

9th Standard Science (English Medium)**1st –Term****BIOLOGY****Unit – I ANIMAL KINGDOM****1. Match the following column A, B and C to make meaningful sequences.**

Column A	Column B	Column C
Platyhelminthes	Eggs	Protection
Frogs	Nematocyst	Moulting
Hydra	Grasshopper	Cleidoic
Birds	Amphibious	Hooks and suckers
Nymphs	Parasites	Gills and lungs

Ans:

Column A	Column B	Column C
Platyhelminthes	Parasite	Hooks and suckers
Frogs	Amphibious	Gills and lungs
Hydra	Nematocyst	Protection
Birds	Eggs	Cleidoic
Nymphs	Grasshopper	Moulting

2. Match the phyla with their salient features:

a)	Coelenterata	Parasitic
b)	Platyhelminthes	Pneumatic bones
c)	Aschelminthes	Nematocysts
d)	Annelida	False Coelom
e)	Aves	Metamerisam

Ans:

a)	Coelenterata	Nematocysts
b)	Platyhelminthes	Parasitic
c)	Aschelminthes	False Coelom
d)	Annelida	Metamerisam
e)	Aves	Pneumatic bones

3. Choose the correct answer

1. Father of modern taxonomy

- a) Darwin b) Carolus
c) Aristotle d) Dalton

Ans: Carolus linnaeus

2. Is an example for asymmetric animal.

- a) amoeba b) man c) hydra d) earthworm

Ans: amoeba

3. An example for warm blooded animal is

- a) fish b) frog c) toad d) man

Ans: man

4. An example for Phylum Echinodermata

- a) Starfish b) Earthworm c) Hydra d) Snail

Ans: starfish

5. Cockroach belongs to Phylum.....

- a) Annelida b) Coelenterata c) Mollusca d) Arthropoda

Ans: arthropoda

6. The locomotory organs of paramecium.

- a) pseudopodia b) flagella c) cilia d) tube feet

Ans: cilia

7. The shell of Molluscs is secreted by the.....

- a) muscular foot b) gills c) tentacles d) mantle

Ans: mantle

8. Elephantiasis is caused by.....

- a) earthworm b) roundworm c) tapeworm d) filarial worm

Ans: filarial worm

9. The smallest taxon is.....

- a) genus b) species c) kingdom d) order

Ans: species

10. Coelenterates have For protection

- a) cnidoblasts b) shell c) spines d) tentacles

Ans: cnidoblasts

11. Water-vascular system is present in

- a) fishes b) molluscs c) sponges d) echinoderms

Ans: echinoderms

12. Are animals with a soft body

- a) echinoderms b) sponges c) coelenterates d) mollusks

Ans: molluscs

13. is called farmer's friend.

- a) round worm b) earth worm c) tape worm d) thread worm

Ans: earthworm

14. How many chambers are there in the heart of amphibians like frog

- a) 2 b) 3 c) 4 d) 5

Ans: 3

15. The largest poisonous snake

- a) king cobra b) python c) water snake d) krait

Ans: king cobra

16. An example for birds that do not fly

- a) pigeon b) hen c) emu d) peacock

Ans: emu

17. Hydra reproduces asexually by

- a) binary Fision b) multiple Fission c) gemules d) budding

Ans: budding

18. An example for protozoan parasite

- a) amoeba b) paramecium c) plasmodium d) euglena

Ans: plasmodium

19. An example for incomplete metamorphosis

- a) moth b) butterfly c) silkworm d) grasshopper

Ans: grasshopper

20. External fertilization occurs in

- a) amphibians b) birds c) reptiles d) mammals

Ans: amphibians

4. Match the following

a) Match the following invertebrates with their phyla:

Sl.No	Phylum	Example
1	Protozoa	a) hydra
2	Coelenterata	b) Earthworm
3.	Porifera	c) cockroach
4.	Mollusca	d) Tapeworm
5.	Annelida	e) sponges
6.	Arthropoda	f) amoeba
7.	Platyhelminthes	g) Star fish
8.	Echinodermata	h) Snail

Ans: 1-f, 2-a, 3-e, 4-h, 5-b, 6-c, 7-d, 8-g

B) Match the following vertebrates with their classes.

Sl.No	Class	Example
1.	Pisces	a) frog
2.	Amphibia	b) Bird
3.	Reptilia	c) Fish
4.	Aves	d) Cat
5.	Mammalia	e) snake

Ans: 1-c, 2-a, 3-e, 4-b, 5-d

C) Match the following vertebrates with their classes.

- | | |
|--------------------------|--------------------------------|
| 1. The slowest reptile | a) Spiny – tailed iguana |
| 2. The fastest reptile | b) Mini meleon |
| 3. The smallest reptile | c) king cobra |
| 4. The largest reptile | d) Giant tortoise of Galapagos |
| 5. The largest poisonous | e) Komodo dragon snake |

Ans: 1-d, 2-a, 3-b, 4-e, 5-c

D) Match the following organisms with their modes of reproduction.

- | | |
|---------------------|---------------|
| 1. Binary Fission | a) Sponges |
| 2. Multiple Fission | b) Hydra |
| 3. Gemmules | c) paramecium |
| 4. Sporulation | d) Amoeba |
| 5. Budding | e) plasmodium |

Ans: 1-c, 2-d, 3-a, 4-e, 5-b

E) Match the following

Organism	Locomotary organ
1. Earthworm	a) Pseudopodia
2. Paramecium	b) webbed Feet
3. Amoeba	c) Cilia
4. Fishes	d) Fins
5. Frogs	e) Setae

Ans: 1-e, 2-c, 3-a, 4-d, 5-b

F) Match the following

Sl.No	Phylum	Example
1	Coelenterata	a) Earthworm
2	Annelida	b) Butterfly
3	Echinodermata	c) Hydra
4	Arthropoda	d) Starfish

Ans: 1-c, 2-a, 3-d, 4-b

G) Match the common names with zoological Names (Ans)

Sl.No	Common Names	Zoological Names
1.	Crow	Corvus brachyrhynchos
2.	Pigeon	Columba livia
3.	Frog	Rana hexadactyla
4.	Rat	Rattus rattus
5.	Lizard	Zootoca vivipara
6.	Cat	Felis domestica
7.	Dog	Canis familiaris
8.	Cow	Bos Taurus
9.	Goat	Capra hircus
10	Squirrel	Sciurus carolinensis

5. Spot the error and correct it

- Species** is the largest taxon.
Ans: **Kingdom** is the largest taxon.
- Hydra** is asymmetrical.
Ans: **Amoeba** is asymmetrical
- Locomotory** organ of paramecium is flagellum
Ans: **Locomotory** organ of paramecium is cilia
- Invertebrates** have a distinct backbone.
Ans: **Vertebrates** have a distinct backbone.
- Frogs** have rough warty skin
Ans: **Toads** have rough warty skin.

6. Reason and Assertion:

- Assertion (A) : Amphibians are poikilothermic vertebrates.
Reason (B) : Their body temperature varies with that of the environment.
a) A is correct B is wrong b) A is wrong B is correct

- c) A is correct B explains A d) B does not explain A

Ans: c) A is correct B explains A

2. Assertion (A) : Arthropods are the smallest group of organisms.

Reason (B) : Insects are the most successful group.

- a) A is correct B is wrong b) B is correct A is wrong
c) Both A and B are wrong d) B explains A

Ans: b) B is correct A is wrong

3. Assertion (A) : Canal system is present in sponges.

Reason (B) : Sponges reproduce by gemmules.

- a) A is correct B is wrong b) A is wrong B is correct
c) A is correct B explains A d) B does not explain A

Ans: d) B does not explain A

4. Assertion (A) : Echinoderms are characterized by the presence of water – vascular system

Reason (B) : It helps in the exchange of gases and transport of food

- a) A is correct B is wrong b) both A and B are wrong
c) A is correct B does not explain A d) B explains A

Ans: d) B explains A

5. Assertion (A) : Annelids exhibit metamerism

Reason (R) : Segmental repetition of indential organs is called metamerism

- a) A is correct B is wrong b) A is wrong B is correct
c) Both A and B are wrong d) A is correct B explains A

Ans: d) A is correct B explains A

7. Choose the correct answer from the given pair

1. Fish is an example for (Poikilotherms / Homeotherms)

Ans: poikilotherms

2. Sponges are Marine animals (motile, non-motile)

Ans: non-motile

3. Sea anemone is an example for..... (bilateral symmetry, radial symmetry)

Ans: radial symmetry

4. Mammals are (oviparous, viviparous)

Ans: viviparous

5. Vedanthangal is located in District. (Kancheepuram, Chingleput)

Ans: Kancheepuram

8. Spot the odd one and give reason:

1. Pisces, Ambhibia, Mollusca, Mammalia

Ans: Molluscs

Molluscs are invertebrates while the other three are vertebrates.

2. Fish, Frog, Toad, Bird

Ans: Bird

Bird is Homeothermic but fish, frog and toad are poikilotherms

3. Suckers, setae, cilia, parapodia

Ans: Suckers

Suckers are organs of attachment while the others are locomotory organs.

