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Unit-1 Laws of motion

- 1) Inertia of a body depends on _____ a) weight of the object
b) acceleration due to gravity of the planet c) mass of the object d) Both a & b
- 2) Impulse is equals to _____ a) rate of change of momentum
b) rate of force and time c) change of momentum d) rate of change of mass
- 3) Newton's III law is applicable _____ a) for a body is at rest
b) for a body in motion c) both a & b d) only for bodies with equal masses
- 4) Plotting a graph for momentum on the Y-axis and time on X-axis. slope of momentum time graph gives _____ a) Impulsive force b) Acceleration c) Force d) Rate of force
- 5) In which of the following sport the turning of effect of force used
a) swimming b) tennis c) cycling d) hockey
- 6) The unit of 'g' is $m\ s^{-2}$. It can be also expressed as
a) cms^{-1} b) Nkg^{-1} c) Nm^2kg^{-1} d) cm^2s^{-2}
- 7) One kilogram force equals to _____
a) 9.8 dyne b) $9.8 \times 10^4 N$ c) $98 \times 10^4 dyne$ d) 980 dyne
- 8) The mass of a body is measured on planet Earth as M kg. When it is taken to a planet of radius half that of the Earth then its value will be _____ kg
a) 4 M b) 2M c) M/4 d) M
- 9) If the Earth shrinks to 50% of its real radius its mass remaining the same, the weight of a body on the Earth will
a) decrease by 50% b) increase by 50% c) decrease by 25% d) increase by 300%
- 10) To project the rockets which of the follow-ing principle(s) is /(are) required?
a) Newton's third law of motion b) Newton's law of gravitation
c) law of conservation of linear momentum d) both a and c

II. Fill in the blanks

1. To produce a displacement _____ is required

2. Passengers lean forward when sudden brake is applied in a moving vehicle. This can be explained by _____
3. By convention, the clockwise moments are taken as _____ and the anticlockwise moments are taken as _____
4. _____ is used to change the speed of car.
5. A man of mass 100 kg has a weight of _____ at the surface of the Earth

UNIT-2 Optics

1. The refractive index of four substances A, B, C and D are 1.31, 1.43, 1.33, 2.4 respectively. The speed of light is maximum in _____ a) A b) B c) C d) D
2. Where should an object be placed so that a real and inverted image of same size is obtained by a convex lens _____ a) f b) $2f$ c) infinity d) between f and $2f$
3. A small bulb is placed at the principal focus of a convex lens. When the bulb is switched on, the lens will produce _____ a) a convergent beam of light b) a divergent beam of light c) a parallel beam of light d) a coloured beam of light
4. Magnification of a convex lens is _____
a) Positive b) negative c) either positive or negative d) zero
5. A convex lens forms a real, diminished point sized image at focus. Then the position of the object is at _____ a) focus b) infinity c) at $2f$ d) between f and $2f$
6. Power of a lens is $-4D$, then its focal length is _____ a) 4m b) $-40m$ c) $-0.25m$ d) 2.5m
7. In a myopic eye, the image of the object is formed _____ a) behind the retina b) on the retina c) in front of the retina d) on the blind spot
8. The eye defect 'presbyopia' can be corrected by _____ a) convex lens b) concave lens c) convex mirror d) Bi focal lenses
9. Which of the following lens would you prefer to use while reading small letters found in a dictionary?
a) A convex lens of focal length 5 cm b) A concave lens of focal length 5 cm
c) A convex lens of focal length 10 cm d) A concave lens of focal length 10 cm

10. If V_B , V_G , V_R be the velocity of blue, green and red light respectively in a glass prism, then which of the following statement gives the correct relation?

- a) $V_B = V_G = V_R$ b) $V_B > V_G > V_R$ c) $V_B < V_G < V_R$ d) $V_B < V_G > V_R$

II. Fill in the blanks:

- The path of the light is called as _____
- The refractive index of a transparent medium is always greater than _____
- If the energy of incident beam and the scattered beam are same, then the scattering of light is called as _____ scattering.
- According to Rayleigh's scattering law, the amount of scattering of light is inversely proportional to the fourth power of its _____
- Amount of light entering into the eye is controlled by _____

Unit-3 Thermal Physics

- The value of universal gas constant _____
 a) $3.81 \text{ Jmol}^{-1}\text{K}^{-1}$ b) $8.03 \text{ Jmol}^{-1}\text{K}^{-1}$ c) $1.38 \text{ Jmol}^{-1}\text{K}^{-1}$ d) $8.31 \text{ Jmol}^{-1}\text{K}^{-1}$
- If a substance is heated or cooled, the change in mass of that substance is _____
 a) positive b) negative c) zero d) none of the above
- If a substance is heated or cooled, the linear expansion occurs along the axis
 Of _____ a) X or -X b) Y or -Y c) both (a) and (b) d) (a) or (b)
- Temperature is the average _____ of the molecules of a substance
 a) difference in K.E and P.E b) sum of P.E and K.E
 c) difference in T.E and P.E d) difference in K.E and T.E
- In the Given diagram, the possible direction of heat energy transformation is

II. Fill in the blanks:

- The value of Avogadro number _____
- The temperature and heat are _____ quantities
- One calorie is the amount of heat energy required to raise the temperature of _____ of water through _____.

