electronegativity D) electro attraction

Correct Ans: A

Q7) Which law was studied in the year 1787, in which it was said that as the volume of a gas increases its absolute temperature, if its absolute temperature decreases, then its volume will decrease?

A) Charles's law B) Dalton's law C) Boyle's law D) Avogadro's law

Correct Ans: A

Q8) Which metalloid in the carbon group is chemically similar to its group neighbours tin and silicon?

A) Arsenic B) Flerovium C) Lead D) Germanium

Correct Ans: D

Q9) The dry cell is made up of an outer _____ container that acts as the anode.

A) lead B) nickel C) manganese D) zinc

Correct Ans: D

Q10) What is the name of the process of gases being outpoured from the interior of the solid earth?

A) Gas evolution B) Transpiration C) Evaporation D) Degassing

Correct Ans: D

Q11) Which inert gas is used in double-glazed windows to fill the space between the panes?

A) Xenon B) Helium C) Radon D) Argon

Correct Ans: D

Q12) What is the adulterant of hot paprika?

A) Chalk powder B) Saw dust C) Sudan dye D) Starch powder

Correct Ans: C

Q13) Which artificial element has been provisionally named seaborgium by American researchers in honour of Nobel Laureate Glenn T Seaborg?

A) Element 103 B) Element 106 C) Element 90 D) Element 97

Correct Ans: B

Q14) Which of the following statements best describes Le Chatelier's Principle?

A. The law states that the total pressure of a mixture of gases is equal to the sum of the partial pressures of the individual gases.

B. The principle states that the rate of a chemical reaction is directly proportional to the concentration of reactants.

C. The principle states that a change in the variables that describe a system at equilibrium causes a shift of the equilibrium position to counteract the change.

D. The law states that the volume of a gas is inversely proportional to its pressure at constant temperature.

A) D B) B C) C D) A

Correct Ans: C

Q15) Who was recognised for his services in the discovery of inert gaseous elements in air and in the determination of their place in the periodic system?

A) Lord Rayleigh B) Henry Cavendish C) Henry Miers D) Sir William Ramsay

Correct Ans: D

Q16) Which is the weakest intermolecular force, considered as the Van der Waals force, often found in halogens, noble gases and other non-polar molecules?

A) Ion-dipole forces B) Dipole– induced dipole forces C) Dipole – dipole forces D) London dispersion forces

Correct Ans: D

Q17) The transfer of heat through horizontal movement of air is called _____.

A) conduction B) variation C) convection D) advection

Correct Ans: D

Q18) Technetium, the first artificially produced element used in many medical diagnostic imaging scans, is found in which group of the periodic table?

A) Group 7 B) Group 19 C) Group 12 D) Group 14

Correct Ans: A

Stenographer Grade C and D Examination 2024

Q1) Identify the odd option from among the following.

A) Chlorine B) Fluorine C) Argon D) Bromine

Correct Ans: C

Q2) Which of the following is NOT a good conductor of electricity?

A) Gold B) Aluminium C) Sulphur D) Silver

Correct Ans: C

Q3) What happens to the motion of the particles as temperature rises?

A) The particles move faster B) The particles move in the same direction C) The particles stay stationery

D) The particles slow down

Correct Ans: A

Q4) For which discovery in 1932 was James Chadwick best known?

A) Thermal ionization B) Electron C) Wave theory of light D) Neutron

Correct Ans: D

Q5) The correct chemical formula of the compound Magnesium Hydroxide is:

A) $MgOH_2$ B) Mg(OH) C) $Mg(OH)_2$ D) $Mg_2(OH)$

Correct Ans: C

Q6) Which of the following has the highest density?

A) Liquid B) Plasma C) Solid D) Gas

Correct Ans: C

Q7) Identify the element with an electronic configuration 2,8,1 from among the following options.

A) Magnesium B) Chlorine C) Hydrogen D) Sodium

Correct Ans: D

Q8) What is the name of the solution that is employed to identify the existence of starch in food?

A) Ammonium chloride B) Chlorine solution C) Iodine solution D) Copper sulphate solution

Correct Ans: C

Q9) The unit of density is:

A) metre cubed B) metre squared C) kilogram metre per second D) kilogram per cubic metre

Correct Ans: D

Q10) Who arranged the 56 elements in an ascending order of their atomic mass and found that each 8th element had the same properties?

A) Van Spronsen B) John Newlands C) Dmitri Mendeleev D) Lothar Meyer

Correct Ans: B

Q11) Identify an element that does NOT belong to period 4.

A) Zinc B) Potassium C) Calcium D) Lithium

Correct Ans: D

Q12) Who introduced the term 'triads' in the classification of elements?

A) Dmitri Mendeleev B) Johann Dobereiner C) AEB de Chancourtois D) John Newlands

Correct Ans: B

Q13) Which of the following processes occurs during decomposition in soil?

A) Defragmentation B) Humification C) Oxidation D) Crystallisation

Correct Ans: B

Q14) Who used the drawing circle and arrow symbols to represent the atoms of different elements in 1803?

A) Amedeo Avogadro B) Antoine Lavoisier C) Jacob Berzelius D) John Dalton

Correct Ans: D

Q15) Which element is the first element in group 13 of the periodic table?

A) Boron B) Gallium C) Indium D) Aluminium

Correct Ans: A

Q16) What food items are most commonly affected by the adulteration of Sudan dyes?

A) Coffee powder B) Tea C) Hot paprika D) Coriander powder

Correct Ans: C

Q17) Identify the atomic number of an element that belongs to group 17.

A) 1 B) 11 C) 7 D) 53 **Correct Ans: D**

Q18) Which of the following is NOT used as food preservative?

A) Table Salt B) Sodium hydrogen carbonate C) Sodium benzoate D) Sugar **Correct Ans: B**

Q19) Identify the INCORRECT statement regarding the halogens group in the periodic table.

A) They are reactive non-metals. B) They are located on the left of the noble gases on the periodic table.

C) They have the largest atomic size in their period. D) They form diatomic molecules in their elemental states.

Correct Ans: C

Q20) Identify the correct statement related to metallic character.

A) Metallic character decreases across a group and stays the same down a group.

B) Metallic character decreases across a period and increases down a group.

C) Metallic character increases across a period and decreases down a group.

D) Metallic character stays the same across a period and decreases the same down a group.

Correct Ans: B

Q21) Who among the following coined the name oxygen for the element released by mercury oxide in 1779?

A) Martin Klaproth B) John Dalton C) Jons Jacob Berzelius D) Antoine Lavoisier **Correct Ans: D**

Q22) Which detergents are also used in toothpaste?

A) Cationic detergents B) Non-ionic detergents C) Anionic detergents D) Synthetic detergents **Correct Ans: C**

Q23) What are the best examples of Phyllosilicates?

A) Mercury, graphite, diamond B) Micas, chlorite, talc, and serpentine C) Calcite, magnesite, dolomite.

D) Pyrite, galena, sphalerite

Correct Ans: B

Q24) In acetylene (C_2H_2), hybridzation of carbon atoms is:

A) sp^2 B) sp^3 C) sp D) sp^2d **Correct Ans: C**

SSC JE 2024 (Junior Engineer)

Q1) Which of the following values is subtracted from the numerical value of temperature expressed in Kelvin to obtain the temperature in degrees Celsius?

A) 253 B) 273 C) 293 D) 313 **Correct Ans: B**

Q2) What is the chemical formula for ammonia?

A) NH_3 B) H_2O C) CO_2 D) NaCl **Correct Ans: A**

Q3) What is the freezing point of water on the Celsius scale?

A) 100°C B) 0°C C) 98°C D) 32°C **Correct Ans: B**

Q4) A man started working in a factory where he needed to deal with steam and boiling water regularly. On the first day, his doctor warned him to be more careful of the steam because burns caused by steam can be more severe than that of hot water. What is the reason behind this?

A) Steam cannot be seen **B)** Steam is odourless **C)** Steam has more latent heat of vaporisation

D) Steam can remain stuck to the body

Correct Ans: C

Q5) Which food item has pH value between 2 and 3? This value makes it acidic.

A) Blackberry juice **B)** Lemon juice **C)** Apple juice **D)** Tomato juice

Correct Ans: B

Q6) The valency of Ca is 2^+. The valency of O is 2^-. What is the simplified chemical formula of Calcium oxide?

A) Ca_2O_2 **B)** CaO **C)** CaO_2 **D)** Ca_2O

Correct Ans: B

Q7) Which of the following statements is correct?

A) A neutron has no electrical charge. **B)** The central part of an atom contains only protons.

C) The central part of an atom contains only neutrons. **D)** The central part of an atom contains only electrons.

Correct Ans: A

Q8) What is the name of the compound with the formula N_2O_5?

A) Nitrogen dioxide **B)** Nitric oxide **C)** Nitrous oxide **D)** Dinitrogen pentoxide

Correct Ans: D

Q9) Why cannot we write the chemical formula of a compound formed by chlorine and sodium as ClNa instead of NaCl?

A) The rule is to write the name of the metal first. **B)** Both the formulas are correct.

C) Chlorine is lighter, hence is written at the end. **D)** Chlorine is yellow in colour.

Correct Ans: A

Q10) The particles that form the main part of the nucleus of an atom are together known as:

A) isotopes **B)** ions **C)** nucleons **D)** electrons

Correct Ans: C

Q11) What is the chemical reaction that occurs when fats or oils combine with a strong alkali, such as sodium hydroxide, to make soap?

A) Saponification **B)** Combustion **C)** Fermentation **D)** Oxidation

Correct Ans: A

Q12) What is the most common factor for the yellowing of the Taj Mahal gradually over the years?

A) Carbon monoxide present in air **B)** Marble turns yellow with time **C)** Marble reacts with nitrogen in air **D)** Acid rain

Correct Ans: D

Q13) Since the attraction between molecules of gas is very low, what benefit do we get from this property of gas?

A) Compressed and stored in smaller cylinders **B)** Burns easily **C)** Does not move from one place to another

D) Does not change their shape easily

Correct Ans: A

Q14) Which of the following does NOT affect the changes in the states of matter?

A) Changing the kinetic energy in the particles of the matter

B) Changing the temperature of the matter

C) Changing the pressure on the matter

D) Changing the colour of the matter

A) A **B)** D **C)** B **D)** C

Correct Ans: B

Q15) Name a sublimable substance that can be converted into gas without passing through any intermediate liquid phase.

A) Naphthalene **B)** Chalk Powder **C)** Alum **D)** Rust

Correct Ans: A

Q16) Which white powder, ubiquitous in modern kitchens, combines with acid to produce carbon dioxide?

A) Sodium fluoride **B)** Sodium phosphate **C)** Sodium bicarbonate **D)** Sodium nitrate

Correct Ans: C

Q17) Calcium hydroxide is the chemical name of which of the following saturated aqueous solutions?

A) Hard water **B)** Black Water **C)** Limewater **D)** Carbonated water

Correct Ans: C

Q18) If an atom has atomic number = 6 and number of neutrons = 10, then what is the atomic mass of the atom?

A) 4 **B)** 16 **C)** 10 **D)** 6

Correct Ans: B

Q19) The process by which molecules from a region of higher concentration move to a region of lower concentration is known as:

A) evaporation **B)** boiling **C)** diffusion **D)** melting

Correct Ans: C

Q20) If the atomic mass of carbon is 12.011, that of hydrogen is 1.008 and that of oxygen is 15.999, then calculate the molecular mass of C_2H_4O.

A) 40.053 **B)** 34.053 **C)** 44.053 **D)** 16.053

Correct Ans: C

Q21) Before starting a 5 day and 5 night excursion, Mr. Patel provided all his students with battery powered flash lights. He also gave them some extra batteries to use as spare. Then Mr. Patel asked them whether they know how the batteries will produce electricity and help them. What do you think the correct answer to his question is?

A) Electricity is produced by the chemicals stored in the battery

B) Electricity is produced by friction between the battery and the flash light

C) Electricity is saved in the battery from the factory that produces it

D) Battery extracts electricity from the environment and passes it to the flash light

Correct Ans: A

Q22) The excess cadmium accumulation in our body, damages which part of the body?