4. Snail, Star fish, Mussel, Oyster

Ans: star fish

Star fish belongs to phylum Echinodermata whereas snail, mussel and oyster are mollusks.

5. Butterfly, Silk moth, Moth, Grasshopper

Ans: Grasshopper

Grasshopper is an example for incomplete metamorphosis while the other three are examples for complete metamorphosis.

9. Fill in the blanks

1. A marine invertebrate that has a porous body.....

Ans: Sponges – eg. Sycon

2. A marine invertebrate that has a soft body and a shell.....

Ans: Snail

3. A homoeothermic vertebrate with modified fore limbs.....

Ans: bird

4. A marine invertebrate that is covered with spines

Ans: Starfish

5. An invertebrate that has a segmented body and joined limbs.....

Ans: Cockroach

6. A Vertebrate that has fur and feeds its young ones with milk.....

Ans: Cat

7. A vertebrate that has dry scaly skin.....

Ans: Snake

8. An invertebrate that has a long, segmented body without any limits.....

Ans: Earthworm

BIOLOGY

Unit – II CELLS

1. Choose the correct answer:

1. The Power house of the cell is the

- a) Chloroplast b) nucleus c) mitochondrion d) lysosome

Ans: mitochondrion

2. The organelle that destroys worn-out cells is the.....

- a) centrosome b) vacuole c) lysosome d) chromosome

3. The cell division common in gametes.

- a) mitosis b) amitosis c) meiosis d) both mitosis and meiosis

Ans: meiosis

4. Substance taken up in fluid form

- a) Phagocytosis b) exocytosis c) receptor-mediated endocytosis d) pinocytosis

Ans: pinocytosis

5. are embedded on the rough endoplasmic reticulum

- a) Ribosomes b) Lysosomes c) Centrosomes d) Mesosomes

Ans: Ribosomes

6. The plant cell does not have a.....

- a) cell wall b) vacuole c) Centriole d) Chloroplast

Ans: Centriole

7. is a prokaryote.

- a) amoeba b) Bacteria c) Yeast d) Fungus

Ans: Bacteria

8. are non-living components of the cell.

- a) Lysosomes b) Vacuoles c) Nuclei d) Golgi bodies

Ans: Vacuoles

9. Petals of flowers bear.....

- a) chloroplasts b) leucoplasts c) chromoplasts d) amyloplasts

Ans: Chromoplasts

10. Cells which lack a well organized nucleus.

- a) Plant cells b) animal cells c) Prokaryotic cells d) Eukaryotic cells

Ans: c) Prokaryotic cells

11. Cell was discovered by

- a) Robert Hooke b) Robert Brown c) Anton Van Leeuwenhoek d) Robert brown

Ans: a) Robert Hooke

12. Golgi apparatus is referred to as.....

- a) protein factories b) dictyosomes c) suicidal bags d) power houses

Ans: b) dictyosomes

13. Prokaryotes such as bacteria haveribosomes.

- a) 80S b) 40S c) 70S d) 60S

Ans: c) 70S

14. are colourless plastids.

- a) chromoplasts b) chloroplasts c) leucoplasts d) chlorophyll

Ans: c) leucoplasts

15. Lysosomes are called

- a) power houses of the cell b) suicidal bags c) dictyosomes d) protein factories

Ans: b) suicidal bags

16. Protein factories of the cell are.....

- a) oxysomes b) centrosomes c) lysosomes d) ribosomes

Ans: d) ribosomes

17. Power houses of the cell

- a) glogi complex b) lysosomes c) mitochondria d) ribosomes

Ans: c) mitochondria

18. The centromere lies in the middle of the chromosome and the two arms are equal in length in chromosome.

- a) metacentric b) submetacentric c) acrocentric d) telocentric

19. An example for purines.

- a) Thymine b) adenine c) phosphate group d) cytosine

20. Is reduction division

- a) mitosis b) direct division c) meiosis d) amitosis

21. In meiosis the daughter cells have the number of chromosomes.

- a) double b) half c) 4 times d) triple

22. Acrocentric chromosome is

- a) red – shaped b) J – shaped c) Y – Shaped d) V - Shaped

23. spindle fibers appear in

- a) interphase b) prophase c) metaphase d) anaphase

24. Rough endoplasmic reticulum is involved in the synthesis of.....

- a) steroids b) hormones c) lipids d) proteins

25. Smooth endoplasmic reticulum is involved in the synthesis of

- a) lipids b) glucose c) proteins d) enzymes

26. Ribosomes play an important role in the synthesis of

- a) lipids b) glucose c) proteins d) hormones

27. Each granum consists of disc shaped sacs called.....

- a) lamella b) stroma c) thylakoids d) lacuna

28. The term protoplasm was coined by.....

- a) robert hooke b) robert brown c) Leeuwenhoek d) purkinje

29. mitosis takes place in

- a) reproductive cells b) gametes c) sperms d) somatic cells

2. Match the following

A)

Sl.No	Organelle	Function
1	Mitochondria	a) suicidal bags
2	Lysosome	b) protein Synthesis
3	Ribosome	c) Power House of the cell
4	Smooth ER	d) Cell secretion
5	Golgi complex	e) Synthesis of hormones and lipids

Ans: 1- c, 2-a, 3-b, 4-e, 5-d

B) 1. Robert Hooke

a) Nucleus

2. Purkinje

b) Glogi Apparatus

3. Robert Brown

c) Cell

4. Golgi

d) protoplasm

Ans: 1-c, 2-a, 3-b, 4-e, 5-d

C) 1. Metacentric

a) one arm

2. Submetacentric

b) rod shaped

3. Acrocentric

c) V- shaped

4. Telocentric

d) J – shaped

Ans: 1- c, 2-d, 3-b, 4-a

D) 1. Amitosis

a) reduction division

2. mitosis

b) Division of the nucleus

3. meiosis

c) Direct Division

4. Karyokinesis

d) Indirect Division

Ans: 1-c, 2-d, 3-a, 4 –b

3. Spot the error and correct it:

1. Animal cell has a rigid cell wall.

Ans: Plant cell has a rigid cell wall.

2. Rough endoplasmic reticulum synthesizes lipids.

Ans: smooth endoplasmic reticulum synthesizes lipids.

3. The golgi apparatus was discovered by Watson and crick.

Ans: The golgi apparatus was discovered by camillo golgi.

4. Mitosis is direct division.

Ans: Amitosis is different division.

5. Adenine and guanine are pyrimidines.

Ans: Adenine and guanine are purines.

4. Reason and Assertion

1. Assertion (A): Plasma membrane is semi-permeable.

Reason (R) : Plasma membrane regulates the entry and exit of substance in and out of the cell.

a) A is correct R is wrong

b) Both A and R are wrong

c) A is correct R explains A

d) R does not explain A

Ans: c) A is correct R explains A

2. Assertion (A) : Cell wall is present in animal cells

Reason (R) : Cell organelles are present in the cytoplasm.

a) A is correct R is wrong

b) A is correct R explains A

c) Both A and R are wrong

d) A is wrong R is correct

Ans: d) A is wrong R is correct

3. Assertion (A) : Acrocentric chromosome has one very short arm and one very long arm.

Reason (R) : Telocentric chromosome has only one arm

a) A is correct R is wrong

b) A is wrong R is correct

c) A is correct R does not explain A

d) R explains A

Ans: c) A is correct R does not explain A

4. Assertion (A) : Golgi apparatus is involved in the synthesis of lysosomes.

Reason (R) : Golgi apparatus was discovered by Watson and crick.

a) A is wrong R is correct

b) R explains A

c) Both A and R are wrong

d) A is correct R is wrong

Ans: d) A is correct R is wrong

5. Assertion (A) : Smooth endoplasmic reticulum is involved in the synthesis of lipids

Reason (R) : Rough endoplasmic reticulum is involved in the synthesis of proteins

a) A and R are right

b) R is right A is wrong

c) R explains A

d) A is right R is wrong

Ans: a) A and R are right

5. Choose the correct answer from the given pair

1. Synthesis of proteins is the function of (Rough ER, Smooth ER)

Ans: Rough ER

2. Ribosome is seen in prokaryotic cells (70S, 80S)

Ans: 70S

3. play an important role in respiration (Oxysomes, lysosomes)

Ans: Oxysomes

4. provide colour to flowers and fruits (leucoplasts, Chromoplasts)

Ans: Chromoplasts

5. Thymine and cytosine are (Purines, pyrimidines)

Ans: pyrimidines

6. The division of nucleus is called (Karyokinesis, cytokinesis)

Ans: Karyokinesis

6. Spot the odd one and give reason:

1. Lysosome, ribosome, chromosome, mitochondria.

Ans : Chromosome

Reason : Chromosome is not a cell organelle like the others.

2. Cisternae, Vesicles, Vacuoles, F1 Particles.

Ans : F1 particles

Reason : F1 particles are found in mitochondria but the others are components of golgi body

3. Adenine, pentose sugar, guanine, cytosine.

Ans : Pentose sugar

Reason : Pentose sugar is not a nitrogenous base like others.