4. According to Boyle's law, the shape of the graph between pressure and reciprocal of volume is _____.

Unit-4 Electricity

I. Choose the best answer

- Which of the following is correct?
 - Rate of change of charge is electrical power.
 - Rate of change of charge is current.
 - Rate of change of energy is current.
 - Rate of change of current is charge.
- SI unit of resistance is _____.
 - mho
 - joule
 - ohm
 - ohm meter
- In a simple circuit, why does the bulb glow when you close the switch?
 - The switch produces electricity.
 - Closing the switch completes the circuit.
 - Closing the switch breaks the circuit.
 - The bulb is getting charged.
- Kilowatt hour is the unit of _____.
 - resistivity
 - conductivity
 - electrical energy
 - electrical power

II. Fill in the blanks

- When a circuit is open, _____ cannot pass through it.
- The ratio of the potential difference to the current is known as _____.
- The wiring in a house consists of _____ circuits.
- The power of an electric device is a product of _____ and _____.
- LED stands for _____.

UNIT-5 Acoustics

- When a sound wave travels through air, the air particles
 - vibrate along the direction of the wave motion
 - vibrate but not in any fixed direction
 - vibrate perpendicular to the direction of the wave motion
 - do not vibrate
- Velocity of sound in a gaseous medium is 330 ms^{-1} . If the pressure is increased by 4 times without causing a change in the temperature, the velocity of sound in the gas is _____.
 - 330 ms^{-1}
 - 660 ms^{-1}
 - 156 ms^{-1}
 - 990 ms^{-1}

3. The frequency, which is audible to the human ear is_____
- a) 50 kHz b) 20 kHz c) 15000 kHz d) 10000 kHz
4. The velocity of sound in air at a particular temperature is 330 ms⁻¹. What will be its value when temperature is doubled and the pressure is halved?
- a) 330 ms⁻¹ b) 165 ms⁻¹ c) $330 \times \sqrt{2}$ ms⁻¹ d) $320 / \sqrt{2}$ ms⁻¹
5. If a sound wave travels with a frequency of 1.25×10^4 Hz at 344 ms⁻¹, the wavelength will be_____.
- a) 27.52 m b) 275.2 m c) 0.02752 m d) 2.752 m
6. The sound waves are reflected from an obstacle into the same medium from which they were incident. Which of the following changes?
- a) speed b) frequency c) wavelength d) none of these

UNIT-6 Nuclear physics

1. Man-made radioactivity is also known as_____
- a. Induced radioactivity
b. Spontaneous radioactivity c. Artificial radioactivity d. a & c
2. Unit of radioactivity is _____
- a. roentgen b. curie c. Becquerel d. all the above
3. Artificial radioactivity was discovered by _____
- a. Bequerel b. Irene Curie c. Roentgen d. Neils Bohr
4. In which of the following, no change in mass number of the daughter nuclei takes place
- i) α decay ii) β decay iii) γ decay iv) neutron decay
- a. (i) is correct b. (ii) and (iii) are correct c. (i) & (iv) are correct d. (ii) & (iv) are correct
5. _____ isotope is used for the treatment of cancer.
- a. Radio Iodine b. Radio Cobalt c. Radio Carbon d. Radio Nickel
6. Gamma radiations are dangerous because_____
- a. it affects eyes & bones
b. it affects tissues c. it produces genetic disorder d. it produces enormous amount of heat
7. _____ aprons are used to protect us from gamma radiations
- a. Lead oxide b. Iron c. Lead d. Aluminium
8. Proton - Proton chain reaction is an example of_____
- a. Nuclear fission b. α - decay c. Nuclear fusion d. β - decay

9. Which of the following statements is/are correct?

- i. α particles are photons ii. Penetrating power of γ radiation is very low
 iii. Ionization power is maximum for α rays iv. Penetrating power of γ radiation is very high
 a. (i) & (ii) are correct b. (ii) & (iii) are correct c. (iv) only correct d. (iii) & (iv) are correct

10. In the nuclear reaction ${}^6X_{12}$ α decay ZYA , the value of A & Z _____.

- a. 8, 6 b. 8, 4 c. 4, 8 d. cannot be determined with the given data

11. Kamini reactor is located at _____

- a. Kalpakkam b. Koodankulam c. Mumbai d. Rajasthan

12. Which of the following is/are correct?

- i. Chain reaction takes place in a nuclear reactor and an atomic bomb.
 ii. The chain reaction in a nuclear reactor is controlled
 iii. The chain reaction in a nuclear reactor is not controlled
 iv. No chain reaction takes place in an atom bomb
 a. (i) only correct b. (i) & (ii) are correct c. (iv) only correct d. (iii) & (iv) are correct

II. Fill in the blanks

- One roentgen is equal to _____ disintegrations per second
- Positron is an _____.
- Anemia can be cured by _____ isotope
- Abbreviation of ICRP _____
- _____ is used to measure exposure rate of radiation in humans.
- _____ has the greatest penetration power.
- $ZYA \rightarrow Z+1YA + X$; Then, X is _____
- $ZXA \rightarrow ZYA$ This reaction is possible in _____ decay.
- The average energy released in each fusion reaction is about _____ J.
- Nuclear fusion is possible only at an extremely high temperature of the order _____ of _____ K.
- The radio isotope of _____ helps to increase the productivity of crops.
- If the radiation exposure is 100 R, it may cause _____.

