

PACM H S S – 10th SCIENCE - 1 MARK – BOOK BACK QUESTIONS

2024-2025 - BATCH

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choose, Fill, Match, T/F

QUARTERLY PORTION

UNIT 1

I. Choose the correct answer

- 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) $cm\ s^{-1}$
 - b) $N\ kg^{-1}$
 - c) $N\ m^2\ kg^{-1}$
 - d) $cm^2\ s^{-2}$
- 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
- 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 following 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

III. State whether the following statements are true or false. Correct the statement if it is false.

1. The linear momentum of a system of particles is always conserved.
2. Apparent weight of a person is always equal to his actual weight
3. Weight of a body is greater at the equator and less at the polar region.
4. Turning a nut with a spanner having a short handle is so easy than one with a long handle.
5. There is no gravity in the orbiting space station around the Earth. So the astronauts feel weightlessness.

IV. Match the following

Column I	Column II
a. Newton's I law	- propulsion of a rocket
b. Newton's II law	- Stable equilibrium of a body
c. Newton's III law	- Law of force
d. Law of conservation of Linear momentum	- Flying nature of bird

UNIT 2

I Choose the correct answer

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) $-0.25 m$ d) $-2.5 m$
 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 lens
 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

III. True or False. If false correct it.

- Velocity of light is greater in denser medium than in rarer medium
- The power of lens depends on the focal length of the lens
- Increase in the converging power of eye lens cause 'hypermetropia'
- The convex lens always gives small virtual image.

IV. Match the following:

Column - I

1 Retina

2 Pupil

3 Ciliary muscles

4 Myopia

5 Hypermetropia

Column - II

a) Path way of light

b) Far point comes closer

c) near point moves

d) Screen of the eye Away

e) Power of accommodation

UNIT 3

I. Choose the correct answer

1. 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) $8.31 \text{ Jmol}^{-1} \text{ K}^{-1}$

2. 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

3. 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)

4. 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

5. In the Given diagram, the possible direction of heat energy transformation is



a) $A \leftarrow B, A \leftarrow C, B \leftarrow C$

b) $A \rightarrow B, A \rightarrow C, B \rightarrow C$

c) $A \rightarrow B, A \leftarrow C, B \rightarrow C$

d) $A \leftarrow B, A \rightarrow C, B \leftarrow C$

II. Fill in the blanks:

1. The value of Avogadro number

2. The temperature and heat are _____ quantities

3. 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 _____

III. State whether the following statements are true or false, if false explain why?

1. For a given heat in liquid, the apparent expansion is more than that of real expansion

2. Thermal energy always flows from a system at higher temperature to a system at lower temperature.

3. According to Charles's law, at constant pressure, the temperature is inversely proportional to volume.

IV. Match

- | Column-I | Column-II |
|----------------------------|---|
| 1. Linear expansion - | (a) change in volume |
| 2. Superficial expansion - | (b) hot body to cold body |
| 3. Cubical expansion - | (c) $1.381 \times 10^{-23} \text{ JK}^{-1}$ |
| 4. Heat transformation - | (d) change in length |
| 5. Boltzmann constant - | (e) change in area |

UNIT 4

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.

2. SI unit of resistance is

- mho
- joule
- ohm
- ohm meter

3. 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.

4. Kilowatt hour is the unit of

- resistivity
- conductivity
- electrical energy
- electrical power

II. Fill in the blanks

1. When a circuit is open, _____ cannot pass through it.

2. The ratio of the potential difference to the current is known as _____.

3. The wiring in a house consists of _____ circuits.

4. The power of an electric device is a product of _____ and _____.

5. LED stands for _____.

III. State whether the following statements are true or false: If false correct the statement.

- Ohm's law states the relationship between power and voltage.
- MCB is used to protect house hold electrical appliances.
- The SI unit for electric current is the coulomb.
- One unit of electrical energy consumed is equal to 1000 kilowatt hour.
- The effective resistance of three resistors connected in series is lesser than

the lowest
of the individual resistances.

IV. Match the following

Column - I

Column - II

- (i) electric current (a) volt
(ii) potential difference (b) ohm meter
(iii) specific resistance (c) watt
(iv) electrical power (d) joule
(v) electrical energy (e) ampere

UNIT 7

I. Choose the best answer.

- 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
- Which of the following is a triatomic molecule?
a. Glucose b. Helium
c. Carbon dioxide d. Hydrogen
- The volume occupied by 4.4 g of CO_2 at S.T.P
a. 22.4 litre b. 2.24 litre
c. 0.24 litre d. 0.1 litre
- Mass of 1 mole of Nitrogen atom is
a. 28 amu b. 14 amu c. 28 g d. 14 g
- Which of the following represents 1 amu?
a. Mass of a C – 12 atom b. Mass of a hydrogen atom
c. $\frac{1}{12}$ th of the mass of a C – 12 atom d. Mass of O – 16 atom
- 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.