4. Interphase, prophase, metaphase, Anaphase

Ans : Interphase

Reason : Interphase is the resting stage whereas others are phases of mitosis.

5. Housekeepers, scavengers, power houses, lysosomes.

Ans : Power houses

Reason : The power houses are mitochondria whereas housekeepers and scavengers are other names of lysosomes

CHEMISTRY

Unit – III IS MATTER AROUND US PURE?

1. Choose the correct answers:

1. The lead in the pencil we use is made of a material called graphite, graphite is a mixture of.....

- a) Carbon and clay b) Clay and mitrogen

Ans: a) Carbon and clay

2. Pure water is a compound. It contains 11.19% by mass of hydrogen and oxygen by mass

- a) 88.81% b) 31.81%

Ans: a) 88.81%

3. Coins are mixtures of solid. Smoke is a mixture of

- a) solid in gas b) gas in solid

Ans: a) solid in gas

4. Some pairs of items are given below. Could you identify the incorrect pair?

- a) air - gas in gas
b) sea water - solid in liquid
c) soft drinks - gas in liquid
d) Amalgam - liquid in liquid

Ans: d) Amalgam - liquid in liquid

5. components of given matter can be separated by various purifying techniques. Components of liquid air can be separated by adopting Physical method.

- a) fractional distillation b) distillation c) sublimation

Ans: a) fractional distillation

6. have no definite volume.

- a) solids b) liquids c) gases d) All the 3

Ans: c) gases

7. Cannot be broken down chemically.

- a) elements b) Compounds c) mixtures d) Alloys

Ans: a) elements

8. Is a pure substance.

- a) milk b) sugar c) juice d) Ice cream

Ans: b) sugar

9. An example for solid in gas.

- a) coin b) smoke c) Sea water d) amalgam

Ans: b) smoke

10. Amalgam is.....

- a) solid in liquid b) Solid in gas c) liquid in liquid d) liquid in solid

Ans: d) liquid in solid

11. Air is

- A) Gas in liquid b) Gas in gas c) Gas in solid d) solid in gas

Ans: Gas in gas

12. Lead in pencil is made of

- a) lead b) zinc c) lignite d) graphite

Ans: d) graphite

13. Water is.....

- a) an element b) a compound c) a homogeneous mixture d) a heterogeneous mixture

Ans: b) a compound

14. Air contains % of Nitrogen.

- a) 75.50 b) 23.20 c) 1 d) 0.046

Ans: a) 75.50

15. An example for homogeneous mixture.

- a) Hydrogen b) water c) Ink d) Air

Ans: d) Air

16. Immiscible liquids can be separated by

- a) Decantation b) Separating funnel c) Sublimation d) Fractional Distillation

Ans: b) Separating funnel

17. Boiling point of Benzene is.....

- a) 31K b) 100K c) 384K d) 353K

Ans: 353K

18. An example for sublimation

- a) iron b) iodine c) common salt d) benzene

Ans: b) iodine

19. A mixture of common salt and camphor can be separated by

- a) filtration b) Distillation c) Sublimation d) Decantation

Ans: c) Sublimation

20. Miscible liquids can be separated by.....

- a) separating funnel b) Decantation c) Distillation d) Fractional distillation

Ans: d) Fractional distillation

21. The process used to separate two or more dissolved solids.

- a) distillation b) chromatography c) fractional distillation d) Sublimation

Ans: b) chromatography

22. The entire world around us is made up of

- a) air b) Solids c) Matter d) water

Ans: c) Matter

23. The purity of a substance is determined by measuring its.....

- a) physical properties b) chemical properties c) taste d) biochemical properties

Ans: a) physical properties

24. In water Hydrogen and Oxygen are combined in the ration of by volume.

- a) 3:4 b) 1:8 c) 2:1 d) 2:1

Ans: 2:1

25. Inhaled air contains% of carbondioxide

- a) 20 b) 4 c) 0.03 d) 3

Ans: c) 0.03

26. The ratio of hydrogen: oxygen by mass is

- a) 2:1 b) 4:3 c) 1:8 d) 1:2

Ans: c) 1:8

6. Name of the following

- a) matter that has a definite volume but does not have a definite shape.

Ans: liquid

- b) State of matter that does not have a definite volume for a given mass.

Ans: Gas

- c) state of matter in which liquids change on heating

Ans: Vapour

- d) State of matter with minimum space between molecules.

Ans: Solid

7. State whether the following statements are 'True' or 'False'. Change the false statements by changing the underlined words.

1. Liquids expand more than gases on heating.

Ans: Liquids expand less than gases on heating

2. Gases cannot be compressed easily with a little pressure.

Ans: Solids cannot be compressed easily with a little pressure.

3. Solids have no definite shape.

Ans: Liquids have no definite shape

4. Liquids have lower densities than gases.

Ans: Liquids have lower densities than solids.

5. Solids have very low densities.

Ans: Solids have very high densities.

8. Name the following based on the compositions:

- a) A type of substance that cannot be broken into simple substances chemically.

Ans: Elements

b) The substance resulting from the chemical combination of two or more elements in fixed proportion.

Ans: Compounds

c) Two or more substances are mixed together and the substances retain the individual original properties.

Ans: Mixtures

d) Mixture of two solids (metals)

Ans: Alloy

9. Fill in the blanks

1. The purity of a substance is often determined by measuring its **physical** properties.

2. Water is a colourless, odourless and tasteless liquid which boils at **100°C** at atmospheric pressure and freezes at **0°C** and has a density of **1 gm cm⁻³**. So water is pure substance and is classified as a compound.

10. Match the following

- | | |
|--------------------------------|--------------|
| A.1. Small units of an element | a) compound |
| 2. Clusters of 2 or 3 atoms | b) atoms |
| 3. Hydrogen | c) mixture |
| 4. Iron Sulphite | d) molecules |
| 5. The lead of the pencil | e) element |

Ans: 1-b, 2-d, 3-e, 4-a, 5-c

- | | |
|--------------------|-------------------------|
| B. Types of matter | Examples |
| 1. Element | a) Air |
| 2. compound | b) Sodium |
| 3. Homogenous | c) Juice with ice cubes |
| 4. Heterogeneous | d) water |

Ans: 1-b, 2-d, 3-a, 4-c

- | | |
|--------------------|-------------------------------|
| C. Types of matter | Examples |
| 1. Solid in solid | a) Charcoal with adsorbed gas |
| 2. Solid in liquid | b) smoke |
| 3. Solid in gas | c) coin |
| 4. Gas in solid | d) sea water |

Ans: 1-c, 2-d, 3-b, 4-a

- | | |
|---------------------|----------------------|
| D. Types of matter | Examples |
| 1. Liquid in solid | a) Alcohol and water |
| 2. Liquid in liquid | b) Soda |
| 3. Liquid in gas | c) Amalgam |
| 4. Gas in liquid | d) Cloud |

Ans: 1-c, 2-a, 3-d, 4-b

- | | |
|-------------------|----------------|
| E. Inhaled Air | Examples |
| 1. Nitrogen | a) 20% |
| 2. Oxygen | b) very little |
| 3. Carbon dioxide | c) 78% |
| 4. Moisture | d) 0.03% |

Ans: 1-c, 2-a, 3-d, 4-b

- | | |
|-----------------|----------|
| F. Gases in air | Examples |
|-----------------|----------|

- | | |
|-------------|---------------|
| 1. Nitrogen | a) Negligible |
| 2. Oxygen | b) 1% |
| 3. Argon | c) 75.50% |
| 4. Helium | d) 23.20% |

Ans: 1-c, 2-d, 3-b, 4-a

G. Process of separation

Examples

- | | |
|----------------------------|-------------------------------------|
| 1. Chromatography | a) Volatile and non-volatile solids |
| 2. Separating Funnel | b) dissolved solids |
| 3. Sublimation | c) miscible liquids |
| 4. Fractional Distillation | d) immiscible liquids |

Ans: 1-b, 2-d, 3-a, 4-c

11. Name the types of mixture for the following

- 1) Zinc amalgam (Zinc + Mercury)

Ans: Liquid in solid

2. Seawater.....

Ans: Solid in liquid

3. Soda drinks.....

Ans: Gas in liquid

4. Air.....

Ans: Gas in gas

5. Carbon particles in air (smoke).....

Ans: Solid in gas

6. Brass (Cu + Zinc an alloy)

Ans: Solid in Solid

7. Alcohol + Water

Ans: Liquid in liquid

12. Give an example for

- 1) Solid – Solid Homogeneous mixture

Ans: Alloy

- 2) Liquid – Liquid Homogeneous mixture

Ans: Tea

- 3) Gaseous – Gaseous Homogeneous mixture

Ans: Air

13. Write 'True' or 'False'. Correct the wrong statements

- 1) mixtures have definite boiling points and melting points (False)

Ans: Compounds have definite boiling points and melting points.