UNIT-7 Atoms and molecules

1. Which of the following has the smallest mass?
 - a. 6.023×10^{23} atoms of He
 - b. 1 atom of He
 - c. 2 g of He
 - d. 1 mole atoms of He
2. Which of the following is a triatomic molecule?
 - a. Glucose
 - b. Helium
 - c. Carbon dioxide
 - d. Hydrogen
3. The volume occupied by 4.4 g of CO₂ at S.T.P _____ .
 - a. 22.4 litre
 - b. 2.24 litre
 - c. 0.24 litre
 - d. 0.1 litre
4. Mass of 1 mole of Nitrogen atom is _____.
 - a. 28 amu
 - b. 14 amu
 - c. 28 g
 - d. 14g
5. Which of the following represents 1 amu?
 - a. Mass of a C-12 atom
 - b. Mass of O-16atom
 - c. 1/12th of the mass of a C - 12 atom
 - d. Mass of a hydrogen atom
6. Which of the following statement is incorrect?
 - a. 12 gram of C - 12 contains Avogadro's number of atoms.
 - b. One mole of oxygen gas contains Avogadro's number of molecules.
 - c. One mole of hydrogen gas contains Avogadro's number of atoms.
 - d. One mole of electrons stands for 6.023×10^{23} electrons.
7. The volume occupied by 1 mole of a diatomic gas at S.T.P is _____
 - a. 11.2 litre
 - b. 5.6 litre
 - c. 22.4 litre
 - d. 44.8 litre
8. In the nucleus of ²⁰Ca₄₀, there are _____.
 - a. 20 protons and 40 neutrons
 - b. 20 protons and 20 neutrons
 - c. 20 protons and 40 electrons
 - d. 40 protons and 20 electrons
9. The gram molecular mass of oxygen molecule is _____.
 - a. 16 g
 - b. 18 g
 - c. 32 g
 - d. 17 g
10. 1 mole of any substance contains ____ molecules.
 - a. 6.023×10^{23}
 - b. 6.023×10^{-23}
 - c. 3.0115×10^{23}
 - d. 12.046×10^{23}

Fill in the blanks

1. Atoms of different elements having _____ mass number, but _____ atomic numbers are called isobars.
2. Atoms of different elements having same number of _____ are called isotones.
3. Atoms of one element can be transmuted into atoms of other element by _____

4. The sum of the numbers of protons and neutrons of an atom is called its _____
5. Relative atomic mass is otherwise known as _____
6. The average atomic mass of hydrogen is _____ amu.
7. If a molecule is made of similar kind of atoms, then it is called _____ Atomic molecule.
8. The number of atoms present in a molecule is called its _____
9. One mole of any gas occupies _____ ml at S.T.P
10. Atomicity of phosphorous is _____

UNIT-8 Periodic Classification of Elements

1. The number of periods and groups in the periodic table are _____.
 a) 6,16 b) 7,17 c) 8,18 d) 7,18
2. The basis of modern periodic law is _____.
 a) atomic number b) atomic mass c) isotopic mass d) number of neutrons
3. _____ group contains the member of halogen family. a) 17th b) 15th c) 18th d) 16th
4. _____ is a relative periodic property
 a) atomic radii b) ionic radii c) electron affinity d) electronegativity
5. Chemical formula of rust is _____.
 a) $\text{FeO} \cdot x\text{H}_2\text{O}$ b) $\text{FeO}_4 \cdot x\text{H}_2\text{O}$ c) $\text{Fe}_2\text{O}_3 \cdot x\text{H}_2\text{O}$ d) FeO
6. In the aluminothermic process the role of Al is _____.
 a) oxidizing agent b) reducing agent c) hydrogenating agent d) sulphurising agent
7. The process of coating the surface of metal with a thin layer of zinc is called _____.
 a) painting b) thinning c) galvanization d) electroplating
8. Which of the following have inert gases 2 electrons in the outermost shell.
 a) He b) Ne c) Ar d) Kr
9. Neon shows zero electron affinity due to _____. a) stable arrangement of neutrons
 b) stable configuration of electrons c) reduced size d) increased density
10. _____ is an important metal to form amalgam. a) Ag b) Hg c) Mg d) Al

1. If the electronegativity difference between two bonded atoms in a molecule is greater than 1.7, the nature of bonding is _____
2. _____ is the longest period in the periodical table.
3. _____ forms the basis of modern periodic table.
4. If the distance between two Cl atoms in Cl_2 molecule is 1.98\AA , then the radius of Cl atom is ____.
5. Among the given species A^- , A^+ , and A , the smallest one in size is _____.
6. The scientist who propounded the modern periodic law is _____.
7. Across the period, ionic radii _____.
8. _____ and _____ are called inner transition elements.
9. The chief ore of Aluminium is _____.
10. The chemical name of rust is _____.

Unit-9 Solutions

1. A solution is a _____ mixture.
 - a. homogeneous
 - b. heterogeneous
 - c. homogeneous and heterogeneous
 - d. non homogeneous
2. The number of components in a binary solution is ____
 - a. 2
 - b. 3
 - c. 4
 - d. 5
3. Which of the following is the universal solvent?
 - a. Acetone
 - b. Benzene
 - c. Water
 - d. Alcohol
4. A solution in which no more solute can be dissolved in a definite amount of solvent at a given temperature is called ____
 - a. Saturated solution
 - b. Un saturated solution
 - c. Super saturated solution
 - d. Dilute solution
5. Identify the non aqueous solution.
 - a. sodium chloride in water
 - b. glucose in water
 - c. copper sulphate in water
 - d. sulphur in carbon-di-sulphide
6. When pressure is increased at constant temperature the solubility of gases in Liquid ____
 - a. No change
 - b. increases
 - c. decreases
 - d. no reaction
7. Solubility of NaCl in 100 ml water is 36 g. If 25 g of salt is dissolved in 100 ml of water how much more salt is required for saturation ____
 - a. 12g
 - b. 11g
 - c. 16g
 - d. 20g