A) Hands and feet **B)** Eye **C)** Stomach **D)** Liver and kidneys

Correct Ans: D

Q23) Which of the following is a colourless liquid whose formula is $CHCl_3$ which evaporates rapidly and turns into gas?

A) Chloroform B) Ammonia C) Ethanol D) Acetone

Correct Ans: A

Q24) Which chemical compound is responsible for the spicy taste in chilli peppers?

A) Capsaicin B) Caffeine C) Ethanol D) Tannin

Correct Ans: A

Q25) Which of the following is the chemical formula of baking soda?

A) $Na_2CO_3.10H_2O$ B) NaOH C) $CaOCl_2$ D) $NaHCO_3$

Correct Ans: D

Q26) What is the impact of ocean acidification on coral reefs and shell-forming organisms?

A) Ocean acidification has no impact on coral reefs. B) Ocean acidification enhances coral growth.

C) Ocean acidification weakens coral skeletons and affects shell formation. D) Ocean acidification increases coral biodiversity.

Correct Ans: C

Q27) After realising the deadly effects of depleting the ozone layer, under which programme was the decision taken to ban the usage of CFC?

A) United Nations Development Programme B) Natural State Environmental Programme

C) United Nations Environment Programme D) Federal Energy Management Programme

Correct Ans: C

Q28) Match the following.

A	Propene	1	Unsaturated 3 carbon chains with double bond
B	Propyne	2	Unsaturated 3 carbon chains with triple bond
C	Propane	3	Saturated 3 carbon bonds

A) A-3, B-1, C-2 B) A-1, B-2, C-3 C) A-3, B-2, C-1 D) A-2, B-1, C-3

Correct Ans: B

Q29) Brine water is saturated or strongly impregnated with which of the following ionic compounds?

A) Sodium bromide B) Sodium chloride C) Sodium iodide D) Sodium hydroxide

Correct Ans: B

Q30) Which is the correct formula to calculate the formula unit mass of a compound?

A) Multiplication of all the atomic masses of all the atoms within the formula

B) Summation of all the atomic weights of all the atoms within the formula

C) Summation of all the atomic masses of all the atoms within the formula

D) Multiplication of all the atomic weights of all the atoms within the formula

Correct Ans: C

Q31) Which chemical reaction occurs when you mix vinegar (acetic acid) and baking soda (sodium bicarbonate)?

A) Oxidation B) Precipitation C) Neutralisation D) Combustion

Correct Ans: C

Q32) Which compound is used to neutralise fatty acids and convert them into salts in a process called saponification?

A) Sodium fluoride B) Sodium acetate C) Sodium chlorate D) Sodium hydroxide

Correct Ans: D

Q33) Boron is the only metalloid of which group of the periodic table?

A) Group 16 **B)** Group 10 **C)** Group 13 **D)** Group 5 **Correct Ans: C**

Q34) Most seawater has about how much salt in every 1,000 g (about a litre) of water?

A) 100 g **B)** 200 g **C)** 15 g **D)** 35 g **Correct Ans: D**

Q35) Which element is a transition metal in Group 9 of the periodic table?

A) Cobalt (Co) **B)** Copper (Cu) **C)** Nickel (Ni) **D)** Iron (Fe) **Correct Ans: A**

Q36) In which of the following groups of the periodic table is the metallic element 'silver' found?

A) Group 15 **B)** Group 7 **C)** Group 3 **D)** Group 11 **Correct Ans: D**

Q37) If the meat is cooked above 140°C, which of the following reactions occurs?

A) Caramelisation **B)** Maillard reaction **C)** Emulsification **D)** Oxidation reaction **Correct Ans: B**

Q38) In which year did Louis Pasteur discover that yeast is responsible for producing alcohol from sugar?

A) 1830 **B)** 1857 **C)** 1891 **D)** 1904 **Correct Ans: B**

Q39) Olefiant gas belongs to which of the following functional groups?

A) Alkynes **B)** Ketone **C)** Halo alkane **D)** Alkenes **Correct Ans: D**

Biology

Combined Graduate Level Examination Tier I 2024

Q1) Which of the following plants is used to cure cold and cough?

A) Tulsi **B)** Babool **C)** Jamun **D)** Arjun

Correct Ans: A

Q2) Which of the following is a man-made ecosystem?

A) Aquarium **B)** Dessert **C)** Forest **D)** Grassland

Correct Ans: A

Q3) Which of the following is another name of vitamin C?

A) Pyridoxine **B)** Pyridoxal **C)** Pyridoxamine **D)** Ascorbic acid

Correct Ans: D

Q4) Which of the following pairs is INCORRECTLY matched?

A) Nucleus: Lipid metabolism **B)** Lysosomes: Suicidal bags **C)** Mitochondria: Power house of the cell

D) Ribosomes: Protein factory

Correct Ans: A

Q5) Which of the following Illustrations shows the mitochondrion's structural details?

A) d **B)** b **C)** c **D)** a

Correct Ans: B

Q6) Which condition, also known as icterus, causes a yellowing of your skin and the whites of your eyes?

A) Ichthyosis **B)** Jaundice **C)** Eczema **D)** Pemphigus

Correct Ans: B

Q7) Which branch of ecology deals with the characteristics of ancient environment and their relationship with ancient plants and animals?

A) Demecology **B)** Ichthyology **C)** Paleoecology **D)** Mycology

Correct Ans: C

Q8) Digestion of food is an important function of the animal body. In animals like lions, cows, humans, etc., the process involves use of various organs starting from the mouth and ending with the anus. The longest part of this canal is known as the _____.

A) stomach **B)** large intestine **C)** oesophagus **D)** small intestine

Correct Ans: D

Q9) Which organisms are classified as Aves?

A) Fishes **B)** Frogs **C)** Snakes **D)** Birds

Correct Ans: D

Q10) Microbes like Rhizobium, Nitrosomonas and Nitrobacter are used for:

A) nitrogen cycling **B)** carbon cycling **C)** water cycling **D)** sulphur cycling

Correct Ans: A

Q11) Match the terms in column A with their respective properties in column B.

Column-A	Column-B
i. Glucose	a. Intermediate substance in breakdown of glucose
ii. Yeast	b. Glucose is converted into pyruvic acid
iii. Glycolysis	c. Uses nutrients for fermentation process
iv. Pyruvic acid	d. Best organic substrate for respiration

A) i-b, ii-a, iii-d, iv-c **B)** i-d, ii-c, iii-b, iv-a **C)** i-a, ii-b, iii-c, iv-d **D)** i-b, ii-d, iii-a, iv-c **Correct Ans: B**

Q12) Filtration of waste products in humans happens in the kidneys. There is a large number of filtration units present inside the kidneys to help them in doing this job. These filtration units are called:

A) Bowman's capsules **B)** nephrons **C)** capillaries **D)** alveoli **Correct Ans: B**

Q13) Which set of diseases are caused by bacteria?

A) Influenza, Dengue, Cholera **B)** Typhoid, Cholera, Tuberculosis **C)** Dengue, Malaria, Cholera **D)** Malaria, Common cold, Influenza

Correct Ans: B

Q14) Which of the following pairs is INCORRECTLY matched?.

A) Lactose: Milk **B)** Starch: Egg yolk **C)** Fructose: Grapes **D)** Maltose: Wheat, cornmeal and barley **Correct Ans: B**

Q15) Match the points under Column A with those under Column B.

Column A (Disease)	Column B (Organism Responsible)
i. Malaria	a. Vibrio
ii. Diarrhoea	b. Salmonella
iii. Typhoid	c. Rotavirus
iv. Cholera	d. Plasmodium

A) i-b, ii-a, iii-c, iv-d **B)** i-d, ii-c, iii-b, iv-a **C)** i-a, ii-c, iii-b, iv-d **D)** i-a, ii-b, iii-c, iv-d **Correct Ans: B**

Q16) Which of the following is NOT a component of a flower?

A) Androecium **B)** Corolla **C)** Spines **D)** Calyx **Correct Ans: C**

Q17) Which acid is used as a souring agent added to vinegar, pickled vegetables, and sauces, and as a raw material for seasoning?

A) Citric acid **B)** Acetic acid **C)** Tartaric acid **D)** Formic acid **Correct Ans: B**

Q18) Which of the following is a characteristic of both mammals and birds?

A) Viviparity **B)** Pigmented skin **C)** Pneumatic bones **D)** Warm blooded **Correct Ans: D**

Q19) Which of the following researchers observed densely stained reticular structures surrounding the nucleus (Hint: Figure)?

A) William Harvey B) Francis Crick C) Camillo Golgi D) Louis Pasteur

Correct Ans: C

Q20) Which is the most important protein component in milk, both quantitatively and nutritionally, that accounts for about 80% of the total protein in bovine milk?

A) Actin B) Albumin C) Pepsin D) Casein

Correct Ans: D

Q21) Which of the following is a non-perishable food?

A) Pulses B) Meat C) Curds D) Milk

Correct Ans: A

Q22) Match the points under Column A with those under Column B.

Column A	Column B
i. Annelida	a. Tapeworm
ii. Arthropoda	b. Sea star
iii. Echinodermata	c. Ant
iv. Platyhelminthes	d. Earthworm

A) i-d, ii-c, iii-b, iv-a B) i-b, ii-a, iii-c, iv-d C) i-a, ii-c, iii-b, iv-d D) i-a, ii-b, iii-c, iv-d

Correct Ans: A

Q23) Which among the following is NOT a classification criterion of drugs?

A) Chemical structure B) Molecular target C) Behavioural condition D) Pharmacological effect

Correct Ans: C

Q24) Identify a spiral-shaped bacteria.

A) Bacillus B) Spirillum C) Coccus D) Vibrio

Correct Ans: B

Q25) Which of the following options is associated with the class of cold-blooded animals?

A) Chameleon B) Pavo C) Macropus D) Psittacula

Correct Ans: A

Q26) How many chambers are there in the heart of fishes?

A) 1 B) 2 C) 4 D) 3

Correct Ans: B

Q27) Which of the following is an example of Phylum Arthropoda?

A) Nereis B) Butterfly C) Hirudinaria D) Pila

Correct Ans: B

Q28) Which of the following is an example of prokaryotic cells?

A) Plasmodium B) Leishmania C) Yeast D) Bacteria

Correct Ans: D

Q29) Which of the following statements best defines the monoecious?

A) A flower with both androecium and gynoecium B) A flower with dithecous C) A flower with gynoecium only

D) A flower with androecium only

Correct Ans: A

Q30) Which of the following characteristics is NOT of Aves?

A) They have four-chambered heart. B) They give birth to live young ones with some exceptions those lay eggs.

C) These are warm-blooded animals. D) They breathe through the lungs

Correct Ans: B

Q31) What is the other name of tetanus caused by toxin producing bacteria called clostridium tetani?

A) Lockjaw B) Snap jaw C) Cleft jaw D) Broken jaw

Correct Ans: A

Q32) What are the five Fs of indirect transmission?

A) Flies, fingers, fomites, food and fluid B) Fruit, fingers, flu, food and fluid C) Flies, fingers, friends, food and fruit

D) Flies, fingers, fomites, food and fruit

Correct Ans: A

Q33) By which of the following methods do red algae reproduce?

A) Grafting B) Cutting C) Micropropagation D) Fragmentation

Correct Ans: D

Q34) Name a common electrolyte disorder that occurs when the amount of sodium in your blood becomes abnormally low.

A) Hyperkalemia B) Hypokalemia C) Hyponatremia D) Hypernatremia

Correct Ans: C

Q35) Which is a serious contagious bacterial infection that usually affects the mucous membranes of the nose and throat?

A) Meningococcal B) Diphtheria C) Shigellosis D) Chlamydia

Correct Ans: B

Q36) The organisms that do not have a defined nucleus or organelles are classified in to _____ Kingdom.

A) Fungi B) Protista C) Monera D) Plantae

Correct Ans: C

Q37) Which cell organelle is defined as the small round organelle that undergoes oxidation reaction to produce hydrogen peroxide?