- One mole of hydrogen gas contains Avogadro's number of atoms.
 - One mole of electrons stands for 6.023×10^{23} electrons.
- 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
 - In the nucleus of ${}_{20}\text{Ca}^{40}$, 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
 - The gram molecular mass of oxygen molecule is
a. 16 g b. 18 g c. 32 g d. 17 g
 - 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}
- #### II. Fill in the blanks
- Atoms of different elements having _____ mass number, but _____ atomic numbers are called isobars.
 - Atoms of different elements having same number of _____ are called isotones.
 - Atoms of one element can be transmuted into atoms of other element by _____
 - The sum of the numbers of protons and neutrons of an atom is called its _____
 - Relative atomic mass is otherwise known as _____
 - 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 _____

III. Match the following

- 8 g of O_2 - 4 moles
- 4 g of H_2 - 0.25 moles
- 52 g of He - 2 moles
- 112 g of N_2 - 0.5 moles
- 35.5 g of Cl_2 - 13 moles

IV. True or False: (If false give the correct statement)

- Two elements sometimes can form more than one compound.
- Noble gases are Diatomic
- The gram atomic mass of an element has no unit
- 1 mole of Gold and Silver contain same number of atoms
- Molar mass of CO_2 is 42g.

UNIT 8

I. Choose the best answer.

- The number of periods and groups in the periodic table are _____.
a) 6,16 b) 7,17 c) 8,18 d) 7,18
- The basis of modern periodic law is _____.
a) atomic number b) atomic mass c) isotopic mass d) number of neutrons
- _____ 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) $FeO \cdot xH_2O$ b) $FeO_4 \cdot xH_2O$ c) $Fe_2O_3 \cdot xH_2O$

d) FeO

6. In the alumino thermic 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

a) Ag b) Hg c) Mg d) Al

II. Fill in the blanks

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 Cl₂ molecule is 1.98 Å, 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 _____ (increases, decreases).

8. _____ and _____ are called inner transition elements.

9. The chief ore of Aluminium is _____.

10. The chemical name of rust is _____.

III. Match the following

- Galvanisation - Noble gas elements
- Calcination - Coating with Zn
- Redox reaction - Silver-tin amalgam
- Dental filling - Alumino thermic process
- Group 18 elements - Heating in the

absence of air

IV. True or False: (If false give the correct statement)

- Moseley's periodic table is based on atomic mass.
- Ionic radius increases across the period from left to right.
- All ores are minerals; but all minerals cannot be called as ores;
- Al wires are used as electric cables due to their silvery white colour.
- An alloy is a heterogenous mixture of metals

UNIT 9

1. Choose the correct answer.

1. A solution is a _____ mixture.

- homogeneous
- heterogeneous
- homogeneous and heterogeneous
- non homogeneous

2. The number of components in a binary solution is _____

- 2
- 3
- 4
- 5

3. Which of the following is the universal solvent?

- Acetone
- Benzene
- Water
- Alcohol

4. A solution in which no more solute can be dissolved in a definite amount of solvent at a given temperature is called _____

- Saturated solution
- Un saturated solution
- Super saturated solution
- Dilute solution

5. Identify the non aqueous solution.

- sodium chloride in water
- glucose in water
- copper sulphate in water
- sulphur in carbon-di-sulphide

6. When pressure is increased at constant temperature the solubility of gases in liquid _____.

- No change
- increases
- decreases
- 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 _____.

- 12g
- 11g
- 16g
- 20g

8. A 25% alcohol solution means

- 25 ml alcohol in 100 ml of water
- 25 ml alcohol in 25 ml of water
- 25 ml alcohol in 75 ml of water
- 75 ml alcohol in 25 ml of water

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 _____

III. Match the following

- Blue vitriol – $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
- Gypsum – CaO
- Deliquescence – $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$
- Hygroscopic – NaOH