8. A 25% alcohol solution means _____. a. 25 ml alcohol in 100 ml of water
b. 25ml alcohol in 25ml of water c. 25ml alcohol in 75ml of water d. 75ml alcohol in 25ml of
9. Deliquescence is due to _____. a. Strong affinity to water b. Less affinity to water
c. Strong hatred to water d. Inertness to water
10. Which of the following is hygroscopic in nature? a. ferric chloride
b. copper sulphate penta hydrate c. silica gel d. none of the above

II. Fill in the blanks

- The component present in lesser amount, in a solution is called _____
- Example for liquid in solid type solution is _____
- Solubility is the amount of solute dissolved in _____ g of solvent.
- Polar compounds are soluble in _____ solvents
- Volume percentage decreases with increases in temperature because _____

UNIT-10 Types of Chemical Reactions

- $\text{H}_2(\text{g}) + \text{Cl}_2(\text{g}) \rightarrow 2\text{HCl}(\text{g})$ is a _____. a. Decomposition Reaction
b. Combination Reaction c. Single Displacement Reaction d. Double Displacement Reaction
- Photolysis is a decomposition reaction caused by _____.
a. heat b. electricity c. light d. mechanical energy
- A reaction between carbon and oxygen is represented by $\text{C}(\text{s}) + \text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + \text{Heat}$. In which of the type(s), the above reaction can be classified?
(i) Combination Reaction (ii) Combustion Reaction (iii) Decomposition Reaction
(iv) Irreversible Reaction
a. i and ii b. i and iv c. i, ii and iii d. i, ii and iv
- The chemical equation $\text{Na}_2\text{SO}_4(\text{aq}) + \text{BaCl}_2(\text{aq}) \rightarrow \text{BaSO}_4(\text{s})\downarrow + 2\text{NaCl}(\text{aq})$ represents which of the following types of reaction?
a. Neutralisation b. Combustion c. Precipitation d. Single displacement
- Which of the following statements are correct about a chemical equilibrium?
(i) It is dynamic in nature (ii) Irreversible reactions do not attain chemical equilibrium

- (iii) The rate of the forward and backward reactions are equal at equilibrium
- (iv) The concentration of reactants and products may be different
- a. i, iii and ii b. i, iii and iv c. iii, ii and iv d. i, ii and iv
6. A single displacement reaction is represented by $X(s) + 2HCl(aq) \rightarrow XCl_2(aq) + H_2(g)$.
Which of the following(s) could be X. (i) Zn (ii) Ag (iii) Cu (iv) Mg. Choose the best pair.
a. i and ii b. ii and iii c. iii and iv d. i and iv
7. Which of the following is not an “element+element→compound” type reaction?
a. $C(s) + O_2(g) \rightarrow CO_2(g)$ b. $2K(s) + Br_2(l) \rightarrow 2KBr(s)$
c. $2CO(g) + O_2(g) \rightarrow 2CO_2(g)$ d. $4Fe(s) + 3O_2(g) \rightarrow 2Fe_2O_3(s)$
8. Which of the following represents a precipitation reaction? a. $A(s) + B(s) \rightarrow C(s) + D(s)$
b. $A(s) + B(aq) \rightarrow C(aq) + D(l)$ c. $A(aq)+B(aq)\rightarrow C(s)+D(aq)$ d. $A(aq)+B(s) \rightarrow C(aq) + D(l)$
9. The pH of a solution is 3. Its $[OH^-]$ concentration is _____
a. $1 \times 10^{-3} M$ b. 3 M c. $1 \times 10^{-11} M$ d. 11 M
10. Powdered $CaCO_3$ reacts more rapidly than flaky $CaCO_3$ because of _____.
a. large surface area b. high pressure c. high concentration d. high temperature

Fill in the blanks

- A reaction between an acid and a base is called _____.
- When lithium metal is placed in hydrochloric acid, _____ gas is evolved.
- The equilibrium attained during the melting of ice is known as _____.
- The pH of a fruit juice is 5.6. If you add slaked lime to this juice, its pH _____
- The value of ionic product of water at 25°C is _____.
- The normal pH of human blood is _____
- Electrolysis is type of _____ reaction
- The number of products formed in a synthesis reaction is _____
- Chemical volcano is an example for _____ type of reaction
- The ion formed by dissolution of H^+ in water is called _____

Unit-11 Carbon and its Compounds

- The molecular formula of an open chain organic compound is C_3H_6 . The class of the compound is _____
a. alkane b. alkene c. alkyne d. alcohol
- The IUPAC name of an organic compound is 3-Methyl butan-1-ol. What type of compound is it?
a. Aldehyde b. Carboxylic acid c. Ketone d. Alcohol
- The secondary suffix used in IUPAC nomenclature of an aldehyde is _____
a. - ol b. - oic acid c. - al d. - one
- Which of the following pairs can be the successive members of a homologous series?
a. C_3H_8 and C_4H_{10} b. C_2H_2 and C_2H_4
c. CH_4 and C_3H_6 d. C_2H_5OH and C_4H_8OH
- $C_2H_5OH + 3O_2 \rightarrow 2CO_2 + 3H_2O$ is a _____.
a. Reduction of ethanol
b. Combustion of ethanol c. Oxidation of ethanoic acid d. Oxidation of ethanal
- Rectified spirit is an aqueous solution which contains about _____ of ethanol
a. 95.5 % b. 75.5 % c. 55.5 % d. 45.5 %
- Which of the following are used as anaesthetics?
a. Carboxylic acids b. Ethers c. Esters d. Aldehydes
- TFM in soaps represents _____ content in soap
a. mineral b. vitamin c. fatty acid d. carbohydrate
- Which of the following statements is wrong about detergents?
a. It is a sodium salt of long chain fatty acids b. It is sodium salts of sulphonic acids
c. The ionic part in a detergent is $-SO_3Na^+$ d. It is effective even in hard water.