A) Centrosome B) Vacuole C) Nucleus D) Peroxisomes

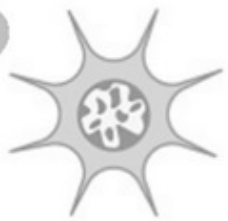
Correct Ans: D

Q38) Who published Systema Naturae in 1735 classifying the three kingdoms of nature and outlining the sexual system for the classification of plants?

A) Carl Woese B) Robert Whittaker C) Ernst Haeckel D) Carolus Linnaeus

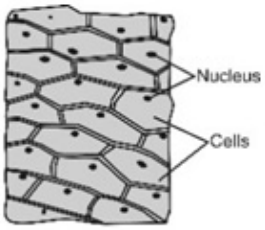
Correct Ans: D

Q39) Which of the following illustrations is related to chloroplasts?

a 

b 

c 

d 

A) a **B)** c **C)** d **D)** b

Correct Ans: B

Q40) Which of the following does NOT belong to the category of Porifera?

A) Hydra **B)** Sycon **C)** Spongilla **D)** Euplectella

Correct Ans: A

Q41) Which of the following classes includes the family of turtles?

A) Chondrichthyes **B)** Reptilia **C)** Amphibia **D)** Aves

Correct Ans: B

Q42) What is the reason for the similar size of the vascular bundle in monocot leaves?

A) Cubical venation **B)** Radial venation **C)** Rectangular venation **D)** Parallel venation

Correct Ans: D

Q43) Which of the following is an inactivated (killed) polio vaccine developed in 1952?

A) Salk vaccine **B)** Imvanex vaccine **C)** HDCV vaccine **D)** TAB vaccine

Correct Ans: A

Q44) Which of the following is responsible for the red colour of beetroot?

A) Curcumin **B)** Betanin **C)** Beta carotene **D)** Lycopene

Correct Ans: B

Q45) What is the name of the inflammatory condition that causes cracks, crusting and scaling at the corners of the mouth due to vitamin B2 deficiency?

A) Cheilosis **B)** Psoriasis **C)** Urticaria **D)** Atopic dermatitis

Correct Ans: A

Q46) Which of the following options indicates the size of PPLO (Pleuro Pneumonia Like Organisms)?

A) About 30 µm **B)** About 20 µm **C)** About 0.1 µm **D)** About 10 µm

Correct Ans: C

Q47) Which essential amino acid enhances calcium absorption and also plays an important role in the formation of collagen?

A) Arginine **B)** Tyrosine **C)** Lysine **D)** Histidine

Correct Ans: C

Q48) Which of the following is related to neem?

A) Tendril **B)** Palmately **C)** Pinnately **D)** Spines

Correct Ans: C

Q49) Which of the following pairs is INCORRECT regarding the grade of organisation and its example?

A) Cellular grade organisation - Sycon **B)** Protoplasmic grade organisation - Paramecium

C) Cell-tissue grade organisation - Jellyfish **D)** Tissue-organ grade organisation - Euplectella

Correct Ans: D

Q50) Which of the following is the best definition of ecological efficiency?

A) The amount of energy utilised at different trophic levels in a food chain

B) The amount of energy stored at different trophic levels in a food chain

C) The ratio between the mass and the energy flow at different trophic levels in a food chain

D) The ratio between energy flows at different points in a food chain

Correct Ans: D

Q51) In the context of cell division, which chromosomal behaviour takes place at the leptotene stage?

A) Chromosomes are un-synapsed B) Synapsis is complete C) Homologous chromosomes pair

D) Chromosomes begin to condense

Correct Ans: D

Q52) What do we mean by Allen's rule?

A) Mammals from colder climates generally have shorter ears and limbs to minimise heat loss.

B) Desert lizards lack the physiological ability that mammals have to deal with the high temperatures of their habitat.

C) Some plants have no leaves – they are reduced to spines – and the photosynthetic function is taken over by the flattened stems.

D) The body compensates low oxygen availability by increasing red blood cell production, decreasing the binding affinity of haemoglobin and by increasing the breathing rate.

Correct Ans: A

Q53) Which law states that endothermic animals from cold climates have smaller extremities or appendages than closely related species from warm climates?

A) Harper's rule B) Reich's rule C) Allen's rule D) Moller's rule

Correct Ans: C

Q54) Which marine carotenoid is abundant in brown seaweed, macroalgae and diatoms?

A) Fucoxanthin B) Astaxanthin C) Neoxanthin D) β-cryptoxanthin

Correct Ans: A

Q55) Which of the following categories does Gonyaulax belong to?

A) Euglenoids B) Chrysophytes C) Protozoans D) Dinoflagellates

Correct Ans: D

Q56) Which of the following is NOT a member of the Aves (birds) class?

A) Psittacula B) Neophron C) Pteropus D) Struthio

Correct Ans: C

Q57) In the year 1925, who extracted lipids from an erythrocyte sample and found that lipid monolayers are good for measuring molecular surface area versus lateral pressure?

A) Gorter and Grendel B) Carson and Eccles C) Avery and Buck D) Margulis and Ruska

Correct Ans: A

Q58) Match the points under Column A with those under Column B.

Column A (Subphylum)	Column B (Animal)
i. Hexapoda	a. Daphnia
ii. Crustacea	b. Mosquito
iii. Myriapoda	c. Limulus
iv. Chelicerata	d. Julus

A) i-b, ii-c, iii-a, iv-d B) i-a, ii-b, iii-c, iv-d C) i-d, ii-c, iii-b, iv-a D) i-b, ii-a, iii-d, iv-c

Correct Ans: D

Q59) Which types of gametes are found in Spirogyra?

A) Isogamous and flagellated B) Heterogamous and non-flagellated C) Heterogamous and flagellated

D) Isogamous and non-flagellated

Correct Ans: D

Q60) What kind of phyllotaxy was examined in the Guava plant?

A) Superimposed B) Whorled C) Alternate D) Opposite

Correct Ans: D

Q61) The growth form of a plant, comprising its size, shape and orientation is known as:

A) habit B) environment C) habitat D) growth pattern

Correct Ans: A

CHSL Exam 2024 Tier I

Q1) What is the main sense organ that virtual reality displays are aiming for?

A) Smell B) Taste C) Vision D) Touch

Correct Ans: C

Q2) Which of the following is a food-borne disease caused by the consumption of contaminated food or beverages?

A) Malaria B) Tuberculosis C) Chicken pox D) Cholera

Correct Ans: D

Q3) How do the muscle cells help in movement?

A) The lining of the vessels inside help in movement. B) The contraction and relaxation of these cells result in movement.

C) The blood flow of the cells helps in movement. D) The thickness of the cell layer helps in movement.

Correct Ans: B

Q4) Which group of animals has a segmented spinal column together with a few primitive forms in which the backbone is represented by a notochord?

A) Arthropoda B) Echinodermata C) Mollusca D) Vertebrata

Correct Ans: D

Q5) Who developed the technique of preserving the quality of food by raising its temperature to prevent microbial growth in the food?

A) Robert Koch B) Antonie van Leeuwenhoek C) Louis Pasteur D) Joseph Lister

Correct Ans: C

Q6) Which of the following is NOT a mutation-based disease?

A) Sickle cell anaemia B) Malaria C) Phenylketonuria D) Down syndrome

Correct Ans: B

Q7) Identify the INCORRECT statement regarding invertebrates from the options given below.

A) They have open circulatory system as there is no organisation in the distribution.

B) They have radial or bilateral body symmetry.

C) They have a pair of solid nerve cords, situated ventrally and bearing segmentally arranged ganglia.

D) They possess a backbone and an internal skeleton.

Correct Ans: D

Q8) The cell wall of bacteria is made up of:

A) peptidoglycan **B)** cellulose **C)** glycogen **D)** peptone

Correct Ans: A

Q9) Which of the following sequences is correct, according to taxonomy?

A) Class-Phylum-Family-Order Genus-Species **B)** Family-Phylum-Class-Order-Genus-Species

C) Phylum-Class-Order-Family-Genus-Species **D)** Class-Phylum-Order-Family-Genus-Species

Correct Ans: C

Q10) The loss of water in the form of water droplets from leaves of plants is called _____.

A) Pressure gradient **B)** Guttation **C)** Translocation **D)** Plasmolysis

Correct Ans: B

Q11) What do you mean by semiconservative DNA replication?

A) After the completion of replication, each DNA molecule would have two parental and two newly synthesised strand.

B) RNA is dependent on DNA for the synthesis of proteins **C)** DNA is dependent on RNA for the synthesis of proteins

D) After the completion of replication, each DNA molecule would have one parental and one newly synthesised strand.

Correct Ans: D

Q12) Which of the following statements about eutrophication is correct?

A) It happens when too much carbon enriches the water, causing excessive growth of bacteria and reduced growth of plants.

B) It happens when too less nitrogen is present in the water, causing reduced growth of plants and algae.

C) It is a beneficial process for environment restoration.

D) It happens when too much nitrogen enriches the water, causing excessive growth of plants and algae.

Correct Ans: D

Q13) In which year did Wilhelm Johannsen coin the term ‘gene’ to describe the Mendelian units of heredity?

A) 1909 **B)** 1900 **C)** 1920 **D)** 1910

Correct Ans: A

Q14) Which of the following is a rare group of genetic disorders caused by mutations of certain genes affecting the colour (pigmentation) of the skin, hair and eyes?

A) Alkaptonuria **B)** Alagille syndrome **C)** Albinism **D)** Angelman syndrome

Correct Ans: C

Q15) In which of the following plants do roots arise from parts of a plant other than the radicle?

A) Monstera **B)** Turnip **C)** Mustard plant **D)** Maize

Correct Ans: A

Q16) Which of the following animals can change their gender during their life span?

A) Ascaris **B)** Humans **C)** nereis **D)** Snail

Correct Ans: D

Q17) Mendel proposed the law of independent assortment on the basis of _____.

A) genes **B)** dihybrid crosses **C)** alleles **D)** Monohybrid crosses

Correct Ans: B

Q18) Which of the following muscles regulates the exit of food from the stomach into the small intestine?

A) Gastrocnemius **B)** Pectoralis **C)** Rectus **D)** Sphincter

Correct Ans: D

Q19) Which of the following statements most accurately describes the Cyclostomata group?

A) They are ectothermic animals having mucus glands in the skin, and a three-chambered heart.

B) They are warm-blooded, oviparous, bipedal, feathered, winged and toothless vertebrates.

C) They are characterised by having an elongated eel-like body, circular mouth, slimy skin and are scaleless.

D) Their skin is covered with scales/plates and their hearts have only two chambers.

Correct Ans: C

Q20) In honey bees, _____

A) males are triploid and females are tetraploid. **B)** males are haploid and females are diploid.

C) males are diploid and females are haploid. **D)** males are tetraploid and females are triploid.

Correct Ans: B

Q21) In a dihybrid cross between two heterozygous fruit flies with brown bodies and red eyes (BbEe X BbEe), what will be the probability of getting BBEE genotype?

A) 1/16 **B)** 1/4 **C)** 1/8 **D)** 1/2 **Correct Ans: A**

Q22) Which of the following enzymes are essential of DNA replication in an animal cell?

A) Reverse transcriptase, DNA polymerase, DNA primase **B)** Topoisomerase, DNA ligase, DNA polymerase, DNA primase

C) Reverse transcriptase, RNA polymerase, Ligase **D)** Reverse transcriptase, DNA polymerase, Ligase

Correct Ans: B

Q23) Which of the following is a medium-sized globular protein that acts as a pancreatic serine protease found in the digestive system of many vertebrates?

A) Amylase **B)** Lipase **C)** Trypsin **D)** Pepsin **Correct Ans: C**

Q24) In a symport:

A) a molecule moves across a membrane independent of other molecules

B) both molecules cross the membrane in the same direction **C)** both molecules cross the membrane in the opposite direction

D) a molecule moves across a membrane dependent of other molecules

Correct Ans: B

Q25) Which of the Mendel's laws states that a diploid organism passes a randomly selected allele for a trait to its offspring, such that the offspring inherit one allele from each parent?