2. Compounds are always heterogeneous in nature (False)

Ans: Compounds are always homogeneous in nature.

3. In carbondioxide, carbon and hydrogen are combined in a fixed ratio. (True)

4. Mixtures can be homogeneous or heterogeneous in nature. (True)

- 5) Constituents of compounds can be separated by physical methods. (False)

Ans: Constituents of mixtures can be separated by physical methods. (False)

14. Choose the correct answer:

1) A mixture of two immiscible liquids can be separated by

- a) Filtration b) Separating funnel c) Distillation

Ans: b) Separating funnel

2. A mixture of alcohol and benzene can be separated by the process of

- a) distillation b) Evaporation c) Fractional distillation

Ans: c) Fractional distillation

3. A mixture of iodine and sand can be separated by.....

- a) filtration b) sublimation c) decantation

Ans: b) sublimation

4. Percentage of nitrogen in the atmospheric air is.....

- a) 23.20% b) 75.50% c) negligible

Ans: b) 75.50%

5. Seawater is a mixture of

- a) solid in liquid b) liquid in liquid c) liquid in gas

Ans: Solid in liquid

15. Complete the following table:

Sl.No	Type of Mixture	Example	Method of Separation
1	Mixture of two solids	Iron and sulphur	By using magnet
2	Mixture of insoluble heavy solid in water	Water and pebbles	Decantation
3	Volatile solid and Non volatile solid	Camphor and salt	Sublimation
4	Mixture of two miscible liquids	Water and Alcohol	Fractional Distillation
5	Floating impurities in water	Dry leaves in water	Screening
6	Mixture of immiscible	Water and Kerosene	Separating Funnel

16. Fill in the blanks.

1. Properties of compounds are different from those of its constituent

Ans: Element

2. Separation of Benzene – Toluene mixture can be done by

Ans: Fractional distillation

3. Separation of two or more dissolved solids can be carried out by which involves the distribution between a phase andphase.

Ans: Chromatography, moving, stationary

17. From the list given below, choose the suitable techniques to obtain the components in each mixture

(distillation, fractional distillation, sublimation, chromatography, separating funnel, filtration)

1. Water from ink

Ans: Chromatography

2. Iodine from the mixture of iodine and sand

Ans: Sublimation

3. Water from a mixture of Kerosene and water

Ans: Separating funnel

4. Water from a mixture of a Alcohol and water

Ans: Fractional distillation

5. Benzene from the mixture of Benzene and Toluene.....

Ans: Fractional Distillation

6. Sand from the suspension of sand and water.....

Ans: Filtration

7. Common salt from its solution with water

Ans: Distillation

18. Classify the following as solution, heterogeneous mixture, compound or element

a) sodium b) Glucose c) Lemon juice d) coal dust in sand e) Common salt

Ans:

- | | |
|----------------------|------------------------|
| a) Sodium | - Element |
| b) Glucose | - Compound |
| c) Lemon Juice | - Heterogenous mixture |
| 4. Coal dust in salt | - Heterogenous mixture |
| 5. common salt | - compound |

19. Spot the error and correct it:

1. Liquids have a definite shape

Ans: Solids have a definite shape

2. Air is a pure substance

Ans: Water is a pure substance

3. Fog is an example for gas in gas mixture.

Ans: Fog is an example for **liquid in gas** mixture.

4. In water the ratio of H:O by mass is 2:1

Ans: 4. In water the ratio of H:O by mass is **1:8**

5. Tea is an example for heterogeneous mixture

Ans: Tea is an example for **homogeneous** mixture

6. Miscible liquids can be separated by using separation funnel.

Ans: Immiscible liquids can be separated by using separation funnel.

20. Reason and Assertion

1. Assertion (A) : Solids expand only very slightly when heated

Reason (B) : Solids have high densities

- | | |
|------------------------------|----------------------------|
| a) A is correct B is wrong | b) A is wrong B is correct |
| c) A is correct B explains A | d) B does not explain A |

Ans: c) A is correct B explains A

2. Assertion (A) : Smoke is gas in solid

Reason (B) : Cloud is liquid in gas

- | | |
|----------------------------|-----------------------------|
| a) A is correct B is wrong | b) A is wrong B is correct |
| c) B explains A | d) Both A and B are correct |

Ans: b) A is wrong B is correct

3. Assertion (A) : Water is a compound

Reason (B) : It has definite boiling point, freezing point, density etc.

- a) A is correct B is wrong b) A is wrong B is correct
c) A is correct B explains A d) Both A and B are wrong

Ans: c) A is correct B explains A

4. Assertion (A) : Air is a homogeneous mixture

Reason (B) : Heterogeneous mixtures are called solutions

- a) A is correct B is wrong b) A is wrong B is correct
c) A is correct B explains A d) Both A and B are wrong

Ans: a) A is correct B is wrong

5. Assertion (A) : Sublimation is used to separate a volatile solid from a non-volatile solid

Reason (B) : Distillation is used to separate a non-volatile solid from a volatile liquid.

- a) A is correct B is wrong b) B is correct A is wrong
c) Both A and B are wrong d) B does not explain A

Ans: d) B does not explain A

21. Choose the correct answer from the given pair

1. have definite volume (Gases, Liquids)

Ans: Liquids

2. Air is a mixture (homogeneous, Heterogeneous)

Ans: homogeneous

3. Cool drinks are examples of Mixture (liquid in gas, gas in liquid)

Ans: gas in liquid

4. Water is a (mixture, compound)

Ans: compound

5. A mixture of common salt and camphor can be separated by..... (Sublimation, separating funnel)

Ans: Sublimation

22. Spot the odd and give reason:

1. Water, Milk, Tea, Fruit salad

Ans : Water

Reason: Water is a compound; others are mixtures.

2. Pure water, Sodium chloride, Sodium, Ammonium chloride

Ans : Sodium

Reason: Sodium is an element; others are compounds

3. Tea, Alloy, sugar solution, smoke

Ans : Smoke

Reason: Smoke is heterogeneous mixture while others are homogeneous.

4. Distillation, Decantation, Fractional Distillation, Chromatography

Ans : Decantation

Reason: Decantation is the process of separating heterogeneous mixtures but Distillation, Fractional Distillation and chromatography are methods used for separating homogeneous mixtures.

5. Boiling point, density, decomposition, freezing point

Ans : decomposition

Reason: Decomposition is not a physical constant like the others.

23. Classify the following as mixture or compound

1. Alloy _____ Mixture _____.

2. smoke Mixture.
3. Juice Mixture.
4. Milk Mixture.
5. Common salt Compound.
6. Coffee Mixture.
7. Carbon dioxide Compound.
8. Ice cream Mixture.

24. Classify each of the following as homogeneous or heterogeneous mixture

1. Tea - Homogeneous mixture
2. Ink - Heterogeneous mixture
3. Fruit - Heterogeneous mixture
4. Sugar Solution - Homogenous mixture

25. Mixtures components:

Sl.No	Mixture	Components
1	Nitrogen, oxygen, carbondioxide, rare gases	Air
2	Gasoline, naphtha, kerosene, paraffin wax, bitumen	Crude oil
3	Water, lipids, proteins, carbohydrates water, carbondioxide	Milk
4	Water, carbondioxide	Aerated drink
5	Iron, carbon, manganese, nickel	Stainless steel

26. Classify the mixtures as homogenous or heterogeneous.

Sl.No	Method of preparation mixture	Type of Mixture obtained
1	Sugar is added to water	Homogeneous mixture
2	Both sugar and salt are added to water	Homogeneous mixture
3	Smoke in air	Heterogeneous Mixture
4	Mixture containing rice and wheat	Heterogeneous Mixture

27. Name the methods of purification involved in separating components of the mixtures.

Sl.No	Type of mixture	Method of purification
1.	Salt solution	Evaporation
2.	Mixture containing petrol and kerosene	Fractional distillation
3.	Mixture containing kerosene in water	Separating Funnel
4.	Common salt and powdered camphor	Sublimation
5.	Water containing fine sand	Filtration

CHEMISTRY

Unit – IV ATOMIC STRUCTURE

1. Choose the correct answer:

1. Total number of electrons that can be accommodated in an orbit is given by $2n^2$ Maximum number of electrons that can be present in the first orbit is.....

- a) 8 b) 2 c) 18

Ans: b) 2

2. Goldstein discovered protons. It is present in the nucleus charge on the proton is.

- a) negative b) Positive c) neutral

Ans: b) Positive

3. A subatomic particle is revolving around the nucleus in orbits. It is negatively charged. It was discovered by J.J. Thomson. The Particle is.....

- a) Proton b) neutron c) electron

Ans: c) electron

4. Number of neutrons present in ${}^{73}_{3}\text{Li}$ is 4. The number of neutrons present in ${}^{16}_8\text{O}$ is.....

- a) 8 b) 7 c) 6

Ans: a) 8

5. Nucleus of an atom has two components. They are protons and.....

- a) Protons b) neutrons c) electrons

Ans: b) neutrons

6. The sum of the number of protons and neutrons present in the nucleus is called mass number. Find the number of protons in the following element.