IV. True or False: (If false give the correct statement)

- Solutions which contain three components are called binary solution.
- In a solution the component which is present in lesser amount is called solvent.
- Sodium chloride dissolved in water forms a non-aqueous solution.
- The molecular formula of green vitriol is $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$
- When Silica gel is kept open, it absorbs

moisture from the air, because it is hygroscopic in nature

UNIT 12

I. Choose the correct answer

- Casparian strips are present in the _____ of the root.
 a) cortex b) pith
 c) pericycle d) endodermis
- The endarch condition is the characteristic feature of
 a) root b) stem c) leaves d) flower
- The xylem and phloem arranged side by side on same radius is called _____
 a) radial b) amphivasal c) conjoint d) None of these
- Which is formed during anaerobic respiration
 a) Carbohydrate b) Ethyl alcohol c) Acetyl CoA d) Pyruvate
- Kreb's cycle takes place in
 a) chloroplast b) mitochondrial matrix
 c) stomata d) inner mitochondrial membrane
- Oxygen is produced at what point during photosynthesis ?
 a) when ATP is converted to ADP b) when CO_2 is fixed
 c) when H_2O is splitted d) All of these

II. Fill in the blanks.

- The innermost layer of cortex in root is called _____.
- Xylem and phloem are arranged in an alternate radii constitute a vascular bundle called _____.
- Glycolysis takes place in _____.

4. The source of O₂ liberated in photosynthesis is _____.
5. _____ is ATP factory of the cells

III. State whether the statements are true or false. Correct the false statement.

1. Phloem tissue is involved in the transport of water in plant.
2. The waxy protective covering of a plant is called as cuticle.
3. In monocot stem cambium is present in between xylem and phloem.
4. Palisade parenchyma cells occur below upper epidermis in dicot root.
5. Mesophyll contains chlorophyll.
6. Anaerobic respiration produces more ATP than aerobic respiration.

IV. Match the following

1. Amphoteric - Dracaena
2. Cambium - Translocation of food
3. Amphivasal - Fern
4. Xylem - Secondary growth
5. Phloem - Conduction of water

UNIT 13

I. Choose the correct answer

1. In leech locomotion is performed by
a) Anterior sucker b) Parapodia
c) Setae d) Contraction and relaxation of muscles
2. The segments of leech are known as
a) Metameres (somites) b) Proglottids
c) Strobila d) All the above
3. Pharyngeal ganglion in leech is a part of
a) Excretory system b) Nervous system
c) Reproductive system d) Respiratory

system

4. The brain of leech lies above the
a) Mouth b) Buccal Cavity c) Pharynx d) Crop
5. The body of leech has
a) 23 segments b) 33 segments c) 38 segments d) 30 segments
6. Mammals are _____ animals.
a) Cold blooded b) Warm blooded c) Poikilothermic d) All the above
7. The animals which give birth to young ones are
a) Oviparous b) Viviparous c) Ovoviviparous d) All the above

II. Fill in the blanks

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

III. Identify whether the statements are True or False. Correct the false statement

1. An anticoagulant present in saliva of leech is called heparin.
2. The vas deferens serves to transport the ovum.
3. Diastema is a gap between premolar and molar teeth in rabbit.

4. The cerebral hemispheres of rabbit are connected by band of nerve tissue called corpora quadrigemina.

5. The rabbit has third eye-lid called nictitating membrane which is movable

IV. Match columns I, II and III correctly

Organs	Membrane covering	Location
Brain	- pleura	- abdominal cavity
Kidney	- capsule	- mediastinum
Heart	- meninges	- enclosed thoracic cavity
Lungs	- pericardium	- cranial cavity

UNIT 14

I. Choose the correct answer

- Active transport involves
 - movement of molecules from lower to higher concentration
 - expenditure of energy
 - it is an uphill task
 - all of the above
- Water which is absorbed by roots is transported to aerial parts of the plant through
 - cortex
 - epidermis
 - phloem
 - xylem
- During transpiration there is loss of
 - carbon dioxide
 - oxygen
 - water
 - none of the above
- Root hairs are
 - cortical cell
 - projection of epidermal cell
 - unicellular
 - both b and c
- Which of the following process requires energy?
 - active transport
 - diffusion
 - osmosis
 - all of them
- The wall of human heart is made of

- Endocardium
- Epicardium
- Myocardium
- All of the above

7. Which is the correct sequence of blood flow

- ventricle atrium vein arteries
- atrium ventricle veins arteries
- atrium ventricle arteries vein
- ventricles vein atrium arteries

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?