A) Law of dominance **B)** Law of paired factor **C)** Law of independent assortment **D)** Law of segregation **Correct Ans: D**

Q26) Which of the following is a part of apical meristem found in roots.

A) Protoderm **B)** Leaf primordium **C)** Differentiating vascular tissue **D)** Axillary bud **Correct Ans: A**

Q27) Which of the following causes enlargement and extension growth of cells?

A) Imbibition **B)** Pressure potential **C)** Osmotic pressure **D)** Turgor pressure **Correct Ans: D**

Q28) The phenomenon of the interaction between nonallelic genes at two or more loci resulting in one gene masking the phenotypic expression of another gene, is known as:

A) linkage **B)** complete inheritance **C)** epistasis **D)** incomplete inheritance

Correct Ans: C

Q29) Who was the first person to conduct a systematic study of chromosomes during division and called this process mitosis?

A) Friedrich Miescher **B)** Thomas Hunt Morgan **C)** Antonie van Leeuwenhoek **D)** Walther Flemming

Correct Ans: D

Q30) In which year did a trio of scientists, Avery, MacLeod and McCarty, prove that except viruses, all living organisms have DNA as their genetic material?

A) 1918 **B)** 1902 **C)** 1944 **D)** 1961

Correct Ans: C

Q31) In the context of DNA, which of the following principles governs the process of transcription?

A) The transforming principle **B)** The principle of complementarity **C)** Semiconservative nature of DNA

D) The principle of inheritance

Correct Ans: B

MTS Non Tech Havaldar CBIC and CBN Examination 2024

Q1) Which virus is responsible for causing AIDS?

A) Human papillomavirus (HPV) **B)** Herpes simplex virus (HSV) **C)** Human immunodeficiency virus (HIV) **D)** Influenza virus

Correct Ans: C

Q2) Vitamin D is synthesised using sunshine, by the:

A) skin **B)** blood veins **C)** leg **D)** mouth

Correct Ans: A

Q3) To remain healthy and disease free, taking a balanced diet is very important. A balanced diet is:

A) a diet that contains adequate amount of protein and fat

B) a diet that contains sufficient amount of all the nutrients that the human body needs to grow properly

C) a diet that contains adequate amount of carbohydrates **D)** a diet that contains appreciable number of vitamins and minerals

Correct Ans: B

Q4) What is the primary source of energy for most ecosystems on Earth?

A) Tidal energy **B)** Wind **C)** Geothermal heat **D)** Sunlight

Correct Ans: D

Q5) A little child is a very picky eater and hates drinking milk and milk products. When he lost his baby tooth, permanent teeth took a very long time to come up in its place. What could be the probable reason behind this?

A) Protein Deficiency **B)** Vitamin Deficiency **C)** Calcium Deficiency **D)** Sugar Deficiency

Correct Ans: C

Q6) Match the columns.

	Column-A(Nutrients)		Column-B(Source)
i.	Protein rich diet	a.	Glucose and other sugars
ii.	Fat rich diet	b.	Citrus fruits
iii.	Carbohydrate rich diet	c.	Egg white and red meat
iv.	Vitamin C rich diet	d.	Butter and cheese

A) i-d, ii-c, iii-b, iv-a **B)** i-c, ii-a, iii-b, iv-d **C)** i-c, ii-d, iii-b, iv-a **D)** i-c, ii-d, iii-a, iv-b

Correct Ans: D

Q7) Which of the following options represents the correct flow of energy in an ecosystem?

A) Sunlight → Producers → Herbivores → Carnivores **B)** Sunlight → Herbivores → Carnivores → Producers

C) Sunlight → Herbivores → Producers → Carnivore **D)** Sunlight → Carnivores → Producers → Herbivores

Correct Ans: A

Q8) For most of the ecosystem, what is the primary source of energy?

A) Sunlight **B)** Wind **C)** Water **D)** Geothermal energy

Correct Ans: A

Q9) If after being bitten by a mosquito, the person is detected as being malaria positive, which of the following will hold true?

A. The person did not have a balanced diet.
B. The mosquito was carrying plasmodium.
C. The mosquito was suffering from malaria.
D. The person was not vaccinated as a child.

A) B **B)** D **C)** A **D)** C

Correct Ans: A

Q10) A child is a picky eater. He does not consume milk at all and barely eats other kinds of food. When he started losing his baby teeth, they were not getting replaced with new teeth. This can be solved by giving him _____.

A) calcium supplements **B)** vitamin C **C)** carbohydrate-rich food **D)** vitamin B complex

Correct Ans: A

Q11) The major carbohydrate of milk is

A) lactose **B)** starch **C)** Fructose **D)** maltose

Correct Ans: A

Q12) Constipation could be a sign that the person in suffering from a lack of _____.

A) Dietary Fibre **B)** Protein **C)** Vitamin **D)** Calcium

Correct Ans: A

Q13) Which of the following vitamins includes cobalt as an essential component?

A) Vitamin D **B)** Vitamin E **C)** Vitamin B12 **D)** Vitamin A

Correct Ans: C

Q14) A person with a very low count of red blood cells is medically known to have _____.

A) Anaemia **B)** Scurvy **C)** Goitre **D)** Jaundice

Correct Ans: A

Q15) Which of the following organisms is used in bread and alcohol industries?

A) Clostridium **B)** Penicillium **C)** Nitrobacter **D)** Yeast

Correct Ans: D

Q16) Which of the following options is an example of a decomposer in an ecosystem?

A) Producer B) Fungus C) Carnivore D) Herbivore

Correct Ans: B

Q17) Which of the following options correctly matches column-A with column-B?

Column-A (Name of Vitamin)	Column-B (Deficiency Diseases)
i. Vitamin A	a. Scurvy
ii. Vitamin D	b. Beriberi
iii. Vitamin B1	c. Rickets
iv. Vitamin C	d. Night Blindness

A) i-c, ii-d, iii-a, iv-b B) i-d, ii-c, iii-b, iv-a C) i-d, ii-c, iii-a, iv-b D) i-c, ii-d, iii-b, iv-a

Correct Ans: B

Q18) Which of the following are building blocks of proteins?

A) Amino acids B) Cells C) Bases D) Acids

Correct Ans: A

Q19) To get relief from constipation, which of the following is prescribed to be eaten in large amount?

A) Protein B) Fish C) Meat D) Fibre

Correct Ans: D

Q20) Which part of a flower develops into a seed?

A) Petal B) Stamen C) Ovule D) Pistil

Correct Ans: C

Q21) Which structure within the nucleus contains genetic information in the form of DNA?

A) Vacuole B) Nucleolus C) Ribosome D) Chromosome

Correct Ans: D

Q22) A coastal area was flooded with sea water and resulted in heavy salt deposits in the nearby area. After a few days, it was observed that many plants died. Based on these statements, which of the following is the most probable cause of the plant deaths?

A. Plants died due to infection from sea water borne germs.
B. Plants died due to absence of sunlight.
C. Plants died due to plasmolysis in the plant cells.
D. Plants died because they were eaten by sea organisms.

A) C B) B C) D D) A

Correct Ans: A

Q23) What is the study of the interactions between living organisms and their environment called?

A) Biology B) Ecology C) Geology D) Chemistry

Correct Ans: B

Q24) Which food is a good source of complete protein?

A) Lentils B) Eggs C) Spinach D) Rice

Correct Ans: B

Q25) To which of the following groups do whales belong?

A) Mammalia B) Pisces C) Amphibia D) Arthropoda

Correct Ans: A

Q26) Foods containing fats and carbohydrates are also called _____.

A) fermented foods B) energy giving foods C) roughage D) body building foods

Correct Ans: B

Q27) Excessive bleeding from wounds may happen due to lack of ____.

A) Vitamin K B) Vitamin E C) Vitamin A D) Vitamin B12

Correct Ans: A

Q28) A disease like COVID-19 is a kind of:

A) Protein Deficiency disease B) Waterborne disease C) Zoonotic disease D) Foodborne disease

Correct Ans: C

Q29) What is the primary function of the excretory system in animals?

A) Removal of waste products B) Respiration C) Reproduction D) Digestion

Correct Ans: A

Q30) Epilepsy is a disorder that affects which of the following parts of the human body?

A) The skin B) The teeth and bones C) Brain cells D) The muscles

Correct Ans: C

Q31) Which of the following is the role of fibre in the diet?

A) Regulating body temperature B) Enhancing taste of food C) Providing quick energy

D) Promoting digestion and bowel regularity

Correct Ans: D

Q32) A person having stunted growth and discoloured hair is most probably suffering from _____.

A) Lipid Deficiency B) Protein Deficiency C) Glucose Deficiency D) Vitamin A Deficiency

Correct Ans: B

Q33) Which of the following statements are correct about Ribosomes?

Statement A: Ribosomes have no membrane.
Statement B: Digestive hydrolytic enzymes are present in Ribosomes.
Statement C: These are called suicidal bags.
Statement D: Ribosomes play an important role in protein synthesis.

A) Only statements A and D B) Only statements A, B and C C) Only statements A and B D) Only statements A and C

Correct Ans: A

Q34) Which of the given options is rod-shaped, carries genetic information, is visible only at cell division and is present in the nucleus?

A) Ribosomes B) Chromosomes C) Lysosomes D) Cytoplasm

Correct Ans: B

Q35) Analgesic medicines are used for _____.

A) reducing pain and in fever B) supporting physiological functions C) killing or weakening microbes and infections

D) correcting deficiencies due to vitamins and nutrients

Correct Ans: A

Q36) When the body is deprived of energy from food, which of the following tissues is used to feed on its own?

A) Adipose tissue B) Collenchyma tissue C) Epithelial tissue D) Nervous tissue

Correct Ans: A

Q37) Chili peppers produce a burning sensation in any tissue with which they come into contact. What is the compound responsible for this?

A) Acetic acid B) Capsaicin C) Lycopene D) Formic acid

Correct Ans: B

Q38) If the body of an animal can be divided into two indistinguishable left and right halves through only one plane, then it possesses:

A) radial symmetry B) centre of symmetry C) asymmetricity D) bilateral symmetry

Correct Ans: D

Q39) Which of the following possesses the largest isolated single cell?

A) Human brain B) Amoeba C) Blue whale D) Ostrich egg

Correct Ans: D

Q40) The percentage of pore space between the particles inside a rock or soil is called:

A) Permeability B) Salinity C) Density D) Porosity

Correct Ans: D

Q41) In the case of reptiles, their heart is not properly divided in to four chambers i.e., it consists of two auricles and an incompletely divided ventricle. Which of the following is an example of a reptile having a four-chambered heart?

A) Lizard B) Snake C) Crocodile D) Turtles

Correct Ans: C

Q42) All living organisms on the Earth are made up of carbon compounds. Many years ago, dead and buried plants started slowly modifying into coal under high temperature and high pressure. This process is called:

A) carbonization B) composting C) black gold formation D) peat formation

Correct Ans: A

Q43) Which of the following communicable diseases is caused by bacteria?

A) Influenza B) Malaria C) Dengue D) Cholera

Correct Ans: D

Q44) The red colour of tomatoes is due to the presence of:

A) lycopene B) alizarin C) limonene D) beta carotene

Correct Ans: A

Q45) The transportation mechanism in cells by which food or other useful molecules from the outside are carried inside the cell is known as _____.

A) Endocytosis B) Osmosis C) Fusion D) Exocytosis

Correct Ans: A

Q46) Which of the following options correctly matches column-A and column-B?

Column-A (Food component) Column-B (Enzyme involved in digestion)

i. Protein a. Amylase

ii. Carbohydrates b. Lipase

iii. Fats c. Trypsin

A) i-a, ii-b, iii-c B) i-a, ii-c, iii-b C) i-b, ii-a, iii-c D) i-c, ii-a, iii-b

Correct Ans: D

Q47) What solution should be used to test for the presence of starch in food?