Elements	Mass Number	Number of Protons	Number of Neutrons
Sodium	23	?	12

- a) 11 b) 23 c) 12

Ans: a) 11

7. Atomic number and mass number of ${}^{35}_{17}\text{Cl}$ are 17 and 35 respectively. The number of protons present in it is.....

- a) 17 b) 35 c) 18

Ans: a) 17

8. isotope is used for the treatment of goiter.

- a) Iodine -131 b) phosphorus -32 c) Iron – 59

Ans: a) Iodine -131

9. The electron distribution of fluorine is 2, 7. The valency of fluorine is

- a) 7 b) 2 c) 1

Ans: c) 1

10. Electron distribution of sodium is 2,8,1. The valency of sodium.....

- a) 2 b) 8 c) 1

Ans: c) 1

11. Every atom has equal number of protons and electrons. Both are oppositely charged. Neutron is electrically neutral. Neutron is electrically neutral. The nature of atom is

- a) Positive b) negative c) neutral

Ans: c) neutral

12. Father of Nuclear Physics

- a) J.J Thomson b) Rutherford c) Newton d) Chadwick

Ans: b) Rutherford

13. The mass of the atoms is due to the mass of

- a) protons b) neutrons c) nucleus d) electrons

Ans: c) nucleus

14. Alpha particles are ions.

- a) Hydrogen b) Oxygen c) Nitrogen d) Helium

Ans: d) Helium

15..... discovered that electrons revolve around the nucleus in stationary circular paths.

- a) Dalton b) Rutherford c) Neils Bohr d) James Chadwick

Ans: c) Neils Bohr

16. Protons and neutrons are collectively called

- a) electrons b) nucleus c) Mesons d) nucleons

Ans: d) nucleons

17. Isotopes differ in.....

- a) Mass number b) atomic number c) the number of protons d) the number of electrons

Ans: a) Mass number

18. The atomic number and mass number of sodium are 11 and 23 respectively. The number of neutrons is.....

- a) 11 b) 23 c) 34 d) 12

Ans: d) 12

19. Has fractional atomic mass.

- a) chlorine b) Hydrogen c) oxygen d) Nitrogen

Ans: a) chlorine

20. is used for treatment of goiter.

- a) iron – 59 b) iodine – 131 c) cobalt – 60 d) carbon – 11

Ans: b) iodine – 131

21. is used in the treatment of cancer.

- a) iron – 59 b) iodine – 131 c) carbon – 11 d) cobalt – 60

Ans: d) cobalt – 60

22. is used in the treatment of Anaemia.

- a) iron – 59 b) cobalt – 60 c) iodine – 131 d) phosphorous – 32

Ans: a) iron – 59

23. is used in brain scan.

- a) iodine – 131 b) iron – 59 c) carbon – 11 d) cobalt – 60

Ans: c) carbon – 11

24. is used in eye treatment.

- a) iron – 59 b) iodine – 131 c) phosphorous – 32 d) Cobalt – 60

Ans: c) phosphorous – 32

25. The maximum number of electrons in L shell is.....

- a) 2 b) 8 c) 18 d) 32

Ans: b) 8

26. The electronic configuration of Boron is 2,3 Its valency is

- a) 2 b) 4 c) 5 d) 3

Ans: d) 3

27. Neutron was discovered by

- a) Rutherford b) Goldstein c) Chadwick d) J.J Thomson

Ans: c) Chadwick

28. The negatively charged particles are

- a) electrons b) protons c) mesons d) neutrons

Ans: a) electrons

29..... have negligible mass.

- a) protons b) electrons c) neutrons d) nucleous

Ans: b) electrons

30. Is radioactive Hydrogen.

- a) Protium b) Deuterium c) Tritium d) none of these

Ans: c) Tritium

31. When an electron moves from a higher energy level to lower energy level energy.....

- a) increases b) is absorbed c) is given off d) there is no change

Ans: c) is given off

2. Write True or False. Correct the wrong statements

1. Most of the properties of elements and their components depend on their mass number (False)

Ans: Most of the properties of elements and their components depend on their **atomic** number

1. The Valency of $^{35}_{17}\text{Cl}$ is 7

Ans: The Valency of $^{35}_{17}\text{Cl}$ is 1

2. The number of electrons found in L shall will be 8. (True)

3. Isotopes of an element have same chemical properties. (True)

4. Electrons reduce the repulsive force between positively charged protons. (False)

Ans: Neutrons reduce the repulsive force between positively charged protons.

5. The stability of the nucleus is determined by the Neutron – proton ratio. (True)

6. When an electron returns from higher energy level to lower energy level, it absorbs energy. (False)

7. Smaller the size of the orbit, smaller is the energy of the orbit. (True)

8. Neils Bohr's atomic model does not explain the stability of atom. (False)

Ans: Rutherford's atomic model does not explain the stability of atom.

9. Bohr's theory became the basis of modern physics known as Quantum Mechanics. (True)

3. From the symbol $^{23}_{11}\text{Na}$ state the

1. Mass number of Sodium.....23.....

2. Atomic number of sodium11.....

3. Electronic configuration2,8,1.....

4. Number of Protons11.....

5. Number of Neutrons12.....

4. Correlate the facts with properties:

1	The denser part of atom	a) Valency
2	Chargeless particle	b) Atomic number
3	Outermost orbit	c) Nucleus
4	Number of electrons in the outermost orbit	d) Valence shell
5	Number of protons	e) Neutron
		f) proton

Ans: 1-c, 2-e, 3-d, 4-a, 5-b

5. Name the scientist

1. proposed the idea of atom as the smallest possible particle of any substance.

Ans: Dalton

2. performed the gold foil experiment with alpha particles to conclude that positive charge is at the centre of an atom.

Ans: Rutherford

3. discovered the protons

Ans: Goldstein

4. discovered the neutrons of an atom.

Ans: Chadwick

5. modified the atomic model with electrons revolving around the nucleus in stationary paths.

Ans: Niels bohr

6. Name the following

1. Total number of protons present in the nucleus.

Ans: Atomic number

2. The sum of the number of protons and neutrons present in the nucleus of an atom of an element.

Ans: Mass number

3. The atoms of an element that differ in mass number but have the same atomic number.

Ans: Isotopes

4. The shell which accommodates 18 electrons.

Ans: M shell

5. The electrons in the outermost energy level.

Ans: Valence electrons

6. The treatment of anaemia.....

Ans: Iron – 59

7. The treatment of cancer.....

Ans: Cobalt – 60

8. The treatment of Eyes.....

Ans: Phosphorous – 32

9. The brain scan

Ans: Carbon – 11

10. The treatment of goiter.....

Ans: Iodine – 131

7. Which of the following is/are not true about Rutherford's experiment

1. A very thin gold foil was bombarded by a stream of alpha particles. – **True**

2. Most of the particles passed straight through the foil. – **True**

3. Most of the space in the gold atoms is either vacant or occupied by some very light particles. – **Not True**

4. A few particles were deflected through an average angle of 90° - **True**

5. Very few of them were returned by an angle of 180° after hitting on the nucleus directly. – **True**

8. With reference to Rutherford's Atomic Model, Complete the following statements:

1. Protons and neutrons of an atom are concentrated in its

Ans: Nucleus

2. Atom has a very nucleus at the

Ans: small, centre

3. Entire mass of an atom is due to the mass of

Ans: nucleus

4. The nucleus is surrounded by which are equal to the number of And revolve around it.

Ans: electrons, protons

5. The nucleus is positively charged as it the charged particles.

Ans: contains protons, positively

9. Match the following

A.

Sl.No	Name of Scientist	Discovery
1	Ernest Rutherford	a) Proton
2	J.J.Thomson	b) Neutrons
3	Goldstein	c) Nucleus
4	Chadwick	d) Electrons

Ans: 1-c, 2-d, 3-a, 4-b

Sl.No	Orbit	No.Of Electrons
1	K shell	a) 8
2	M shell	b) 32
3	L shell	c) 18
4	N shell	d) 2

Ans: 1-d, 2-c, 3-a, 4-b

C. Match the following elements with their atomic number.

Sl.No	Elements	Atomic Number
1	Boron	a) 13
2	Carbon	b) 12
3	Magnesium	c) 5
4	Aluminium	d) 6

Ans: 1-c, 2-d, 3-b, 4-a

D. Match the following elements with their valencies.

Sl.No	Elements	Valency
1	Hydrogen	a) 3
2	Oxygen	b) 4
3	Carbon	c) 2
4	Aluminium	d) 1

Ans: 1-d, 2-c, 3-b, 4-a

10. Spot the error and correct it:

1. J.J.Thomson discovered the nucleus.

Ans: Rutherford discovered the nucleus.

2. Alpha particles are negatively charged

Ans: Alpha particles are positively charged.