- O group
- AB group
- A or B group
- all blood group

9. 'Heart of heart' is called

- SA node
- AV node
- Purkinje fibres
- Bundle of His

10. Which one of the following shows correct composition of blood

- Plasma - Blood + Lymphocyte
- Serum - Blood + Fibrinogen
- Lymph - Plasma + RBC + WBC
- Blood - Plasma + RBC + WBC + Platelets

II. Fill in the blanks

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

III. Match the following

Section I

- Symplastic pathway - Leaf
- Transpiration - Plasmodesmata

3. Osmosis - Pressure in xylem
4. Root Pressure - Pressure gradient

Section II

1. Leukemia - Thrombocytes
2. Platelets - Phagocyte
3. Monocytes - Decrease in leucocytes
4. Leucopenia - Blood Cancer
5. AB blood group - Allergic condition
6. O blood group - Inflammation
7. Eosinophil - Absence of antigen
8. Neutrophils - Absence of antibody

IV. State whether True or False. If false write the correct statement

1. The phloem is responsible for the translocation of food.
2. Plants lose water by the process of transpiration.
3. The form of sugar transported through the phloem is glucose.
4. In apoplastic movement the water travels through the cell membrane and enter the cell.
5. When guard cells lose water the stoma opens.
6. Initiation and stimulation of heart beat take place by nerves.
7. All veins carry deoxygenated blood.
8. WBC defend the body from bacterial and viral infections.
9. The closure of the mitral and tricuspid valves at the start of the ventricular systole produces the first sound 'LUBB'.

UNIT 15

I. Choose the correct answer

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 thought is
(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, muscle
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 and .
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 .

III. State whether true or false, if false write the correct statement

1. Dendrons are the longest fibres that conducts impulses away from the cell body.
2. Sympathetic nervous system is a part of central nervous system.
3. Hypothalamus is the thermoregulatory centre of human body.

4. Cerebrum controls the voluntary actions of our body.

5. In the central nervous system

myelinated fibres form the white matter.

6. All the nerves in the body are covered and protected by meninges.

7. Cerebrospinal fluid provides nutrition to brain.

8. Reflex arc allows the rapid response of the body to a stimulus.

9. Pons helps in regulating respiration.

IV. Match the following

Column I

Column II

- | | | |
|----------------------|---|---------------------------|
| A. Nissil's granules | - | Forebrain |
| B. Hypothalamus | - | Peripheral Nervous system |
| C. Cerebellum | - | Cyton |
| D. Schwann cell | - | Hindbrain |

UNIT 16

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 _____.

III Match

Column I	Column II	Column III
Auxin	Gibberella fujikuroi	Abscission
Ethylene	Coconut milk	Internodal elongation
Abscisic acid	Coleoptile tip	Apical dominance

Cytokinin	Chloroplast	Ripening
Gibberellins	Fruits	Cell division

III Match the following hormones with their deficiency states

Hormones Disorders

a) Thyroxine - Acromegaly

b) Insulin - Tetany

c) Parathormone - Simple goitre

d) Growth hormone - Diabetes insipidus

e) ADH - Diabetes mellitus

IV State whether True or false, If false write the correct statement

1. A plant hormone concerned with stimulation of cell division and promotion of nutrient mobilization is cytokinin.

2. Gibberellins cause parthenocarpy in tomato.

3. Ethylene retards senescence of leaves, flowers and fruits.

4. Exophthalmic goiter is due to the over secretion of thyroxine.

5. Pituitary gland is divided into four lobes.

6. Estrogen is secreted by corpus luteum.

UNIT 17

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) Conidi c) Zygote d) Chlamyospores

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 are diploid b) They give rise to gonads

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) Graafian 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

1. The embryo sac in a typical dicot at the

time of fertilization is _____ .

2. After fertilization the ovary develops into _____ .

3. Planaria reproduces asexually by _____ .

4. Fertilization is _____ in humans

5. The implantation of the embryo occurs at about _____ day of fertilization

6. _____ is the first secretion from the mammary gland after child birth

7. Prolactin is a hormone produced by _____ .

III. (a) Match the following

Column 1	Column 2
----------	----------

Fission	Spirogyra
---------	-----------

Budding	Amoeba
---------	--------

Fragmentation	Yeast
---------------	-------

III. (b) Match the following terms with their respective meanings

a) Parturition - 1) Duration between

pregnancy and birth

b) Gestation - 2) Attachment of zygote to

endometrium

c) Ovulation - 3) Delivery of baby from

uterus

d) Implantation - 4) Release of egg from

Graafian follicle

IV. State whether the following statements are True or False. Correct the false statement

1. Stalk of the ovule is called pedicle.

2. Seeds are the product of asexual reproduction.

3. Yeast reproduces asexually by means of multiple fission.
4. The part of the pistil which serves as a receptive structure for the pollen is called as style.
5. Insect pollinated flowers are characterized by dry and smooth pollen.
6. Sex organs produce gametes which are diploid.
7. LH is secreted by the posterior pituitary.
8. Menstrual cycle ceases during pregnancy.
9. Surgical methods of contraception prevent gamete formation.
10. The increased level of estrogen and progesterone is responsible for menstruation.