II. Fill in the blanks

- An atom or a group of atoms which is responsible for chemical characteristics of an organic compound is called _____.
- The general molecular formula of alkynes is _____.
- In IUPAC name, the carbon skeleton of a compound is represented by _____.
- _____ compounds decolourize bromine water.

5. Dehydration of ethanol by conc. Sulphuric acid forms _____
6. 100 % pure ethanol is called _____
7. Ethanoic acid turns _____ litmus to _____
8. The alkaline hydrolysis of fatty acids is termed as _____
9. Biodegradable detergents are made of _____

Unit-12 Plant Anatomy and Plant Physiology

1. Casparian strips are present in the _____ of the root.
 - a) cortex b) pith c) pericycle d) endodermis
2. The endarch condition is the characteristic feature of
 - a) root b) stem c) leaves d) flower
3. The xylem and phloem arranged side by side on same radius is called
 - a) radial b) amphivasal c) conjoint d) None of these
4. Which is formed during anaerobic respiration
 - a) Carbohydrate b) Ethyl alcohol c) Acetyl CoA d) Pyruvate
5. Kreb's cycle takes place in _____
 - a) chloroplast b) mitochondrial matrix
 - c) stomata d) inner mitochondrial membrane
6. Oxygen is produced at what point during photosynthesis ?
 - a) when ATP is converted to ADP b) when CO₂ is fixed
 - c) when H₂O is splitted d) All of these

II. Fill in the blanks.

1. The innermost layer of cortex in root is called _____.
2. Xylem and phloem are arranged in an alternate radii constitute a vascular bundle called _____.
3. Glycolysis takes place in _____.
4. The source of O₂ liberated in photosynthesis is _____.
5. _____ is ATP factory of the cells

Unit-13 STRUCTURAL ORGANISATION OF ANIMALS

- In leech locomotion is performed by_____ a) Anterior sucker b) Parapodia
c) Setae d) Contraction and relaxation of muscles
- The segments of leech are known as_____ a) Metamerer (somites)
b) Proglottids c) Strobila d) All the above
- Pharyngeal ganglion in leech is a part of_____ a) Excretory system
b) Nervous system c) Reproductive system d) Respiratory system
- The brain of leech lies above the_____ a) Mouth b) Buccal Cavity c) Pharynx d) Crop
- The body of leech has ____ a) 23 segments b) 33 segments c) 38 segments d) 30 segments
- Mammals are _____ animals.
a) Cold blooded b) Warm blooded c) Poikilothermic d) All the above
- The animals which give birth to young ones are
a) Oviparous b) Viviparous c) Ovoviviparous d) All the above

II. Fill in the blanks

- The posterior sucker is formed by the fusion of the _____ segments.
- The existence of two sets of teeth in the life of an animal is called _____ dentition.
- The anterior end of leech has a lobe-like structure called _____.
- The blood sucking habit of leech is known as _____.
- _____ separate nitrogenous waste from the blood in rabbit.
- _____ spinal nerves are present in rabbit.

UNIT-14 TRANSPORTATION IN PLANTS AND CIRCULATION IN ANIMALS

I. Choose the correct answer

- Active transport involves_____ a) movement of molecules from lower to higher concentration b) expenditure of energy c) it is an up hill task d) all of the above
- Water which is absorbed by roots is transported to aerial parts of the plant Through_____ a) cortex b) epidermis c) phloem d) xylem

3. During transpiration there is loss of _____
a) carbon dioxide b) oxygen c) water d) none of the above
4. Root hairs are _____ a) cortical cell
b) projection of epidermal cell c) unicellular d) both b and c
5. Which of the following process requires energy?
a) active transport b) diffusion c) osmosis d) all of them
6. The wall of human heart is made of _____ a) Endocardium
b) Epicardium c) Myocardium d) All of the above
7. Which is the correct sequence of blood flow ____ a) ventricle atrium vein arteries
b) atrium ventricle veins arteries c) atrium ventricle arteries vein d) ventricles vein
8. A patient with blood group O was injured in an accident and has blood loss.
Which group of blood should be used by doctor for transfusion?
a) O group b) AB group c) A or B group d) all blood group
9. 'Heart of heart' is called _____
a) SA node b) AV node c) Purkinje fibres d) Bundle of His
10. Which one of the following shows correct composition of blood
a) Plasma - Blood + Lymphocyte b) Serum - Blood + Fibrinogen
c) Lymph - Plasma + RBC + WBC d) Blood - Plasma + RBC + WBC + Platelets

II. Fill in the blanks

1. _____ involves evaporative loss of water from aerial parts.
2. Water enters into the root hair cell through _____ membrane.
3. Part of the root that absorbs water from the soil is _____.
4. Normal blood pressure is _____.
5. The normal human heartbeat rate is about _____ time per minute.