3. The maximum number of electrons in an orbit is given by the principal quantum number

Ans: The maximum number of electrons in an orbit is given by $2n^2$

4. Isotopes of an element differ in atomic number

Ans: Isotopes of an element differ in mass number

5. Iodine-131 isotope is used in the treatment of anaemia.

Ans: Iron-59 isotope is used in the treatment of anaemia

11. Reason and Assertion

1. Assertion (A) : Electrons revolve around the nucleus in stationary circular paths.

Reason (R) : The paths are called orbits or shells or energy levels.

- a) A is right R is wrong
b) A is wrong R is right
c) A is right R explains A
d) R does not explain A

Ans: c) A is right R explains A

2. Assertion (A) : There is a heavy positive charge at the centre of an atom

Reason (R) : An atom is positively charged.

- a) A is correct R is wrong
b) A is wrong R is correct
c) A is correct R explains A
d) Both A and R are correct

Ans: a) A is correct R is wrong

3. Assertion (A) : Isotopes of an element have same chemical properties

Reason (R) : Isotopes differ in atomic number.

- a) A is correct R is wrong
b) A is wrong R is correct
c) A is correct R explains A
d) Both A and R are correct

Ans: a) A is correct R is wrong

4. Assertion (A) : To write electronic configuration the principal quantum number must be known.

Reason (R) : The number describes the number of orbits present in the atom.

- a) A is correct R is wrong
b) A is wrong R is correct
c) A is correct R explains A
d) R does not explain A

Ans: c) A is correct R explains A

5. Assertion (A) : The electronic configuration of sulphur is 2,8,6

Reason (R) : The electronic configuration of argon is 2,8,8

- a) A is correct R is wrong
- b) A is wrong R is correct
- c) R explains A
- d) A is correct R does not explain A

Ans: d) A is correct R does not explain A

12. Choose the correct answer from the given pair

1. Alpha particles are charged. (Positively/negatively)

Ans: Positively

2. When an electron energy, it jumps from lower energy level to higher energy level. (gives off/absorbs)

Ans: absorbs

3. Isotopes differ in the number of (protons/ neutrons)

Ans: neutrons

4. Total number of protons in the nucleus of an atom (mass number/atomic number)

Ans: atomic number

5. Heavy hydrogen is (Deuterium / Protium)

Ans: Deuterium

13. Spot the odd one and give reason:

1. Proton, Electron, Neon, Neutron.

Ans : Neon

Reason : It is an element. Others are subatomic particles.

2. Carbon, Nitrogen, Oxygen, Lithium.

Ans : Lithium

Reason : Lithium has 3 protons and 4 neutrons. But carbon, Nitrogen and oxygen have the same number of protons and neutrons.

3. Hydrogen, sodium, Magnesium, Chlorine.

Ans : Magnesium

Reason : Magnesium is divalent (valency = 2). The valency of Hydrogen, Sodium and chlorine is 1. They are monovalent.

4. Calcium, Protium, Deuterium, Tritium

Ans : Calcium

Reason : Calcium is an element; others are isotopes of hydrogen.

5. Shell, orbit, energy level, valency.

Ans : Valency

Reason : Valency is the combining capacity of elements. Shell, orbit and energy level are the paths in which electrons revolve.

PHYSICS

Unit – V Measurement and Measuring Instruments

1. Choose the correct answer:

1. The smallest value that any instrument can measure is called _____ of the instrument.

a) range

b) least count

c) millimeter

d) error

Ans: b) least count

2. The values between the minimum measurable value and the maximum value that can be measured is called _____.

a) range

b) error

c) length

d) least count

Ans: a) range

3. If the value is greater than that of actual value, it is called _____ error.

a) negative

b) parallax

c) positive

d) zero

Ans: c) positive

4. The least count of the Vernier is

a) 0.01 mm

b) 1 mm

c) 0.01 cm

d) 1 cm

Ans: c) 0.01 cm

5. The accuracy of digital balance

a) 1 g

b) .1 g

c) 10 g

d) 0.001 g

Ans: d) 0.001 g

6. The SI unit of weight is

- a) gram
- b) kilogram
- c) milligram
- d) newton

Ans: d) newton

7. _____ is used to measure the weight of human beings.

- a) spring balance
- b) weigh bridge
- c) Medical scale
- d) Digital balance

Ans: c) Medical scale

8. _____ is commonly used for measuring mass in shops.

- a) Physical balance
- b) Weigh bridge
- c) Two pan balance
- d) Hydraulic bridge

Ans: c) Two pan balance

9. _____ is the most accurate clock.

- a) quartz clock
- b) mechanical clock
- c) water clock
- d) atomic clock

Ans: d) atomic clock

10. Atomic clocks lose or gain 1 second in _____ days.

- a) 5
- b) 10^9
- c) 100
- d) 10^6

Ans: b) 10^9

11. The earth is divided into _____ time zones.

- a) 24
- b) 12
- c) 10
- d) 100

Ans: a) 24

12. _____ is used to measure the weight of lorries.

- a) Hydraulic scale
- b) Weigh bridge
- c) Spring balance
- d) Digital balance

Ans: b) Weigh bridge

13. The clock based on the principle of the shadow of an object being formed on the ground

- a) Water clock
- b) sun dial
- c) graduated candle
- d) quartz clock

Ans: b) sun dial

14. The SI unit of mass is _____.

- a) newton
- b) kilogram
- c) gram
- d) milligram

Ans: b) kilogram

15. 1 nanometer is equal to _____.

- a) 10^{-3}
- b) 10^{-6}
- c) 10^9
- d) 10^{-9}

Ans: d) 10^{-9}

16. 10^6 is 1 _____ meter.

- a) micro
- b) hector
- c) nano
- d) mega

Ans: d) mega

17. If the zero of the vernier scale is to the left of the main scale zero, the error is

- a) positive
- b) negative
- c) none of these
- d) parallax

Ans: d) negative

18. In ancient times the position of _____ was used to find time during night.

a) moon b) candles c) shadow d) stars

Ans: d) stars

19. 1.5×10^7 ms is equivalent to

a) 0.5 s b) 5 s c) 50 s d) 500 s

Ans: c) 50 s

20. which of the following parts of a Vernier calipers are used to measure the internal diameter of a cylindrical pipe?

a) depth probe b) retainer c) lower jaws d) upper jaws

Ans: upper jaws

21. What is the least count of your wrist watch? Is it same for all kinds of watches?

Ans: Least count of wrist watch = 1 sec; it is the same for all kinds of watches.

22. Name the clock which is used to measure short time intervals accurately.

Ans: Atomic clock

23. The wavelength of monochromatic light is $6000 \text{ \AA}$. Write this value in nm.

Ans: $1000 \text{ \AA} = 10 \text{ nm}$

$6000 \text{ \AA} = 600 \text{ nm}$

2. Match the following:

A)

Sl.No	Characteristics		Value
1.	Least Count	a)	Greater than actual value
2.	Range	b)	Less than actual value
3.	Positive Error	c)	Smallest value
4.	Negative Error	d)	Between minimum and maximum value

Ans: 1 – c, 2 – d, 3 – a, 4 – b

B)

Sl.No	Clock		Principle
1.	Atomic clock	a)	Steady flow of water
2.	Quartz clock	b)	galileo's discovery
3.	Water clock	c)	cesium atom
4.	Mechanical clock	d)	Liquid crystal display

Ans: 1 – c, 2 – d, 3 – a, 4 – b

C) Match the following Factors with their symbols:

Sl.No	Factor		Symbol
1.	10^{-1}	a)	D
2.	10^{-3}	b)	μ
3.	10^{-6}	c)	m
4.	10^{-9}	d)	d

Ans: 1 – d, 2 – c, 3 – b, 4 – a

D) Match the following Factors with their prefixes:

Sl.No	Factor		Symbol
1.	10^1	a)	mega
2.	10^3	b)	giga
3.	10^6	c)	kilo

4.	10^9	d)	deca
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Ans: 1 – d, 2 – c, 3 – a, 4 – b

E.

Sl.No	Device		Places of use
1	Beam balance	a)	Jewellery shop
2	Medical balance	b)	Laboratories
3	Physical balance	c)	Hospitals
4	Digital balance	d)	Markets

Ans: 1-d, 2-c, 3-b, 4-a

3. Spot the error and correct it:

1. If the value is greater than the actual value, it is called Negative error.

Ans: If the value is greater than the actual value, it is called Positive error.

2. Mass varies from place to place.

Ans: Weight varies from place to place.

3. Common (beam) balance is used in jewellery shop.

Ans: Digital balance is used in jewellery shop.

4. The pendulum clock was invented by aristotle.

Ans: The pendulum clock was invented by Galileo.

5. Quartz clock is the most accurate clock.

Ans: Atomic clock is the most accurate clock.