UNIT 18

I. Choose the correct answer

1. According to Mendel alleles have the following character
 - a) Pair of genes b) Responsible for character c) Production of gametes d) Recessive factors
2. 9 : 3 : 3 : 1 ratio is due to
 - a) Segregation b) Crossing over c) Independent assortment d) Recessiveness
3. 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) 22 autosomes and 1 allosome c) 46 autosomes
 - 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 _____.

III. Identify whether the statement are True or False. Correct the false statement

1. A typical Mendelian dihybrid ratio of F₂ generation is 3:1.
2. A recessive factor is altered by the presence of a dominant factor.
3. Each gamete has only one allele of a

gene.

4. Hybrid is an offspring from a cross between genetically different parent.
5. Some of the chromosomes have an elongated knob-like appendages known as telomere.
6. New nucleotides are added and new complementary strand of DNA is formed with the help of enzyme DNA polymerase.
7. Down's syndrome is the genetic condition with chromosomes

IV. Match the following

1. Autosomes - Trisomy 21
2. Diploid condition - 9:3:3:1
3. Allosome - 22 pair of chromosome
4. Down's syndrome - 2n
5. Dihybrid ratio - 23rd pair of

chromosome

HALF YEARLY PORTION

Unit 5

I. Choose the correct answer

1. When a sound wave travels through air, the air particles
 - a) vibrate along the direction of the wave motion
 - b) vibrate but not in any fixed direction
 - c) vibrate perpendicular to the direction of the wave motion
 - d) do not vibrate
2. 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

- a) 330 ms^{-1} b) 660 ms^{-1}
- c) 156 ms^{-1} d) 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) $330 \times \sqrt{2} \text{ ms}^{-1}$ d) $320 / \sqrt{2} \text{ ms}^{-1}$
5. If a sound wave travels with a frequency of $1.25 \times 10^4 \text{ Hz}$ 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
7. Velocity of sound in the atmosphere of a planet is 500 ms^{-1} . The minimum distance between the sources of sound and the obstacle to hear the echo, should be
 - a) 17 m b) 20 m c) 25 m d) 50 m

II. Fill up the blanks

1. Rapid back and forth motion of a particle about its mean position is called _____
2. If the energy in a longitudinal wave travels from south to north, the particles of the medium would be vibrating in _____
3. A whistle giving out a sound of frequency 450 Hz approaches a stationary observer at a speed of 33 ms^{-1} . The frequency heard by the observer is (speed of sound = 330 ms^{-1}) _____.
4. A source of sound is travelling with a velocity 40 km/h towards an observer and

emits a sound of frequency 2000 Hz. If the velocity of sound is 1220 km/h, then the apparent frequency heard by the observer is _____.

III. True or false:- (If false give the reason)

1. Sound can travel through solids, gases, liquids and even vacuum.
2. Waves created by Earth Quake are Infrasonic.
3. The velocity of sound is independent of temperature.
4. The Velocity of sound is high in gases than liquids.

IV. Match the following

1. Infrasonic - (a) Compressions
2. Echo - (b) 22 kHz
3. Ultrasonic - (c) 10 Hz
4. High pressure region - (d) Ultrasonography

Unit 6

I. Choose the correct answer

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. 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
 9. Proton - Proton chain reaction is an example of -----
a. Nuclear fission b. α - decay
c. Nuclear fusion d. β - decay
 10. In the nuclear reaction ${}^A_Z\text{X} \rightarrow {}^A_Z\text{Y} + {}^4_2\text{He}$ α decay
Z, Y, A, 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.
- ${}_Z Y^A \rightarrow {}_{Z+1} Y^A + X$; Then, X is _____
- ${}_Z X^A \rightarrow {}_Z Y^A$ 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 _____.

III State whether the following statements

are true or false: If false, correct the statement

- Plutonium -239 is a fissionable material.
- Elements having atomic number greater

than 83 can undergo nuclear fusion.