A) Talc solution **B)** Ethylene glycol – water solution **C)** Iodine solution **D)** Magnesium solution

Correct Ans: C

Q48) The Krebs cycle of aerobic respiration is carried out within which of the following cell organelles?

A) Lysosome **B)** Nucleus **C)** Mitochondria **D)** Spirogyra

Correct Ans: C

Q49) The microscopic channels, which traverse the cell walls of plant cells and some algal cells, enabling transport and communication between them is called:

A) ribosomes **B)** plasmodesmata **C)** lysosomes **D)** desmosomes

Correct Ans: B

Q50) Which specific chemical can be applied to achieve staining of chromosomes?

A) Acetocarmine **B)** Methanol **C)** Hydrochloric acid **D)** Ethanol

Correct Ans: A

Q51) Which of the following options correctly matches Column-A with Column-B?

Column-A (Cell organelles)	**Column-B (Function)**
i. Cell membrane	a. Protein synthesis
ii. Smooth Endoplasmic Reticulum	b. Important site of formation of glycoproteins and glycolipids
iii. Golgi apparatus	c. Synthesis of lipid
iv. Ribosomes	d. Transport of the molecules

A) i-c, ii-a, iii-d, iv-b **B)** i-d, ii-c, iii-b, iv-a **C)** i-c, ii-d, iii-a, iv-b **D)** i-c, ii-d, iii-b, iv-a

Correct Ans: B

Q52) Which of the following statements about pteridophytes are correct?

Statements:

A. They include horsetails and ferns.
B. Pteridophytes are used for medicinal purposes and as soil-binders.
C. They are very advanced type of plants on earth, which evolved very recently.
D. Evolutionarily, they are the first terrestrial plants to possess vascular tissues – xylem and phloem.

A) Only A, B and D **B)** Only A, B and C **C)** Only C and D **D)** Only A and C

Correct Ans: A

Q53) When protein-rich gelatinous egg white is heated, it turns to solid white due to:

A) Fermentation **B)** Protein Denaturation **C)** Gluten Formation **D)** Emulsification

Correct Ans: B

Q54) Match the columns.

Column A (Plant Group)	**Column B (Example)**
i. Bryophyta	a. Rose
ii. Pteridophyta	b. Pine
iii. Gymnosperms	c. Mosses
iv. Angiosperms	d. Selaginella

A) i-d, ii-c, iii-b, iv-a **B)** i-c, ii-d, iii-b, iv-a **C)** i-c, ii-a, iii-b, iv-d **D)** i-c, ii-d, iii-a, iv-b

Correct Ans: B

Q55) Several biological processes are catalysed by enzymes. Digestive enzymes are present in which part of the cell?

A) Lysosomes B) Ribosome C) Golgi complex D) Mitochondria

Correct Ans: A

Q56) Which of the following is a mineral deficiency disease?

A) Marusmus B) Scurvy C) Rickets D) Goitre

Correct Ans: D

Q57) Select the INCORRECT statement.

A) The chromatin material gets organised into rod-shaped chromosomes only when the cell is about to divide.

B) Functional segments of DNA are called genes.

C) DNA molecules contain the information necessary for constructing and organising cells.

D) Chromosomes are composed of DNA and carbohydrates.

Correct Ans: D

Q58) Match list I of cell organelles with their functions in list II.

List I:

(a) Endoplasmic reticulum

(b) Vacuoles

(c) Golgi apparatus

(d) Mitochondria

List II:

(i) for packaging of materials synthesised near the ER and dispatching them to various targets.

(ii) generates ATP.

(iii) are storage sacs for solid or liquid contents.

(iv) serve as channels for the transport of proteins.

A) (a) - (i); (b) - (iv); (c) - (iii); (d) - (ii) B) (a) - (iv); (b) - (iii); (c) - (i); (d) - (ii) C) (a) - (iv); (b) - (i); (c) - (iii); (d) - (ii)

D) (a) - (iv); (b) - (i); (c) - (ii); (d) - (iii)

Correct Ans: B

Q59) Eutrophication is a condition where excessive growth of algal bloom occurs on the surface of a water body because of abundant nutrients. Which of the following are the key nutrients for eutrophication?

A) Phosphorus and iron B) Iron and nitrogen C) Nitrogen and potassium D) Phosphorus and nitrogen

Correct Ans: D

Q60) Which of the following phyla contains Leech?

A) Coelenterata B) Platyhelminthes C) Nematoda D) Annelida

Correct Ans: D

Q61) Which of the following diseases is detected by the Widal test?

A) Influenza B) Typhoid C) Diphtheria D) Pneumonia

Correct Ans: B

Q62) If the Glycemic Index (GI) of a specific food is from 70 to 100, then the type of that food is:

A) Low-GI food B) Medium-GI food C) Extremely low-GI food D) High-GI food

Correct Ans: D

Q63) What is the primary function of the notochord in chordates?

A) Locomotion B) Digestion C) Support D) Respiration

Correct Ans: C

Q64) Which of the following statements about phylum Arthropoda are correct?

A. Animals of Arthropoda have joint appendages.
B. They have compounds eyes.
C. These make up the majority of all animals on earth.
D. The mode of reproduction in all Arthropods is vegetative.

A) Only A, B and C B) Only B, C and D C) Only A and C D) Only C and D

Correct Ans: A

Q65) A tunnel that runs through the cell wall between two plant cells is known as:

A) peroxisome B) plasmodesmata C) protoplasm D) ribosome

Correct Ans: B

Q66) It is observed that a child's heart rate is 135 times per minute. The beat frequency of heart is ____.

A) 8100 Hz B) 1.12 Hz C) 135 Hz D) 2.25 Hz

Correct Ans: D

Q67) Which of the following characteristics was used by Aristotle to classify animals?

A) Specialised organs B) Types of body cells C) Habitat D) Photosynthesis

Correct Ans: C

Q68) In a food chain of Algae-Shrimp-Fish-Bird, if the energy available at the bird is 4 kJ, then the energy available at the shrimp is:

A) 4 kJ B) 4000 kJ C) 400 kJ D) 0.04 kJ

Correct Ans: C

Q69) Pellagra is a deficiency disease that usually occurs due to lack of which of the following nutrients?

A) Niacin B) Vitamin E C) Iodine D) Riboflavin

Correct Ans: A

Q70) Which of the following can be a basis of difference between a salamander and a house-wall lizard apart from their habitat?

A) Scales on the skin B) Egg-laying feature C) Cold-blood D) Three-chambered heart

Correct Ans: A

Q71) Which of the following groups of organisms are more vulnerable to the acidification of ocean?

A) Marine algae B) Marine mammals C) Calcifying organisms D) Marine reptiles

Correct Ans: C

Q72) What cellular structure is responsible for breaking down and recycling cellular components and molecules?

A) Ribosome B) Nucleus C) Mitochondrion D) Lysosome

Correct Ans: D

Q73) The digestive enzymes inside lysosomes are made by:

A) rough endoplasmic reticulum B) Golgi apparatus C) mitochondria D) plastids themselves

Correct Ans: A

Q74) What do you call the body cavity that is lined by mesoderm?

A) Triploblasts B) Diploblasts C) Coelom D) Radial symmetry

Correct Ans: C

Q75) Anorexia nervosa is an eating disorder in teenagers. Here body weight:

A) increases drastically B) does not change C) loses drastically D) increases slightly

Correct Ans: C

Q76) Based on the number of chambers in the heart, select the odd one from the following.

A) Crocodile B) Frog C) Chameleon D) Turtle

Correct Ans: A

Q77) The process by which a water body gradually becomes enriched with nutrients and minerals, mainly phosphorus and nitrogen, leading to enormous growth of algae on the surface of the water, thus decreasing the amount of dissolved oxygen in the water is known as:

A) Eutrophication B) Hypoxia C) Bioaccumulation D) Biomagnification

Correct Ans: A

Q78) Which virus is responsible for causing common cold?

A) Coronavirus B) Influenza C) Hepatitis A D) Rhinovirus

Correct Ans: D

Q79) Which of the following options correctly matches column-A with column-B?

Column-A (Common name)	Column-B (Scientific name)
i. Cuttle Fish	a. Siluriformes
ii. Silver fish	b. Mobula
iii. Devil fish	c. Sepia
iv. Cat fish	d.Lepisma

A) i-c, ii-a, iii-b, iv-d B) i-c, ii-d, iii-b, iv-a C) i-c, ii-d, iii-a, iv-b D) i-d, ii-c, iii-b, iv-a

Correct Ans: B

Q80) What is the primary role of autotrophic organisms in an ecosystem?

A) Breaking down dead organisms B) Preying on other organisms for food

C) Producing organic matter from inorganic substances D) Converting organic matter into energy

Correct Ans: C

Q81) Which of the following statements is NOT true about Plastids?

A) They have their own ribosomes. B) Starch, oils and protein granules are stored in chromoplasts.

C) Stroma is found in chloroplast. D) They have their own DNA.

Correct Ans: B

Q82) Which of the following is considered unicellular green algae?

A) Cladophora B) Chlamydomonas C) Chlorophyta D) Oedogonium

Correct Ans: B

Q83) In the animal kingdom, which of the following phyla includes animals with a segmented body?

A) Arthropoda B) Annelida C) Mollusca D) Chordata

Correct Ans: B

Q84) Who first postulated that cells are generated from pre-existing cells?

A) William Harvey **B)** Carl Linnaeus **C)** Rudolf Virchow **D)** Jennifer Doudna

Correct Ans: C

Q85) In animal cells, the breakdown of very long chain fatty acids through β-oxidation is conducted by which of the following organelles?

A) Golgi apparatus **B)** Mitochondria **C)** Peroxisome **D)** Ribosome

Correct Ans: C

Q86) The percentage of sunlight energy absorbed by the green plants in a terrestrial ecosystem is about _____.

A) 0.5% **B)** 1% **C)** 2% **D)** 1.5%

Correct Ans: B

Q87) By what name is the species of Scaphopoda Mollusca 'Dentalium' commonly known?

A) Duck mussel **B)** Heart clam **C)** Head foot **D)** Tusk shells

Correct Ans: D

Q88) Which of the following cell organelles possesses their own DNA and can synthesise protein for their functions?

A) Centrosome **B)** Chloroplast **C)** Golgi complex **D)** Endoplasmic reticulum

Correct Ans: B

Q89) Which of the following groups of plants are categorised as cryptogams?

A) Gymnosperms and Angiosperms **B)** Thallophyta and Gymnosperms **C)** Pteridophyta and Angiosperms

D) Bryophytes and Thallophyta

Correct Ans: D

Q90) A particular cell present in the excretory system of flatworms, which helps them removing waste materials is the:

A) passage cell **B)** lacis cell **C)** flame cell **D)** cnidoblast cell

Correct Ans: C

Q91) The cytoplasmic zone surrounding the Golgi complex possesses no cell organelles. This zone of clear cytoplasm is called:

A) cytosol **B)** zone of exclusion **C)** cytosine **D)** cytochrome

Correct Ans: B

Q92) Which of the following is NOT a function of mesosomes?

A) DNA replication and distribution to daughter cells **B)** Respiration

C) Increase the surface area of the plasma membrane and enzymatic content **D)** Locomotion

Correct Ans: D

Q93) What is the term for the maximum population size that an environment can sustain indefinitely?