4. Reason and Assertion

1. Assertion (A) : The unit of mass is kilogram.

Reason (R) : Mass of a body is the measure of the quantity of matter contained in a body.

a) A is correct R is wrong

b) R is correct A is wrong

c) A is correct R explains A

d) R does not explain A

Ans: c) A is correct R explains A

2. Assertion (A) : Hydraulic scale is used to measure the weight of lorries.

Reason (R) : Medical scale is used to measure the body weight of human beings.

a) A is correct R is wrong

b) R is correct A is wrong

c) A is correct R explains A

d) Both A and R are correct

Ans: b) R is correct A is wrong

3. Assertion (A) : Atomic clock is the most accurate clock.

Reason (R) : Time period is directly proportional to length

a) A is correct R is wrong

b) R is correct A is wrong

c) A is correct R explains A

d) Both A and R are wrong

Ans: a) A is correct R is wrong

4. Assertion (A) : Water clocks are based on containers which are slowly filled with water.

Reason (R) : One complete to and for motion of the bob is amplitude

a) A is correct R is wrong

b) R is correct A is wrong

c) A is correct R explains A

d) Both A and R are wrong

Ans: a) A is correct R is wrong

5. Assertion (A) : The symbol for nano is η

Reason (R) : nano is 10^{-9}

- a) A is correct R is wrong
 b) A is wrong R is correct
 c) A is correct R explain A
 d) R does not explains A

Ans: c) A is correct R explain A

5. Choose the correct answer from the given pair

1. If the zero of the Vernier scale is to the right of the main scale zero, the error is (Positive/negative)

Ans: positive

2. varies from place to place. (mass/ weight)

Ans: Weight

3. Balance is used in jewellery shop. (common balance/ digital balance)

Ans: digital balance

4. Is the most accurate clock. (quartz clock/ atomic clock)

Ans: Atomic clock

5. time is calculated by the position of the sun. (Local time/ standard time)

Ans: Local time

6. Spot the odd one and give reason:

1. Mechanical clock, Water clock, quartz clock, atomic clock.

Ans: water clock

Water clock is the instrument used for measuring time in ancient times. Others are clocks used in modern days.

2. Common balance, two pan balance, digital balance, physical balance

Ans: Digital balance

Digital balance is used for measuring weight; others are used for measuring mass.

3. Positive error, Negative error, parallax error, zero error

Ans: Parallax error

Parallax error refers to eye position others are characteristics of measuring instruments like Vernier.

4. Sun digital, sand clock, mechanical clock, water clock

Ans: Mechanical clock

Mechanical clock is used in modern days. Others were used in ancient times.

7. Complete the Table

Factor	Prefix	Symbol
10^{-1}	Desi	d
10^{-6}	Micro	μ
10^9	Giga	G
10^6	Mega	M

PHYSICS

Unit – VI Motion

1. Choose the correct answer

1. Arrange the following speeds in the ascending order.

(7m/s, 15km/hr, 2km/minute, 0.1 m/millisecond)

Ans: 15km/hr, 7m/s, 2 km/minute, 1m/millisecond

2. When a body starts from rest, the acceleration of the body after 2 seconds is of its displacement.

- a) half b) twice c) four times d) one fourth

Ans: d) one fourth

3. The gradient or slope of the distance-time graph at any point gives.....

- a) acceleration b) displacement c) velocity d) time

Ans: c) velocity

4. The area under the velocity – time graph represents the the moving object.

- a) velocity of b) displacement covered by c) acceleration of speed of

Ans: b) displacement covered by

5. In a 100m race, the winner takes 10s to reach the finishing point. The average speed of the winner ism/s

- a) 5 b) 10 c) 20 d) 40

Ans: b) 10m/s

6. Give an example of a motion in which the displacement is zero, but the distance travelled is not zero.

Ans: A girl runs along a circular path and comes back to the starting point.

7. Is acceleration a scalar or a vector quantity?

Ans: Vector quantity

8. What determines the direction of motion of an object-velocity or acceleration.

Ans: Velocity

9. What is the nature of the displacement time graph of a body moving with constant acceleration?

Ans: Displacement – time graph would be a straight line

10. The shortest distance between 2 points.

- a) 1km b) distance c) displacement d) curved path

Ans: b) distance

11. Scalar quantity

- a) Displacement b) speed c) velocity d) acceleration

Ans: b) speed

12. Unit of angular velocity.

- a) m/s b) radian c) radian/second d) cm/s

Ans: c) radian/second

13. Velocity of a car changes from 10 m/s to 50m/s in 10 seconds. What will be its acceleration.

- a) 2m/s^2 b) 3m/s^2 c) 4m/s^2 d) 5m/s^2

Ans: c) 4m/s^2

14. If the velocity of the body decreases with time the acceleration is

- a) positive b) decelerated motion c) uniform acceleration d) retardation

Ans: d) retardation

15. In the case of non-uniformly accelerated motion, velocity time graph will be

- a) a straight line b) a curved line c) of any shape d) a trapezium

Ans: c) of any shape

16. An electron revolves around the nucleus due to

- a) centrifugal force b) gravitational force c) frictional force d) electrostatic force

Ans: d) electrostatic force

17. The moon revolves around the earth due to Force.

- a) centrifugal b) electrostatic c) gravitational d) frictional

Ans: c) gravitational

18. SI unit for measuring angle.

- a) radian/second b) radian c) degree d) minute

Ans: b) radian

19. When a body is thrown vertically upwards the velocity of the body.

- a) increase b) remains the same c) decreases d) increases and decreases

Ans: c) decreases

20. The formula for calculation of centripetal force.

- a) rw b) mv^2/r c) $v-u/t$ d) $ut+1/2 at^2$

Ans: b) mv^2/r

21. The formula for acceleration is

- a) $a=v-u/t$ b) $a=v-t/u$ c) $a=u-v/t$ d) $a=u-t/v$

Ans: a) $a=v-u/t$

22. The constant force that acts on the body along the radius towards the centre.

- a) weight b) centripetal force c) thrust d) centrifugal force

Ans: b) centripetal force

23. The unit of acceleration

- a) m/s b) m/s^2 c) rad d) rad/s^2

Ans: b) m/s^2

24. The rate of change of velocity.

- a) speed b) angular velocity c) acceleration d) displacement

Ans: c) acceleration

25. The average value of 'g' is

- a) $100 m/s^2$ b) $9.8 m/s$ c) $9.8 m/s^2$ d) $.9 m/s^2$

Ans: c) $9.8 m/s^2$

26. In uniform circular motion the speed is

- a) constant b) increasing c) changing d) decreasing

Ans: a) constant

27. When a ball reaches the maximum height its velocity is

- a) maximum b) minimum c) zero d) the same

Ans: c) the zero

28. The shortest distance between two points.

- a) distance b) displacement

Ans: b) displacement

29. Planets revolve around the sun due to force.

- a) centripetal b) centrifugal

Ans: centripetal

30. The value of 'g' is

- a) $9.8 m/s^2$ b) $98m/s^2$

Ans: a) $9.8 m/s^2$

31. For a freely falling body the velocity is zero.

- a) final b) initial

Ans: b) initial

32. For an electron revolving around the nucleus in a circular path..... Force provides the necessary centripetal force.

- a) gravitational b) electrostatic

Ans: b) electrostatic

2. complete the following sentences:

1. A body is thrown vertically upwards with a velocity of 1000 m/s. its velocity when it reaches the point of projection. During the fall will be.....

Ans: Zero

2. The acceleration of the body that moves with a uniform velocity will be

Ans: Zero

3. A train travels from station A to station B with a velocity of 100km/h and returns from station B to station A with a velocity of 80km/h. its average velocity during the whole journey is 90km/h and its average speed is

Ans: 90 km/h

3. Match the following

A.

Sl.No	Physical Quantity		Unit
1	Speed	a)	Radian /s
2	Displacement	b)	m/s
3	Acceleration	c)	m
4	Angular Velocity	d)	m/s ²

Ans: 1-b, 2-c, 3-d, 4-a

B.

Sl.No	Motion		Example
1	Uniform motion	a)	Athlete running along a circular path
2	Non-uniform motion	b)	Motion of tortoise
3	Circular motion	c)	Motion of hare

Ans: 1- b, 2-c, 3-a

Sl.No	Type of force		Example
1	Gravitational force	a)	Car moving
2	Frictional force	b)	Planets revolving round the sun
3	Electrostatic force	c)	Electrons revolving round the nucleus

Ans: 1-b, 2-d, 3-a, 4-c

4. Complete the table:

Sl.No	Physical Quantity	Unit
1	Velocity	m/s
2	Acceleration	m/s ²
3	Angular displacement	rad
4	Angular velocity	rad/s

5. Spot the error and correct it

1. Distance is a vector quantity.

Ans: Displacement is a vector quantity.

2. If the velocity of the body increases with time, the acceleration is called retardation.

Ans: If the velocity of the body increases with time, the acceleration is called **Positive Acceleration**

3. For the freely falling body the final velocity is zero

Ans: For the freely falling body the **Initial velocity** is zero

4. The rate of change of velocity is called angular velocity.

Ans: The rate of change of velocity is called **acceleration**.

5. Electrons revolving round the nucleus is gravitational force

Ans: Electrons revolving round the nucleus is **centripetal force**

5. Reason and Assertion

1. Assertion (A) : Velocity is a scalar quantity.

Reason (R) : If the velocity of the body increase with time the acceleration is positive.