3. Nuclear fusion is more dangerous than nuclear fission.

4. Natural uranium U-238 is the core fuel used in a nuclear reactor.

5. If a moderator is not present, then a nuclear reactor will behave as an atom bomb.

6. During one nuclear fission on an average, to 3 neutrons are produced.

us from gamma radiations

a. Lead oxide b. Iron

c. Lead d. Aluminium

7. Einstein's theory of mass energy equivalence is used in nuclear fission and fusion.

IV. Match the following

Match: I

a. BARC - Kalpakkam

b. India's first atomic power - Apsara station

c. IGCAR - Mumbai

d. First nuclear reactor in India - Tarapur

Match: II

a. Fuel - lead

b. Moderator - heavy water

c. Control rods - cadmium rods

d. Shield - uranium

Match: III

a. Soddy Fajan - Natural radioactivity

b. Irene Curie - Displacement law

c. Henry

Bequerel - Mass energy equivalence

d. Albert Einstein - Artificial Radioactivity

Match: IV

a. Uncontrolled fission - Hydrogen Bomb reaction

b. Fertile material - Nuclear Reactor

c. Controlled fission - Breeder reactor reaction

d. Fusion reaction - Atom bomb

Match: V

a. Co - 60 - Age of fossil

b. I - 131 - Function of Heart

- c. Na - 24 - Leukemia
d. C - 14 - Thyroid disease

Unit 10

I. Choose the correct answer.

1. $\text{H}_2(\text{g}) + \text{Cl}_2(\text{g}) \rightarrow 2\text{HCl}(\text{g})$ is a
a. Decomposition Reaction
b. Combination Reaction
c. Single Displacement Reaction
d. Double Displacement Reaction
2. Photolysis is a decomposition reaction caused by _____
a. heat b. electricity
c. light d. mechanical energy
3. 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
4. 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
5. Which of the following statements are correct about a chemical equilibrium?
(i) It is dynamic in nature
(ii) The rate of the forward and backward reactions are equal at equilibrium
(iii) Irreversible reactions do not attain chemical equilibrium
(iv) The concentration of reactants and products may be different

- a. i, ii and iii b. i, ii and iv
c. ii, iii and iv d. i, iii and iv
6. A single displacement reaction is represented
by $\text{X}(\text{s}) + 2\text{HCl}(\text{aq}) \rightarrow \text{XCl}_2(\text{aq}) + \text{H}_2(\text{g})$.
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 \rightarrow compound" type reaction?
a. $\text{C}(\text{s}) + \text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g})$
b. $2\text{K}(\text{s}) + \text{Br}_2(\text{l}) \rightarrow 2\text{KBr}(\text{s})$
c. $2\text{CO}(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{CO}_2(\text{g})$
d. $4\text{Fe}(\text{s}) + 3\text{O}_2(\text{g}) \rightarrow 2\text{Fe}_2\text{O}_3(\text{s})$
8. Which of the following represents a precipitation reaction?
a. $\text{A}(\text{s}) + \text{B}(\text{s}) \rightarrow \text{C}(\text{s}) + \text{D}(\text{s})$
b. $\text{A}(\text{s}) + \text{B}(\text{aq}) \rightarrow \text{C}(\text{aq}) + \text{D}(\text{l})$
c. $\text{A}(\text{aq}) + \text{B}(\text{aq}) \rightarrow \text{C}(\text{s}) + \text{D}(\text{aq})$
d. $\text{A}(\text{aq}) + \text{B}(\text{s}) \rightarrow \text{C}(\text{aq}) + \text{D}(\text{l})$
9. The pH of a solution is 3. Its $[\text{OH}^-]$ concentration is
a. $1 \times 10^{-3} \text{ M}$
b. 3 M
c. $1 \times 10^{-11} \text{ M}$
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
- II. Fill in the blanks
1. A reaction between an acid and a base is called _____.
2. When lithium metal is placed in hydrochloric acid, _____ gas is evolved.

3. The equilibrium attained during the melting of ice is known as _____.
4. The pH of a fruit juice is 5.6. If you add slaked lime to this juice, its pH _____
(increase/decrease)
5. The value of ionic product of water at 250 C is _____.
6. The normal pH of human blood is _____
7. Electrolysis is type of _____ reaction
8. The number of products formed in a synthesis reaction is _____
9. Chemical volcano is an example for _____ type of reaction
10. The ion formed by dissolution of H⁺ in water is called _____