A) Ecological niche **B)** Biotic potential **C)** Pioneer species **D)** Carrying capacity

Correct Ans: D

Q94) According to sympatric speciation, the rising of a new species occurs when:

A) organisms from the same species start to show different behavioural characteristics

B) one species is separated into different groups due to geologic events like mountain formation

C) the two groups of organisms from the same species would phenotypically look different

D) two groups of the same species cannot interbreed among themselves despite living in the same geographic location

Correct Ans: D

Q95) Anorexia Nervosa is an eating disorder characterised by _____.
a) an abnormally heavy body weight
b) an intense fear of losing weight
c) a distorted perception of weight
d) trying to lose weight by exercising excessively

A) c and d **B)** a and c **C)** b and c **D)** a and b **Correct Ans: A**

Q96) Which of the following are edible polysaccharides?
A) Sucrose, glucose and cellulose **B)** Cellulose, chitin and myosin **C)** Methyl cellulose, chitin and actin
D) Starch, alginates, pectins and chitosans **Correct Ans: D**

Q97) Which organelle contains ribosomal RNA and is involved in the production of ribosomes?
A) Golgi apparatus **B)** Nucleus **C)** Endoplasmic reticulum **D)** Nucleolus **Correct Ans: D**

Q98) Cyanobacteria belong to the domain of:
A) Primary Consumers **B)** Producers **C)** Decomposers **D)** Tertiary Consumers **Correct Ans: B**

Q99) Muscle cells and muscle fibres are developed from embryonic precursor cells known as:
A) myonuclei **B)** myocyte **C)** myofibril **D)** myoblasts **Correct Ans: D**

Q100) Gluten formation is observed in various foods like pasta, noodles, pizzas, and bread. Gluten occurs when two specific proteins are mixed with water. Name the two proteins responsible for gluten formation.
A) Glutenin and Albumin **B)** Glutenin and Glycine **C)** Glutenin and Gliadin **D)** Glutenin and Casein **Correct Ans: C**

Q101) What is the term for the gradual, sequential changes in species composition in an ecosystem over time?
A) Extinction **B)** Succession **C)** Evolution **D)** Adaptation **Correct Ans: B**

Q102) Find the odd one out.
Vacuoles, Nucleus, Ribosomes, Lysosomes
A) Nucleus **B)** Vacuoles **C)** Ribosomes **D)** Lysosomes **Correct Ans: C**

Q103) Which of the following are the amounts of nutrients in a keto diet?
A) Only taking high number of vitamins and minerals **B)** High protein and fat, carbohydrates in a low amount
C) High carbohydrate, proper amount of protein and low fat **D)** High amount of fat, adequate protein and low carbohydrate **Correct Ans: D**

Q104) National Prophylaxis Program, which was launched in 1970 as an immediate remedial measure to address which of the following medical conditions /diseases caused by nutritional deficiencies?

A) Goitre B) Hypercalcemia C) Beriberi D) Blindness

Correct Ans: D

Q105) Which of the following is an example of anaerobic activity?

A) Jumping B) Skipping C) Walking D) Swimming

Correct Ans: A

SSC CPO PAPER-1 2024

Q1) Which of the following foods generally increase blood pressure?

A) Food high in protein B) Food high in salt, sugar and saturated or trans fats C) Food with low salt and low sugar

D) Food high in fibre

Correct Ans: B

Q2) In which of the following is nicotine present in high quantity?

A) Tobacco B) Tea C) Butter milk D) Lime soda

Correct Ans: A

Q3) Which of the following is NOT included in the Indian Food Guide Pyramid for healthy eating?

A) Pulses and legumes B) Alcoholic beverages C) Milk, meat and products D) Fats and sugar

Correct Ans: B

Q4) Which of the following options is correctly matched?

A) Decomposers – Bacteria B) Omnivorous – Green plants C) Herbivores – Secondary consumers

D) Carnivores – Primary consumers

Correct Ans: A

Q5) Which protein is found in grains?

A) Gluten B) Gum protein C) Arginine D) Delta protein

Correct Ans: A

Q6) Identify the largest phylum in the animal kingdom.

A) Mollusca B) Annelida C) Arthropoda D) Platyhelmenthis

Correct Ans: C

Q7) Identify the organelle present in plant cell that is not there in an animal cell.

A) Nucleus B) Plastids C) Neuron D) Cytoplasm

Correct Ans: B

Q8) What is pro-vitamin A or the anti-cancer compound present in carrots called?

A) Beta-carotene B) Alpha-resins C) Delta-terpenes D) Alpha-terpenoid

Correct Ans: A

Q9) Identify a mobile source of food.

A) Dead goat B) Deer C) Shrubs D) Grass

Correct Ans: B

Q10) Identify the reason for formation of dental plaque.

A) When acids stick to the teeth B) When bacteria acting on sugars produce acids

C) Masses of bacterial cells together with food particles stick to the teeth D) Saliva sticks to the pulp

Correct Ans: C

Q11) Which vitamin is involved in red blood cell formation, neurological function and DNA synthesis?
A) Vitamin B7 B) Vitamin K C) Vitamin E D) Vitamin B12 **Correct Ans: D**

Q12) What is the shape of the eyeball?
A) Oval B) Spherical C) Cylindrical D) Circular **Correct Ans: B**

Q13) What are the thin filamentous extensions that the motile bacterial cells have from their cell wall called?
A) Fimbriae B) Flagella C) Lamellae D) Pili **Correct Ans: B**

Q14) Identify the structure that controls the size of the pupil.
A) Vitreous humour B) Iris C) Ciliary muscles D) Cornea **Correct Ans: B**

Q15) Identify an organelle found both in eukaryotic as well as prokaryotic.
A) Endosomes B) Ribosomes C) Lysosomes D) Mitochondria **Correct Ans: B**

Q16) To what phylum does a blood sucking leech belong?
A) Platyhelminthes B) Aschelmenthis C) Annelida D) Cnidarian **Correct Ans: C**

Q17) Garlic is good source of:
A) zinc and cobalt B) magnesium and aluminium C) iron and copper D) manganese and selenium **Correct Ans: D**

Q18) The body of the phylum _____ is unsegmented and dorsoventrally flattened.
A) Coelenterata B) Arthropoda C) Platyhelminthes D) Mollusca **Correct Ans: C**

Q19) Which Greek term was first used by Ernst Haeckel in 1866 to refer to 'the relation of animals to both the organic as well as the inorganic environment'?
A) Ethnologie B) Ecophagie C) Oekologie D) Oologie **Correct Ans: C**

Q20) Who described the algae Spirogyra in 1674 and named the motile organisms Animalcules, meaning 'little animals'?
A) Barthelemy Dumortier B) Maurice Wilkins C) Anton Van Leeuwenhoek D) Robert Remak **Correct Ans: C**

Q21) Identify the organism that shows bioluminescence.
A) Fasciola B) Ctenoplana C) Liver fluke D) Tapeworm **Correct Ans: B**

Q22) Which is an integral membrane protein that forms the tetramer and facilitates the diffusion of water and some small, unmodified solutes across cellular membranes?
A) Immunoglobulins B) Mucins C) Transferrin D) Aquaporins **Correct Ans: D**

Q23) Identify a muscle responsible for exit of waste material from the body.
A) Rectus B) Pectoralis C) Sphincter D) Gastrocnemius **Correct Ans: C**

Q24) Which hairpin-like structure serves to anchor and stabilise the tick's mouthparts to its host's skin and to channel the exchange of fluids?
A) Peduncle B) Substratum C) Hypostome D) Trunk **Correct Ans: C**

Q25) What is the fourth step in mitosis where non-kinetochore spindle fibres lengthen and elongate the cell?

A) Telophase B) Metaphase C) Anaphase D) Prophase

Correct Ans: C

Q26) Which bacteria have a thick cell wall with several layers of peptidoglycan and teichoic acid?

A) Staphylococcus aureus B) Pseudomonas aeruginosa C) Salmonella enterica D) Escherichia coli

Correct Ans: A

Constable GD Examination 2024

Q1) Which of the following is required by the aquatic animals to breathe under water?

A) Dissolved CO_2 B) Dissolved H_2S C) Dissolved Oxygen D) Dissolved Nitrogen

Correct Ans: C

Q2) In humans sound is produced by voice box. What is the other name used for voice box?

A) Larynx B) Lymph Nodes C) Pharynx D) Wind pipe

Correct Ans: A

Selection Post XII

Q1) AIDS is an abbreviation for:

A) Acquire Immuno Deficiency Syndicate B) Acquired Immuno Deficiency Syndrome

C) Acquired Immuno Deficiency Syndicate D) Acquired Immunic Deficiency Syndrome

Correct Ans: B

Q2) What is called the powerhouse of the cell?

A) Nucleus B) Cytoplasm C) Chloroplast D) Mitochondria

Correct Ans: D

Q3) Foods like pizza, burger are rich in:

A) Vitamins B) carbohydrates C) proteins D) Minerals

Correct Ans: B

Q4) The disease caused by deficiency of iodine is:

A) malaria B) chicken pox C) goitre D) anaemia

Correct Ans: C

Q5) Which glands help in digestion in the stomach?

A) Pineal B) Gastric glands C) Thyroid D) Pituitary

Correct Ans: B

Q6) Which of the following items has a high fibre content?

A) Whole grain B) Eggs C) Fish D) Milk

Correct Ans: A

Q7) A plant cell wall is mainly composed of:

A) lipid B) cellulose C) starch D) protein

Correct Ans: B

Q8) _____ is the science and art of cultivating fruits, vegetables, flowers and ornamental plants.

A) Viniculture B) Floriculture C) Horticulture D) Sericulture

Correct Ans: C

Q9) Rickets is caused by deficiency of:

A) vitamin C B) vitamin B C) vitamin D D) vitamin A

Correct Ans: C

Q10) What are ribosomes made up of?

A) Proteins and RNA **B)** Only proteins **C)** Only DNA **D)** Only RNA

Correct Ans: A

Q11) Which of the following is an example of a vertebrate?

A) Crustaceans **B)** Molluscs **C)** Insects **D)** Mammals

Correct Ans: D

Q12) Which type of muscles do the uterus, iris of the eye, and bronchi contain?

A) Striated muscles **B)** Cardiac muscles **C)** Smooth muscles **D)** Skeletal muscles

Correct Ans: C

Q13) Which of the following classes has the largest number of animals?

A) Mammals **B)** Insects **C)** Reptiles **D)** Pisces

Correct Ans: B

Q14) _____is associated with the production and metabolism of fats and steroid hormones.

A) Nucleus **B)** Golgi apparatus **C)** Smooth endoplasmic reticulum **D)** Mitochondrion

Correct Ans: C

Q15) Compounds like gingerol, paradol, shogaols and zingerone are:

A) antimicrobial compounds found in turmeric **B)** antifungal compounds found in ginger

C) antimicrobial compounds found in citrus fruits **D)** antimicrobial compounds found in ginger

Correct Ans: D

Q16) Which of the following is the correct formula for calculating Body Mass Index (BMI)?

A) BMI = gm/cm^2 **B)** BMI = kg × m^2 **C)** BMI = kg/m^2 **D)** BMI = kg × cm^2

Correct Ans: C

Q17) Flowerless plants, naked seeds, needle like leaves and cones as reproductive structure are the characteristics of:

A) bryophyta **B)** gymnosperms **C)** angiosperms **D)** pteridophyta

Correct Ans: B

Q18) In the context of movement of cells, exocytosis is the process by which:

A) cell death is brought about through a heavily regulated sequence of events

B) cells move waste materials from within the cell into the extracellular fluid

C) cells absorb external material by engulfing it with the cell membrane

D) a cell takes in the fluids along with dissolved small molecules

Correct Ans: B

Q19) Which of the following was discovered by GN Ramachandran?

A) Golgi bodies **B)** Plasma membrane **C)** Triple helical structure of collagen **D)** Fluid mosaic model of a cell

Correct Ans: C

Q20) Select the correct statement about climax community.

A) It is an ecological community in which populations of plants or animals, which are very unstable and exist for very few time.

B) It is a very first community of ecosystem.

C) It is an ecological community in which populations of plants or animals remain stable and exist in balance with each other and their environment.

D) It consist of only plant population that makes a new ecological system.

Correct Ans: C

Q21) The cell wall of spirogyra contains:

A) lignin B) cellulose C) Chitin D) suberin

Correct Ans: B

Q22) In 1955, who published a comprehensive study of small particle constituents of the cytoplasm' (ribosomes) and correctly estimated their physiological importance?

A) Albert Von Kolliker B) George E Palade C) Pierre Joseph Pelletier D) James Thomson

Correct Ans: B

Q23) Identify the INCORRECT pair of cell shape types and their examples.

A) Elongated – Muscle cells B) Oval – Chlamydomonas C) Irregular – Amoeba D) Oblong – Nerve cells

Correct Ans: D

Q24) _____ is an example of acoelomate.