UNIT-15 Nervous System

1. Bipolar neurons are found in
(a) retina of eye (b) cerebral cortex (c) embryo (d) respiratory epithelium
2. Site for processing of vision, hearing, memory, speech, intelligence and thoughts
(a) kidney (b) ear (c) brain (d) lungs
3. In reflex action, the reflex arc is formed by_____ (a) brain, spinal cord, muscle
b. receptor, muscle, spinal cord c. muscle, receptor, brain d. receptor, spinal cord
4. Dendrites transmit impulse cell body and axon transmit impulse cell body.
a. away from, away from b. towards, away from c. towards, towards
d. away from, towards
5. The outer most of the three cranial meninges is
(a) arachnoid membrane (b) piamater (c) duramater (d) myelin sheath
6. There are pairs of cranial nerves and pairs of spinal nerves.
(a) 12, 31 (b) 31, 12 (c) 12, 13 (d) 12, 21
7. The neurons which carries impulse from the central nervous system to the muscle fibre.
(a) afferent neurons (b) association neuron (c) efferent neuron (d) unipolar neuron
8. Which nervous band connects the two cerebral hemispheres of brain?
(a) thalamus (b) hypothalamus (c) corpus callosum (d) pons
9. Node of Ranvier is found in_____ (a) muscles (b) axons (c) dendrites (d) cyton
10. Vomiting centre is located in__ a) medulla oblongata b) stomach c) cerebrum d) hypothalamus
11. Nerve cells do not possess_____ a) neurilemma b) sarcolemma c) axon d) dendrites
12. A person who met with an accident lost control of body temperature, water balance, and hunger. Which of the following part of brain is supposed to be damaged?
(a) Medulla oblongata (b) cerebrum (c) pons (d) hypothalamus

II. Fill in the blanks

1. _____ is the longest cell in our body.
2. Impulses travels rapidly in neurons.

3. A change in the environment that causes an animal to react is called _____
4. _____ carries the impulse towards the cell body.
5. The two antagonistic component of autonomic nervous system are
6. A neuron contains all cell organelles except
7. _____ maintains the constant pressure inside the cranium.
8. _____ and _____ increases the surface area of cerebrum.
9. The part of human brain which acts as relay center is _____.

UNIT-16 Plant and Animal Hormones

I Choose the correct answer

1. Gibberellins cause
 - a) Shortening of genetically tall plants
 - b) Elongation of dwarf plants
 - c) Promotion of rooting
 - d) Yellowing of young leaves
2. The hormone which has positive effect on apical dominance is:
 - a) Cytokinin
 - b) Auxin
 - c) Gibberellin
 - d) Ethylene
3. Which one of the following hormones is naturally not found in plants:
 - a) 2, 4-D
 - b) GA₃
 - c) Gibberellin
 - d) IAA
4. Avena coleoptile test was conducted by _____
 - a) Darwin
 - b) N. Smit
 - c) Paal
 - d) F.W. Went
5. To increase the sugar production in sugarcanes they are sprayed with _____
 - a) Auxin
 - b) Cytokinin
 - c) Gibberellins
 - d) Ethylene
6. LH is secreted by _____
 - a) Adrenal gland
 - b) Thyroid gland
 - c) Anterior pituitary
 - d) Hypothalamus.
7. Identify the exocrine gland _____
 - a) Pituitary gland
 - b) Adrenal gland
 - c) Salivary gland
 - d) Thyroid gland
8. Which organ acts as both exocrine gland as well as endocrine gland _____
 - a) Pancreas
 - b) Kidney
 - c) Liver
 - d) Lungs
9. Which one is referred as "Master Gland"?
 - a) Pineal gland
 - b) Pituitary gland
 - c) Thyroid gland
 - d) Adrenal gland

II. Fill in the blanks

1. _____ causes cell elongation, apical dominance and prevents abscission.
2. _____ is a gaseous hormone involved in abscission of organs and acceleration of fruit ripening.
3. _____ causes stomatal closure.
4. Gibberellins induce stem elongation in _____ plants.
5. The hormone which has negative effect on apical dominance is _____.
6. Calcium metabolism of the body is controlled by _____.
7. In the islets of Langerhans, beta cells secrete _____.
8. The growth and functions of thyroid gland is controlled by _____.
9. Decreased secretion of thyroid hormones in the children leads to _____.

UNIT-17 Reproduction in Plants and Animals**I. Choose the correct answer**

1. The plant which propagates with the help of its leaves is _____ .
a) Onion b) Neem c) Ginger d) Bryophyllum
2. Asexual reproduction takes place through budding in _____ .
a) Amoeba b) Yeast c) Plasmodium d) Bacteria
3. Syngamy results in the formation of _____ .
a) Zoospores b) Conidia c) Zygote d) Chlamydozoospores
4. The essential parts of a flower are _____ .
a) Calyx and Corolla
b) Calyx and Androecium c) Corolla and Gynoecium d) Androecium and Gynoecium
5. Anemophilous flowers have _____
a) Sessile stigma
b) Small smooth stigma c) Colored flower d) Large feathery stigma
6. Male gametes in angiosperms are formed by the division of _____ .
a) Generative cell b) Vegetative cell c) Microspore mother cell d) Microspore
7. What is true of gametes?
a) They give rise to gonads
b) They are diploid c) They produce hormones d) They are formed from gonads