III. Match the following

1. Identify the types of reaction
- | REACTION | TYPE |
|--|-------------------------|
| 1. $\text{NH}_4\text{OH}(\text{aq}) + \text{CH}_3\text{COOH}(\text{aq}) \rightarrow \text{CH}_3\text{COONH}_4(\text{aq}) + \text{H}_2\text{O}$ | Single Displacement |
| 2. $\text{Zn}(\text{s}) + \text{CuSO}_4(\text{aq}) \rightarrow \text{ZnSO}_4(\text{aq}) + \text{Cu}(\text{s})$ | - Combustion |
| 3. $\text{ZnCO}_3(\text{s}) + \text{Heat} \rightarrow \text{ZnO}(\text{s}) + \text{CO}_2(\text{g})$ | - Neutralisation |
| 4. $\text{C}_2\text{H}_4(\text{g}) + 4\text{O}_2(\text{g}) \rightarrow 2\text{CO}_2(\text{g}) + 2\text{H}_2\text{O}(\text{g}) + \text{Heat}$ | - Thermal Decomposition |

IV. True or False: (If false give the correct statement)

1. Silver metal can displace hydrogen gas from nitric acid.
2. The pH of rain water containing dissolved gases like SO₃, CO₂, NO₂ will be less than 7.
3. At the equilibrium of a reversible reaction,

- the concentration of the reactants and the products will be equal.
4. Periodical removal of one of the products of a reversible reaction increases the yield.
5. On dipping a pH paper in a solution, it turns into yellow. Then the solution is basic.

Unit 11

I. Choose the best answer.

1. The molecular formula of an open chain organic compound is C₃H₆. The class of the compound is
a. alkane b. alkene c. alkyne d. alcohol
2. 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
3. The secondary suffix used in IUPAC nomenclature of an aldehyde is ____
a. -ol b. -oic acid c. -al d. -one
4. Which of the following pairs can be the successive members of a homologous series?
a. C₃H₈ and C₄H₁₀
b. C₂H₂ and C₂H₄
c. CH₄ and C₃H₆
d. C₂H₅OH and C₄H₈OH
5. $\text{C}_2\text{H}_5\text{OH} + 3\text{O}_2 \rightarrow 2\text{CO}_2 + 3\text{H}_2\text{O}$ is a
a. Reduction of ethanol
b. Combustion of ethanol
c. Oxidation of ethanoic acid
d. Oxidation of ethanal
6. Rectified spirit is an aqueous solution which contains about _____ of ethanol
a. 95.5 % b. 75.5 %
c. 55.5 % d. 45.5 %

7. Which of the following are used as anaesthetics?
 a. Carboxylic acids b. Ethers
 c. Esters d. Aldehydes
8. TFM in soaps represents _____ content in soap
 a. mineral b. vitamin
 c. fatty acid d. carbohydrate
9. 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 $-SO_3^-Na^+$
 d. It is effective even in hard water.

II. Fill in the blanks

1. An atom or a group of atoms which is responsible for chemical characteristics of an organic compound is called _____.
2. The general molecular formula of alkynes is _____
3. In IUPAC name, the carbon skeleton of a compound is represented by _____ (root word / prefix / suffix)
4. (Saturated / Unsaturated) _____ compounds decolorize bromine water.
5. Dehydration of ethanol by conc. Sulphuric acid forms _____ (ethene/ ethane)
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 _____ (branched / straight) chain hydrocarbons

III. Match the following

1. Functional group
 -OH - Benzene
2. Heterocyclic - Potassium stearate

3. Unsaturated - Alcohol
 4. Soap - Furan
 5. Carbocyclic - Ethene

Unit 19

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 _____.

III State true or false. Correct the false statements

- The use and disuse theory of organs' was postulated by Charles Darwin.
- The homologous organs look similar and perform similar functions but they have different origin and developmental pattern.
- Birds have evolved from reptiles.

IV Match the following

Column A		Column B
a) Atavism	-	caudal vertebrae and vermiform appendix
b) Vestigial organs	-	a forelimb of a cat and bat's wing
c) Analogous organs	-	rudimentary tail and thick hair on the body
d) Homologous organ	-	a wing of a bat and a wing of an insect
e) Wood park	-	radiocarbon dating
f) W.F. Libby	-	Thiruvakkarai

Unit 20

I Choose the correct answer

- 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
- Pusa Komal is a disease resistant variety of _____.
 a. sugarcane b. rice
 c. cow pea d. maize
- 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. Ponni
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. vector DNA
 b. circular DNA
 c. recombinant of vector DNA and desired 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 _____.