A) Molluscs B) Arthropods C) Echinoderms D) Platyhelminthes

Correct Ans: D

Q25) Which vitamin prevents the neural tube defect in new-born babies?

A) Niacin B) Riboflavin C) Folic acid D) Ascorbic acid

Correct Ans: C

Q26) Which of the following is NOT correctly matched?

A) Mitochondria – Production of chemical energy B) Nucleolus – Synthesis of DNA

C) Nucleus – Storage of genetic information D) Ribosome – Assembly of ribosomes

Correct Ans: B

Q27) What is the root-like structure at the base of an algae (seaweed) that binds the algae to a hard substrate like a stone?

A) Stipe B) Frond C) Midrib D) Holdfast

Correct Ans: D

Q28) On which of the following component of chloroplast is chlorophyll arranged?

A) Cell Membrane B) Matrix C) Thylakoids D) Stroma

Correct Ans: C

Q29) Select the INCORRECT statement about Agar.

A) It is used in preparations of ice-creams and jellies. B) Agar is used to grow microbes.

C) Agar, one of the commercial products obtained from red algae, gelidium and gracilaria.

D) It is used as nutrient and source of fat of bacterial culture.

Correct Ans: D

Q30) Which of the following groups represents essential amino acid?

A) Alanine, isoleucine, leucine, lysine B) Glycine, proline, serine, and tyrosine C) Alanine, arginine, asparagine, aspartic acid

D) Histidine, isoleucine, leucine, lysine

Correct Ans: D

Q31) Which of the following cell organelles is involved in apoptosis?

A) Golgi B) ER C) Lysosome D) Mitochondria

Correct Ans: D

Q32) What is the function of cytochrome P450?

A) ATP synthesis B) Assimilation of medicines and xenobiotics C) Detoxification of xenobiotics D) Hydrolysis of glucose

Correct Ans: C

Q33) Chromosomes found in the salivary glands of Drosophila are:

A) giant chromosome polytene B) presence of fat digestive enzymes C) giant chromosome lampbrush

D) presence of minute chromosomes

Correct Ans: A

Q34) In which of the following animals are the stinging capsules located around the mouth and on the tentacles?

A) Taenia B) Nereis C) Adamsia D) Ascaris

Correct Ans: C

Q35) Which chromosome is involved in the production of 'masked' mRNAs for early development?

A) Sex chromosome B) Lampbrush chromosome C) Polytene chromosome D) Autosomal chromosome

Correct Ans: B

Stenographer Grade C and D Examination 2024

Q1) The main location for ATP production is:

A) nucleus B) mitochondria C) peroxisome D) plastids

Correct Ans: B

Q2) Match column A with B.

Column A	Column B
a. Carnivores	i. Green plants
b. Producers	ii. Secondary or tertiary consumers
c. Decomposers	iii. Primary consumers
d. Herbivores	iv. Bacteria

A) a-ii, b-i, c-iv, d-iii B) a-iii, b-i, c-iv, d-ii C) a-iii, b-iv, c-i, d-ii D) a-ii, b-iv, c-i, d-iii

Correct Ans: A

Q3) What is the name of the disease that can be caused by Vitamin D deficiency in children?

A) Osteoporosis B) Scurvy C) Rickets D) Bleeding diathesis

Correct Ans: C

Q4) Which of the cell organelles includes RNA?

A) Cell base B) Cell wall C) Ribosome D) Cytoplasm

Correct Ans: C

Q5) _____ are circular and biconcave for easy passage through blood capillaries and to transport oxygen.

A) Guard cells B) Red blood cells C) White blood cells D) Nerve cells

Correct Ans: B

Q6) Who among the following was the first to describe the nucleus as a cell organelle?

A) Robert Brown B) Robert Koch C) LucioFontana D) Eduard Strasburger

Correct Ans: A

Q7) Interspecific interaction between two species, in which both members benefit, is referred to as:

A) neutralism B) commensalism C) mutualism D) uniquely

Correct Ans: C

Q8) Which of the following regarding the trophic levels is INCORRECT?

A) Omnivores – Fungus B) Carnivores – Secondary or tertiary consumers C) Decomposers – Bacteria

D) Herbivores – Primary consumers

Correct Ans: A

Q9) Which of the following is classified as an autotrophic organism?

A) Animal B) Fungi C) Plant D) Human

Correct Ans: C

Q10) Which of the following elements is responsible for high Blood Pressure?

A) Calcium B) Potassium C) Magnesium D) Sodium

Correct Ans: D

Q11) Choose the correct statement.

A) Heterotrophs' survival depends directly or indirectly on autotrophs.

B) Autotrophs' survival depends directly on heterotrophs. C) All bacteria are autotrophs. D) Animals are autotrophs.

Correct Ans: A

Q12) Who discovered the nucleus of the cell?

A) Watson B) Robert Brown C) Anton van Leeuwenhoek D) Robert Hook

Correct Ans: B

Q13) What is the vitamin deficiency in milk?

A) A B) C C) B Complex D) D

Correct Ans: B

Q14) Who used a home-made microscope to discover the invisible world of microbes, for which he is called the founding father of microbiology?

A) Antoni van Leeuwenhoek B) Matthias Schleiden C) Rudolf Virchow D) Robert Brown

Correct Ans: A

Q15) Which of the following is a group of chlorophyll-bearing, simple, thalloid, autotrophic and primarily aquatic (both freshwater and marine) organisms?

A) Pteridophytes B) Gymnosperms C) Algae D) Bryophytes

Correct Ans: C

Q16) Biotic potential is defined as:

A) the tendency of a population to remain constant under extreme environmental conditions

B) the tendency of a population to decrease under extreme environmental conditions

C) the ability of a population to increase under ideal environmental conditions

D) the ability of a population to survive and remain constant under ideal environmental conditions

Correct Ans: D

Q17) Which organelle is common between a eukaryotic and a prokaryotic cell?

A) Ribosomes B) Cell organelle C) Cell membrane D) Nucleus

Correct Ans: A

Q18) Identify a structure that plays a role in motility.

A) Fimbria B) Villi C) Flagella D) Pili

Correct Ans: C

Q19) Choose the INCORRECT statement.

A) Crocodiles have four heart chambers. B) Birds have four-chambered heart. C) Fishes have two chambered heart.

D) Frogs have four-chambered heart.

Correct Ans: D

Q20) Choose the correct statement regarding the bacterial cell wall.

A) Pectin is the major component of the bacterial cell wall. B) Chitin is the major component of the bacterial cell wall.

C) The major component of the bacterial cell wall is cellulose.

D) The major component of the bacterial cell wall is peptidoglycan or murein.

Correct Ans: D

Q21) The species that invade a bare area are called _____ species.

A) secondary B) primary C) ruderal D) pioneer

Correct Ans: D

Q22) In the context of cell organelles, a centriole is:

A) a heterogeneous family of organelles found ubiquitously in plant cells

B) a membrane-bound cell organelle that contains digestive enzymes

C) a paired barrel-shaped organelle located in the cytoplasm of animal cells near the nuclear envelope

D) a stack of small flat sacs formed by membranes inside the cell's cytoplasm

Correct Ans: C

Q23) Which of the below is a psychological disorder of refusal to eat food, caused by under-nutrition?

A) Bulimia Nervosa B) Anorexia Nervosa C) Marasmus D) Kwashiorkor

Correct Ans: B

Q24) Choose the INCORRECT statement about lichens.

A) Fungi and cyanobacteria both lives in lichens independently. B) Lichens contains cyanobacteria.

C) Lichens are seen slow-growing large coloured patches on the bark of trees.

D) Fungi are found in lichen living a symbiotic life.

Correct Ans: A

Q25) Identify the type of specialised cells found in flatworms that help in osmoregulation.

A) Stem cells B) Mesoderm C) Sperm cells D) Flame cells

Correct Ans: D

Q26) _____ are amoeboid (amoeba like movement, with pseudopodia) that can squeeze out through capillary walls.

A) Guard cells **B)** Nerve cells **C)** White blood cells **D)** Red blood cells

Correct Ans: C

Q27) Identify another name of Choanocytes.

A) Flame cells **B)** Sperm cells **C)** Stem cells **D)** Collar cells

Correct Ans: D

Q28) Identify the scientific name of sea pen that belongs to phylum Cnidaria.

A) Gorgonia **B)** Obelia **C)** Pennatula **D)** Adamsia

Correct Ans: C

Q29) Which of the following does NOT belong to the cytoskeleton filaments?

A) Microtubules **B)** Intermediate **C)** Actin **D)** Centrioles

Correct Ans: D

Q30) Identify a structure found in the form of vesicles, tubules and lamellae.

A) Cytoplasm **B)** Lysosomes **C)** Mesosomes **D)** Plastids

Correct Ans: C

SSC JE 2024 (Junior Engineer)

Q1) Which of the following is/are most essential for growth and development?

A) Salts **B)** Protein **C)** High sugar **D)** Spices

Correct Ans: B

Q2) Which disease is characterised by the body's inability to regulate blood sugar levels?

A) Hypertension **B)** Asthma **C)** Arthritis **D)** Diabetes

Correct Ans: D

Q3) It is a fact that if you drink from a plastic bottle and throw it in the dustbin, it will still be there when your grandchildren are old. What is the reason behind this?

A) Plastics are biodegradable. **B)** Plastics are radioactive. **C)** Plastics are non-biodegradable. **D)** Plastics are heavy metals.

Correct Ans: C

Q4) In plant cells, which organelle is responsible for photosynthesis?

A) Chloroplast **B)** Mitochondrion **C)** Lysosome **D)** Peroxisome

Correct Ans: A

Q5) What is the term for the process of water loss from plant leaves through tiny openings called stomata?

A) Transpiration **B)** Respiration **C)** Photosynthesis **D)** Germination

Correct Ans: A

Q6) All the living and non-living things in a particular area constitute the _____ of the area.

A) Ecosystem **B)** Food Web **C)** Species **D)** Life Circle

Correct Ans: A

Q7) Which of the following is the most important disease related to Vitamin C deficiency?

A) Goitre **B)** Atherosclerosis **C)** Pellagra **D)** Scurvy

Correct Ans: D

Q8) The animals or plants which can inbreed successfully must belong to the same _____.

A) country **B)** species **C)** locality **D)** planet

Correct Ans: B

Q9) Which of the following is the most common nutritional cause of anaemia?

A) Iron deficiency B) Magnesium deficiency C) Calcium deficiency D) Selenium deficiency **Correct Ans: A**

Q10) Which of the following is the structural and functional unit of an organism?

A) Cell B) ATP C) Nucleus D) Mitochondria **Correct Ans: A**

Q11) What is the primary function of carbohydrates in the body?

A) To enhance vision B) To regulate metabolism C) To build muscle D) To provide energy **Correct Ans: D**

Q12) Which group of beneficial bacteria is commonly used in fermented dairy products?

A) Streptomyces rhizobium B) Campylobacter jejuni C) Lactobacillus acidophilus D) Staphylococcus aureus

Correct Ans: C

Q13) Which cell organelle is the energy factory of cells and is an important hub for intracellular interactions with other organelles?

A) Golgi apparatus B) Lysosomes C) Mitochondria D) Peroxisomes **Correct Ans: C**

Q14) Which organelle is responsible for producing ATP, the cell's energy currency?

A) Nucleus B) Mitochondrion C) Golgi apparatus D) Endoplasmic reticulum **Correct Ans: B**

Q15) What is the medical term for high blood pressure?

A) Hyperglycemia B) Hypoglycemia C) Hypotension D) Hypertension **Correct Ans: D**

Q16) Which of the following bacterial infections often affects the lungs?

A) Meningitis B) Influenza C) Tuberculosis D) Herpes **Correct Ans: C**

Q17) Through which of the following body parts does food need to pass before reaching the intestines?

A) Windpipe --> Food pipe B) Mouth --> Rectum C) Oesophagus --> Stomach D) Stomach --> Rectum **Correct Ans: C**

Q18) Which part of the cell is responsible for generating the primary energy molecule ATP in eukaryotic animals?