8. A single highly coiled tube where sperms are stored, get concentrated and mature is known as
- a) Epididymis b) Vasa efferentia c) Vas deferens d) Seminiferous tubules
9. The large elongated cells that provide nutrition to developing sperms are
- a) Primary germ cells b) Sertoli cells c) Leydig cells d) Spermatogonia
- 10 Estrogen is secreted by
- a) Anterior pituitary b) Primary follicle c) Graffian follicle d) Corpus luteum
11. Which one of the following is an IUCD?
- a) Copper - T b) Oral pills c) Diaphragm d) Tubectomy

II. Fill in the blanks

- The embryo sac in a typical dicot at the time of fertilization is _____ .
- After fertilization the ovary develops into _____ .
- Planaria reproduces asexually by _____ .
- Fertilization is _____ in humans
- The implantation of the embryo occurs at about _____ day of fertilization
- _____ is the first secretion from the mammary gland after child birth
- Prolactin is a hormone produced by _____ .

UNIT-18 GENETICS

I. Choose the correct answer

- According to Mendel alleles have the following character

a) Pair of genes b) Responsible for character c) Production of gametes d) Recessive factors
- 9 : 3 : 3 : 1 ratio is due to _____.

a) Segregation b) Crossing over c) Independent assortment d) Recessiveness
- The region of the chromosome where the spindle fibres get attached during cell division

a) Chromomere b) Centrosome c) Centromere d) Chromonema

4. The centromere is found at the centre of the _____ chromosome.
 - a) Telocentric
 - b) Metacentric
 - c) Sub-metacentric
 - d) Acrocentric
5. The _____ units form the backbone of the DNA.
 - a) 5 carbon sugar
 - b) Phosphate
 - c) Nitrogenous bases
 - d) Sugar phosphate
6. Okasaki fragments are joined together by _____.
 - a) Helicase
 - b) DNA polymerase
 - c) RNA primer
 - d) DNA ligase
7. The number of chromosomes found in human beings are _____.
 - a) 22 pairs of autosomes and 1 pair of allosomes.
 - b) 46 autosomes
 - c) 22 autosomes and 1 allosome
 - d) 46 pairs autosomes and 1 pair of allosomes.
8. The loss of one or more chromosome in a ploidy is called _____.
 - a) Tetraploidy
 - b) Aneuploidy
 - c) Euploidy
 - d) polyploidy

II. Fill in the blanks

1. The pairs of contrasting character (traits) of Mendel are called _____.
2. Physical expression of a gene is called _____.
3. The thin thread like structures found in the nucleus of each cell are called _____.
4. DNA consists of two _____ chains.
5. An inheritable change in the amount or the structure of a gene or a chromosome is called _____.

UNIT-19 • Origin and Evolution of Life

I Choose the correct answer

1. Biogenetic law states that _____
 - a. Ontogeny and phylogeny go together
 - b. Ontogeny recapitulates phylogeny
 - c. Phylogeny recapitulates ontogeny
 - d. There is no relationship between phylogeny and ontogeny
2. The 'use and disuse theory' was proposed by _____.
 - a. Charles Darwin
 - b. Ernst Haeckel
 - c. Jean Baptiste Lamarck
 - d. Gregor Mendel
3. Paleontologists deal with _____.
 - a. Embryological evidences
 - b. Fossil evidences
 - c. Vestigial organ evidences
 - d. All the above

4. The best way of direct dating fossils of recent origin is by_____
- a. Radio-carbon method
b. Uranium lead method c. Potassium-argon method d. Both (a) and (c)
5. The term Ethnobotany was coined by _____. a. Khorana
b. J.W. Harsbberger c. Ronald Ross d. Hugo de Vries

II Fill in the blanks

1. The characters developed by the animals during their life time, in response to the environmental changes are called _____.
2. The degenerated and non-functional organs found in an organism are called_____.
3. The forelimbs of bat and human are examples of _____ organs.
4. The theory of natural selection for evolution was proposed by _____.

UNIT-20 BREEDING AND BIOTECHNOLOGY

I Choose the correct answer

1. Which method of crop improvement can be practised by a farmer if he is inexperienced?
- a. clonal selection b. mass selection c. pureline selection d. hybridisation
2. Pusa Komal is a disease resistant variety of _____.
- a. sugarcane b. rice c. cow pea d. maize
3. Himgiri developed by hybridisation and selection for disease resistance against rust pathogens is a variety of _____.
- a. chilli b. maize c. sugarcane d. wheat
4. The miracle rice which saved millions of lives and celebrated its 50th birthday is_____.
- a. IR 8 b. IR 24 c. Atomita 2 d. Pommi
5. Which of the following is used to produce products useful to humans by biotechnology techniques?
- a. enzyme from organism b. live organism c. vitamins d. both (a) and (b)
6. We can cut the DNA with the help of
- a. scissors b. restriction endonucleases c. knife d. RNAase

7. rDNA is a _____ a. recombinant of vector DNA and desired DNA
b. vector DNA c. circular DNA d. satellite DNA
8. DNA fingerprinting is based on the principle of identifying _____sequences of DNA
a. single stranded b. mutated c. polymorphic d. repetitive
9. Organisms with modified endogenous gene or a foreign gene are also known as _____
(a) transgenic organisms (b) genetically modified (c) mutated (d) both a and b
10. In a hexaploid wheat ($2n = 6x = 42$) the haploid (n) and the basic(x) number of chromosomes respectively are _____.
a. $n = 7$ and $x = 21$ b. $n = 21$ and $x = 21$ c. $n = 7$ and $x = 7$ d. $n = 21$ and $x = 7$