3. _____ is the chemical used for doubling the chromosomes.
4. The scientific process which produces crop plants enriched with desirable nutrients is called _____.
5. Rice normally grows well in alluvial soil, but _____ is a rice variety produced by mutation breeding that grows well in saline soil.
6. _____ technique made it possible to genetically engineer living organism.
7. Restriction endonucleases cut the DNA molecule at specific positions known as _____.
8. Similar DNA fingerprinting is obtained for _____.
9. _____ cells are undifferentiated mass of cells.
10. In gene cloning the DNA of interest is integrated in a _____.

III State whether true or false. If false, write the correct statement

1. *Raphano brassica* is a man-made tetraploid produced by colchicine treatment.
2. The process of producing an organism with more than two sets of chromosome is called mutation.
3. A group of plants produced from a single plant through vegetative or asexual reproduction are called a pureline.
4. Iron fortified rice variety determines the protein quality of the cultivated plant
5. Golden rice is a hybrid.
6. Bt gene from bacteria can kill insects.
7. *In vitro fertilisation* means the fertilization done inside the body.
8. DNA fingerprinting technique was developed by Alec Jeffrey.

9. Molecular scissors refers to DNA ligases.

IV Match the following

Column A

Column B

- | | | |
|----------------|---|---|
| 1. Sonalika | - | <i>Phaseolus mungo</i> |
| 2. IR 8 | - | Sugarcane |
| 3. Saccharum | - | Semi-dwarf wheat |
| 4. Mung No. 1 | - | Ground nut |
| 5. TMV – 2 | - | Semi-dwarf Rice |
| 6. Insulin | - | <i>Bacillus thuringiensis</i> |
| 7. Bt toxin | - | Beta carotene |
| 8. Golden rice | - | first hormone produced using rDNA technique |

Unit 21

I. Choose the correct answer

1. 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
- Streptococci* bacteria
 - Inflammation of pericardium
 - Weakening of heart valves
 - Insufficient blood supply to heart muscles
7. Cancer of the epithelial cells is called
- Leukemia
 - Sarcoma
 - Carcinoma
 - Lipoma
8. Metastasis is associated with
- Malignant tumour
 - Benign tumour
 - Both (a) and (b)
 - Crown gall tumour
9. Polyphagia is a condition seen in
- Obesity
 - Diabetes mellitus
 - Diabetes insipidus
 - AIDS
10. Where does alcohol effect immediately after drinking?
- Eyes
 - Auditory region
 - Liver
 - Central nervous system

II. State whether True or False, if false write the correct statement

- AIDS is an epidemic disease.
- Cancer causing genes are called Oncogenes.
- Obesity is characterized by tumour formation.
- In leukemia both WBCs and RBCs increase in number.
- Study of cause of disease is called etiology.
- AIDS is not transmitted by contact with a patient's clothes.
- Type 2 diabetes mellitus results due to insulin deficiency.
- Carcinogens are cancer causing agents.
- Nicotine is a narcotic drug.
- Cirrhosis is associated with brain disorder.

IV. Match the following

- Sarcoma - Stomach cancer
- Carcinoma - Excessive thirst
- Polydipsia - Excessive hunger
- Polyphagia - Lack of blood flow to heart muscle
- Myocardial Infarction - Connective tissue cancer

V. Fill in the blanks

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

Unit 22

I. Fill in the blanks

- Deforestation leads to _____ in rainfall.
- Removal of soil particles from the land is called _____.
- Chipko movement is initiated against _____.
- _____ is a biosphere reserve in Tamilnadu.
- Tidal energy is _____ type of energy.
- Coal, petroleum and natural gas are called _____ fuels.
- _____ is the most commonly used fuel for the production of electricity.

II. State whether True or False.

Correct the statements which are false

1. Biogas is a fossil fuel.
2. Planting trees increases the groundwater level.
3. Habitat destruction cause loss of wild life.
4. Nuclear energy is a renewable energy.
5. Overgrazing prevents soil erosion.
6. Poaching of wild animals is a legal act.
7. National park is a protected park.
8. Wild life protection act was established in 1972.

III. Match the following

1. Soil erosion - energy saving
2. Bio gas - acid rain
3. Natural gas - removal of vegetation
4. Green house gas - renewable energy
5. CFL bulbs - CO₂
6. Wind - non-renewable energy
7. Solid waste - lead and heavy metals

IV. 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

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

II. Match the Following

1. Script Area - Type notes
2. Folder - Animation software
3. Scratch - Edit programs
4. Costume editor - Store files
5. Notepad - Build Scripts

MY BEST WISHES

From.....

G. RAGUPATHI

- SCIENCE TEACHER

PACM H S S

RAJAPALAYAM