A) Mitochondria B) Vacuoles C) Endoplasmic reticulum D) Cell wall **Correct Ans: A**

Q19) The type of carbohydrate predominantly found in potatoes is _____.

A) Sugar B) Glucose C) Starch D) Fructose **Correct Ans: C**

Q20) Food rich in carbohydrates (like potatoes) and those rich in fats (like butter) are also known as _____.

A) Energy-Giving Food B) Main Course C) Unsafe Food D) Fast Food **Correct Ans: A**

Q21) On cold pressing groundnut, oils are released. This indicates the presence of _____.

A) Carbohydrates B) Fats C) Vitamins D) Proteins **Correct Ans: B**

Q22) Which juice is released in our gall bladder that facilitates the digestion of fats?

A) Saliva B) Acetic Acid C) Bile D) Mucous **Correct Ans: C**

Q23) Which disease causes bone pain, stunted growth and soft, weak bones that can lead to skeletal deformities due to not having enough vitamin D?

A) Rickets **B)** Pertussis **C)** Dementia **D)** Polio

Correct Ans: A

Q24) Which of the following animals is NOT a mammal?

A) Lizard **B)** Bat **C)** Dolphin **D)** Elephant

Correct Ans: A

Q25) Which organelle contains enzymes for digesting cellular waste and foreign materials?

A) Nucleus **B)** Mitochondrion **C)** Lysosome **D)** Vacuole

Correct Ans: C

Q26) Which of the following demineralises the enamel of the teeth?

A) Acids produced by bacteria **B)** Saliva **C)** Toothpaste **D)** Soft toothbrush

Correct Ans: A

Q27) What is the process by which one organism captures and consumes another organism called?

A) Mutualism **B)** Competition **C)** Predation **D)** Parasitism

Correct Ans: C

Q28) Food digested in the stomach passes through the intestines so that the blood vessels can absorb essential nutrients for the functioning and growth of the body. What is this process known as?

A) Transmission **B)** Assimilation **C)** Transfusion **D)** Integration

Correct Ans: B

Q29) Which of the following is a simple monocarboxylic acid containing two carbons?

A) Capric acid **B)** Valeric acid **C)** Acetic acid **D)** Palmitic acid

Correct Ans: C

Q30) By what name is Vitamin B1 known which is essential for glucose metabolism and healthy nerve, muscle and heart function?

A) Niacin **B)** Riboflavin **C)** Pantothenic acid **D)** Thiamin

Correct Ans: D

Q31) The enzyme that is essential for fat digestion is:

A) invertase **B)** trypsin **C)** lipase **D)** zymase

Correct Ans: C

Q32) Select the correct arrangement of the parts of the food canal in humans from the starting point to the ending point.

A) The buccal cavity ---> Oesophagus ---> Stomach ---> Large intestine ---> Small intestine ---> Rectum ---> Anus

B) The buccal cavity ---> Oesophagus ---> Stomach ---> Small intestine ---> Large intestine ---> Anus ---> Rectum

C) The buccal cavity ---> Oesophagus ---> Stomach ---> Large intestine ---> Small intestine ---> Anus ---> Rectum

D) The buccal cavity ---> Oesophagus ---> Stomach ---> Small intestine ---> Large intestine ---> Rectum ---> Anus

Correct Ans: D

Q33) Which of the following is a function of the cytoskeleton?

A) Protein synthesis **B)** Cell division **C)** ATP production **D)** Cell support and shape

Correct Ans: D

Q34) Vitamin B12 is also known as:

A) pantothenic acid B) cyanocobalamin C) pyridoxine D) biotin

Correct Ans: B

Q35) Which type of cell lacks a membrane-bound nucleus?

A) Prokaryotic cell B) Eukaryotic cell C) Animal cell D) Plant cell

Correct Ans: A

Q36) Which of the following is a macronutrient?

A) Vitamins B) Carbohydrates C) Minerals D) Antioxidants

Correct Ans: B

Q37) You grew a small plant in a planter. On maturity, you observed that the plant has green stem, very few branches and the stem is so soft that you could easily break it with your hands. Under which category will you put this plant?

A) Tree B) Creeper C) Shrub D) Herb

Correct Ans: D

Q38) Who among the following scientists discovered free living cells in pond water for the first time?

A) Robert Brown B) Franz Bauer C) Robert Hooke D) Anton Van Leeuwenhoek

Correct Ans: D

Q39) What is the primary function of the Golgi apparatus?

A) Lipid production B) Sorting and packaging of cellular products C) Protein synthesis D) Cellular respiration

Correct Ans: B

Q40) In the ecosystem, there can be multiple food chains, but only a limited number of trophic levels. Based on this statement which of the following is NOT true?

A: Each level in the food chain represents one trophic level

B: Organisms in the lowest trophic level have the highest population as a lot of energy is available for their survival

C: There is a loss of energy as it is being absorbed by organisms at the higher trophic level

D: Organisms at the highest trophic level make their own food and do not fully depend on the lower trophic organisms for energy.

A) A B) B C) C D) D

Correct Ans: D

Q41) The Y-shaped proteinaceous structure produced by the immune cells to defend our body against harmful bacteria and viruses are known as:

A) immunoglobulin B) amino acids C) collagen D) haemoglobin

Correct Ans: A

Q42) Which of the following is INCORRECT about cooking of food?

A) Makes it easier to digest B) Results in the loss of certain nutrients C) Destroys vitamin C easily

D) Destroys vitamin D easily

Correct Ans: D

Q43) Which of the following organisms belong to the Phylum Protozoa?

A) Amoeba, Paramecium, Jelly fish B) Amoeba, Paramecium, Plasmodium C) Euglena, Paramecium, Jelly fish

D) Amoeba, Paramecium, Taenia

Correct Ans: B

Q44) The primary function of which globular structure is to produce and assemble the ribosomes of the cell?

A) Chromatin **B)** Centriole **C)** Peroxisomes **D)** Nucleolus

Correct Ans: D

Q45) Which phylum of the animal kingdom is made up of segmented insects like earthworms?

A) Porifera **B)** Nematoda **C)** Platyhelminthes **D)** Annelida

Correct Ans: D

Q46) What is the function of the endoplasmic reticulum (ER)?

A) Lipid synthesis and detoxification **B)** Protein synthesis **C)** Energy production **D)** DNA replication

Correct Ans: A

Q47) Which of the following is NOT an animal of Phylum Chordate?

A) Rabbit **B)** Snake **C)** Frog **D)** Earthworm

Correct Ans: D

Q48) Which term refers to the increasing concentration of toxins within each successive link in the food chain?

A) Biomagnification **B)** Facilitation **C)** Denitrification **D)** Stratification

Correct Ans: A

Q49) What is the difference between a somatic cell and a reproductive cell?

A) Somatic cells undergo mitotic cell division while reproductive cells undergo meiotic cell division.

B) The somatic cells have mitochondria but the reproductive cells do not have any mitochondria.

C) Somatic cells do not contain any chromosome while reproductive cells have their own chromosome.

D) The somatic cell and reproductive cell are neither diploid nor haploid.

Correct Ans: A

Q50) When two nuclei fuse together forming one nucleus during cell fusion, it is known as:

A) synkaryon **B)** eukaryon **C)** heterokaryon **D)** syncytium

Correct Ans: A

Q51) One characteristic of viruses is that they do not show any signs of life unless they enter a living host and start multiplying using the host's cell. What is the main reason behind this?

A) They camouflage themselves as non-living to find a host. **B)** They lack cell membrane and other organelles.

C) They lack DNA. **D)** They need heat of the hosts body to multiply.

Correct Ans: B

Q52) Besides the cell organelles, there are various types of non-living components within a cell, which are known as:

A) Cytoplasmic Inclusion **B)** Plasmodesmata **C)** Tubules **D)** Microfibrils

Correct Ans: A

Q53) Which of the following is a heart-related disease?

A) Goiter **B)** Diabetes **C)** Angina **D)** Acromegaly

Correct Ans: C

Q54) Which of the following is/are a gymnosperm?

A) Fern B) Cycas C) Mosses D) Rose **Correct Ans: B**

Q55) In which plant tissue does photosynthesis primarily occur?

A) Xylem B) Epidermis C) Phloem D) Mesophyll **Correct Ans: D**

Q56) What specialised nerve cells does the phylum Cnidaria have to capture and stun prey such as water fleas and plankton?

A) collar cell B) stinging cell C) flame cell D) chief cell **Correct Ans: B**

Q57) Which of the following minerals is essential for maintaining healthy bones and teeth?

A) Sodium B) Potassium C) Phosphorus D) Fluoride **Correct Ans: C**

Q58) Certain grass-eating animals complete the digestion of food in two processes. First, they swallow partially digested food and then they regurgitate and chew upon that food again. What are such animals known as?

A) Heterotrophs B) Regurgitates C) Autotrophs D) Ruminants **Correct Ans: D**

Q59) Which of the following is/are Pteridophyta?

A) Hornworts B) Lichens C) Mosses D) Fern **Correct Ans: D**

Q60) Which sulphur containing preservative is used to increase the shelf life of meat products such as fresh sausages and burgers?

A) Sodium metabisulphite B) Sodium polysulfides C) Sodium thiosulfate D) Sodium phenyl sulfide **Correct Ans: A**

Q61) Eukaryotic organisms can have very complex functions to sustain themselves. At the cellular level, these involve several different types of chemical functions like energy production, metabolism etc. What are the membrane-bound structures called, which are present within the cell to keep each of these functionalities separate?

A) Cytoplasm B) Plasma gel C) Organelles D) Nucleoid **Correct Ans: C**

Q62) Which one of the following has the largest population in a food chain?

A) Secondary consumers B) Primary consumers C) Decomposers D) Producers **Correct Ans: C**

Q63) In which year did Rudolf Virchow develop his ideas by publishing his famous formula 'Omnis cellula-e cellula', which became a part of the foundation of cell theory?

A) 1830 B) 1855 C) 1890 D) 1902 **Correct Ans: B**

Q64) Which of the following is a green alga found in vast masses of a variety of marine and fresh waters?

A) Porphyra B) Gelidium C) Sargassum D) Cladophora **Correct Ans: D**

Q65) Which phylum includes organisms with radial symmetry, such as sea anemones and jellyfish?

A) Platyhelminthes B) Mollusca C) Porifera D) Cnidaria **Correct Ans: D**

Q66) Some simple multicellular organisms reproduce by first splitting into multiple pieces. Then each of these pieces grow up into a new individual. What is this method of reproduction known as?

A) Regeneration **B)** Binary fission **C)** Multiple fission **D)** Fragmentation

Correct Ans: D

Q67) Which organelle contains enzymes that help break down fatty acids and detoxify certain compounds in the cell?

A) Peroxisome **B)** Vacuole **C)** Lysosome **D)** Centriole

Correct Ans: A

Q68) Who discovered the staining technique called 'Black Reaction', which was capable of revealing neurons in their entirety?

A) Robert Remak **B)** Albert Kolliker **C)** Camillo Golgi **D)** Jacques Loeb

Correct Ans: C

Q69) Arachnids belong to which subphylum of the phylum Arthropoda?

A) Chelicerata **B)** Myriapoda **C)** Hexapoda **D)** Crustacea

Correct Ans: A

Q70) Which species of sponges is commonly called glass sponge due to the presence of silica spicules?

A) Euplectella **B)** Spongilla **C)** Calcarea **D)** Planaria

Correct Ans: A

Q71) Who along with Barry Marshall, was awarded the Nobel Prize in Physiology or Medicine in 2005 for discovering that stomach ulcer is an infectious disease caused by bacteria?

A) Jean Paul Vuillemin **B)** Robert Koch **C)** Gabriel Pouchet **D)** Robin Warren

Correct Ans: D

Q72) The basophilic nucleoprotein granules that are scattered within the cytoplasm of a nerve cell and helps in the protein synthesis are known as:

A) Nissl bodies **B)** Subunit of Parson **C)** Oxisome **D)** Golgi bodies

Correct Ans: A