II Fill in the blanks

- Economically important crop plants with superior quality are raised by _____.
- A protein rich wheat variety is _____.
- _____ is the chemical used for doubling the chromosomes.
- The scientific process which produces crop plants enriched with desirable nutrients is called _____.
- Rice normally grows well in alluvial soil but _____ is a rice variety produced by mutation breeding that grows well in saline soil.
- _____ technique made it possible to genetically engineer living organism.
- Restriction endonucleases cut the DNA molecule at specific positions known as _____.
- Similar DNA fingerprinting is obtained for _____.
- _____ cells are undifferentiated mass of cells.
- In gene cloning the DNA of interest is integrated in a _____.

UNIT-21 Health and Diseases

I. Choose the correct answer

- Tobacco consumption is known to stimulate secretion of adrenaline. The component causing this could be _____
a) Nicotine b) Tannic acid c) Curcumin d) Leptin

2. World 'No Tobacco Day' is observed on_____.
a) May 31 b) June 6 c) April 22 d) October 2
3. Cancer cells are more easily damaged by radiations than normal cells because they are_____.
a) Different in structure b) Non-dividing c) Mutated Cells d) Undergoing rapid division
4. Which type of cancer affects lymph nodes and spleen?
a) Carcinoma b) Sarcoma c) Leukemia d) Lymphoma
5. Excessive consumption of alcohol leads to_____ a) Loss of memory
b) Cirrhosis of liver c) State of hallucination d) Suppression of brain function
6. Coronary heart disease is due to_____ a) Insufficient blood supply to heart muscles
b) Inflammation of pericardium c) Streptococci bacteria d) Weakening of heart valves
7. Cancer of the epithelial cells is called____ a) Leukemia b) Sarcoma c) Carcinoma d) Lipoma
8. Metastasis is associated with _____ a) Malignant tumour
b) Benign tumour c) Both (a) and (b) d) Crown gall tumour
9. Polyphagia is a condition seen in_____
a) Obesity b) Diabetes mellitus c) Diabetes insipidus d) AIDS
10. Where does alcohol effect immediately after drinking?
a) Eyes b) Auditory region c) Liver d) Central nervous system

V. Fill in the blanks

1. Cirrhosis is caused in liver due to excessive use of _____
2. A highly poisonous chemicals derived from tobacco is _____
3. Blood cancer is called _____.
4. Less response of a drug to a specific dose with repeated use is called _____
5. Insulin resistance is a condition in _____diabetes mellitus

UNIT-22 Environmental Management

Fill in the blanks

1. Deforestation leads to _____ in rainfall.
2. Removal of soil particles from the land is called _____.

3. Chipko movement is initiated against _____ .
4. _____ is a biosphere reserve in Tamilnadu.
5. Tidal energy is _____ type of energy.
6. Coal, petroleum and natural gas are called _____ fuels.
7. _____ is the most commonly used fuel for the production of electricity.

Choose the correct answer

1. Which of the following is / are a fossil fuel? i. Tar ii. Coal iii. Petroleum
 a) i only b) i and ii c) ii and iii d) i, ii and iii
2. What are the steps will you adopt for better waste management?
 a) reduce the amount of waste formed b) reuse the waste
 c) recycle the waste d) all of the above
3. The gas released from vehicles exhaust are _____
 i. carbon monoxide ii. Sulphur dioxide iii. Oxides of nitrogen
 a) i and ii b) i and iii c) ii and iii d) i, ii and iii
4. Soil erosion can be prevented by _____
 a) deforestation b) afforestation c) over growing d) removal of vegetation
5. A renewable source of energy is _____. a) petroleum b) coal c) nuclear fuel d) trees
6. Soil erosion is more where there is _____.
 a) no rain fall b) low rainfall c) rain fall is high d) none of these
7. An inexhaustible resources is _____. a) wind power
 b) soil fertility c) wild life d) all of the above
8. Common energy source in village is
 a) electricity b) coal c) biogas d) wood and animal dung
9. Green house effect refers to _____. a) cooling of earth
 b) trapping of UV rays c) cultivation of plants d) warming of earth
10. A cheap, conventional, commercial and inexhaustible source of energy is
 a) hydropower b) solar energy c) wind energy. d) thermal energy

11. Global warming will cause

- a) raise in level of oceans b) melting of glaciers c) sinking of islands d) all of these

12. Which of the following statement is wrong with respect to wind energy_____.

- a) wind energy is a renewable energy
b) the blades of wind mill are operated with the help of electric motor
c) production of wind energy is pollution free
d) usage of wind energy can reduce the consumption of fossil fuels

UNIT-23 VISUAL COMMUNICATION

I. Choose the best answer

1. Which software is used to create animation ?

- a) Paint b) PDF c) MS Word d) Scratch

2. All files are stored in the _____ a) Folder b) box c) Pai d) scanner

3. Which is used to build scripts? a) Script area b) Block palette c)stage d)sprite

4. Which is used to edit programs? a) Inkscape b) script editor c) stage d) sprite

5. Where you will create category of blocks?

- a) Block palette b) Block menu c) Script area d) sprite

III. Answer the following

1. What is Scratch?

2. Write a short note on editor and its main parts?

3. What is Stage?

4. What is Sprite?