- a) A is correct R is wrong
- b) R is correct A is wrong
- c) R explains A
- d) Both A and R are correct

Ans: b) R is correct A is wrong

2. Assertion (A) : The average value of 'g' is 9.8 m/s^2

Reason (R) : Acceleration due to the gravitational force of earth is known as acceleration due to gravity.

- a) A is correct R is wrong
- b) A is wrong R is correct
- c) A is correct R explains A
- d) Both A and R are wrong

Ans: c) A is correct R explains A

3. Assertion (A) : SI unit of Angular Velocity is radian.

Reason (R) : Linear velocity = Radius of the circle $\times$ Angular velocity

- a) A is correct R is wrong
- b) A is wrong R is correct
- c) A is correct R explains A
- d) Both A and R are correct.

Ans: b) A is wrong R is correct

4. Assertion (A) : Uniform circular motion is a special case where the speed of an object is constant but direction changes.

Reason (R) : Centripetal acceleration acts perpendicular to the centre.

- a) A is correct R is wrong
- b) A is wrong R is correct
- c) A is correct R explains A
- d) Both A and R are correct

Ans: a) A is correct R is wrong

5. Assertion (A) : The moon revolves round the earth due to gravitational force.

Reason (R) : Electrons revolve round the nucleus due to centripetal force.

- a) A is correct R is wrong
- b) A is wrong R is correct
- c) A is correct R explains A
- d) Both A and R are correct

Ans: d) Both A and R are correct

6. Spot the odd one and give reason:

1. Speed, displacement, velocity, acceleration.

Ans: Speed

Speed is a scalar quantity. Others are vector quantities.

2. Walking, cycling, book on table, moving car.

Ans: Book on table

The book on table is at rest while others are in the state of motion.

PHYSICS**Unit – VII Liquids****1. Choose the correct answer**

1. Pick the odd one from the following with respect to the properties of a liquid.

- a) They have definite volume
- b) Liquids are incompressible
- c) They have their own shape
- d) They have definite mass

Ans: c) They have their own shape

2. Every liquid exerts an upward force on the objects immersed in it. The upward force is called.....

- a) Gravitational force
- b) Buoyant force
- c) Mechanical force
- d) Magnetic force

Ans: b) Buoyant force

3. The upward thrust is equivalent to

- a) hg
- b) mg
- c) pg
- d) hp

Ans: b) mg

4. If the density of a liquid increases, the upthrust will.....

- a) increase
- b) Decrease
- c) increases or decreases
- d) Remain the same

Ans: a) increase

5. Buoyant force acting on an object is equal to the.....

- a) mass of the solid
- b) Weight of the solid
- c) Weight of liquid displaced by the object
- d) Mass of the liquid displaced by the object

Ans: c) Weight of liquid displaced by the object

6. take the shape of the container.

- a) solids
- b) Liquids
- c) Gases
- d) None

Ans: b) Liquids

7. The pressure inside a liquid increases with

- a) mass
- b) area
- c) volume
- d) depth

Ans: d) depth

8. Is equal to the weight of the liquid displaced.

- a) Buoyant force
- b) Wt. of the solid
- c) Gravitational force
- d) Wt. of the liquid

Ans: a) Buoyant force

9. A bucket under water in a well is

- a) heavier
- b) lighter
- c) without change
- d) twice as heavy

Ans: b) lighter

10. Archimedes discovered

- a) electricity
- b) principle of moments
- c) gravitational force
- d) principle of lever

Ans: d) principle of lever

11. The formula for pressure $p = \dots\dots\dots$

- a) hg b) ha c) hdg d) ahd

Ans: c) hdg

11. Loss of Wt. in water =

- a) Wt. of the immersed solid b) Wt. of the displaced liquid
c) Zero d) Wt. of the beaker

Ans: b) Wt. of the displaced liquid

12. What is the unit of relative density.

- a) g/cc b) kgm^{-3} c) It has no unit d) N/m^2

Ans: c) It has no unit

13. An iron piece floats in mercury but sinks in water because of

- a) greater density of mercury b) greater density of water
c) greater density of iron d) lesser density of iron

Ans: a) greater density of mercury

14. Is used to test the purity of milk.

- a) Hydrometer b) Lactometer c) Test Tube Float d) Measuring Jar

Ans: b) Lactometer

15. The weight of the body in air is 20 N. Wt. in water is 16N what is its relative density

- a) 4 b) 8 c) 1.5 d) 5

Ans: d) 5

16. A body floats when the upthrust is..... the weight of the body

- a) lesser than b) greater than c) equal to d) half

Ans: b) greater than

17. The density of mercury is

- a) 13600 kgm^{-3} b) 1360 kgm^{-3} c) 3600 kgm^{-3} d) 1000 kgm^{-3}

18. The principle used in hydrometer is.....

- a) Law of floatation b) Archimedes principle
c) Boyle's law d) Charles Law

Ans: a) Law of floatation

19. Density of water is

- a) 13600 kgm^{-3} b) 1360 kgm^{-3} c) 3600 kgm^{-3} d) 1000 kgm^{-3}

Ans: d) 1000 kgm^{-3}

20. The ratio of density of the body to the density of water is

- a) Relative density b) Buoyancy c) Viscosity d) Density of body

Ans: a) Relative density

21. When a body is immersed in a fluid, it experiences an apparent loss of

- a) volume b) pressure c) weight d) Matter

Ans: c) Weight

22. A lactometer is a

- a) test tube float
b) constant immersion hydrometer
c) variable immersion hydrometer
d) manometer

Ans: c) variable immersion hydrometer

23. Has no unit.

- a) Density b) Relative Density

Ans: Relative Density

24. Density of water

- a)
- 1000kgm^{-3}
- b)
- 13600kgm^{-3}

Ans: a) 1000kgm^{-3}

25. Is used to test the purity of milk.

- a) Lactometer b) Common hydrometer

Ans: a) Lactometer

26. If the density of a liquid increases, the upthrust will.....

- a) increase b) decrease

Ans: a) increase**2. Match the following****A)**

Sl.No	Quantity		Unit
1	Weight	a)	No unit
2	Density	b)	N/m
3	Relative Density	c)	kg
4	Pressure	d)	Kgm^{-3}

Ans: 1-c, 2-d, 3-a, 4-b**B. Match the following formulae**

Sl.No	Quantity/Apparatus		Formulae
1	Pressure	a)	Mg
2	Relative Density	b)	Hdg
3	Buoyant force	c)	Wt.in air/Loss of Wt. in water

Ans: 1-b, 2-c, 3-a**3. Spot the error and correct it**

1. Relative density is the mass per unit volume of the body.

Ans: density is the mass per unit volume of the body.

2. Density has no unit.

Ans: Specific gravity has no unit.

3. Buoyant force acts downwards.

Ans: Buoyant force acts upwards

4. Relative density of solid = Loss of Wt. in liquid/ Loss of Wt. in water

Ans: Relative density of liquid = Loss of Wt. in liquid/ Loss of Wt. in water**4. Reason and Assertion:**

1. Assertion (A) : Liquids are incompressible

Reason (R) : They show little change in volume even when large compressive forces are applied.

a) A is correct R is wrong

b) R is correct A is wrong

c) A is correct R does not explain A

d) R explains A

Ans: d) R explains A

2. Assertion (A) : when a body floats or immerses in a liquid, the upward force is called buoyant force

Reason (R) : Density has no limit

- a) A is correct R is wrong
b) A is wrong R is correct
c) Both A and R are wrong
d) R explains A

Ans: a) A is correct R is wrong

3. Assertion (A) : An iron piece floats in mercury but sinks in water

Reason (R) : The density of mercury is greater than the density of water.

- a) A is correct R is wrong
b) R is correct A is wrong
c) R explains A
d) R does not explain A

Ans: c) R explains A

4. Assertion (A) : When a body is immersed in water, its weight in water is greater than its weight in air.

Reason (R) : Lactometer is used to test the purity of milk.

- a) A is correct R is wrong
b) A is wrong R is correct
c) A is correct R explains A
d) Both A and R are wrong

Ans: b) A is wrong R is correct

5. Assertion (A) : A common hydrometer is of variable immersion type

Reason (B) : Lactometer is of constant immersion type

- a) A is correct R is wrong
b) R is correct A is wrong
c) R explains A
d) Both A and R are wrong

Ans: a) A is correct R is wrong

5. Spot the odd one and give reason

- ## 1. Density, Pressure, Relative density, Mass

Ans: Relative density

Relative density has no unit. Others have no units.

- ## 2. Variable immersion hydrometer, common hydrometer, Lactometer, Altimeter

Ans: Altimeter

Altimeter is used for determining height. The others are used for finding relative density.

3. Water screw, lever, lightning arrester, devices to drop heavy weights.

Ans: Lightning arrester

Lightning arrester was invented by Benjamin Franklin while the others were invented by Archimedes.

4. Cork, iron, gold, mercury

Ans: Cork

Density of cork is very low while the others have high densities.

5. Liquids have definite volume, Liquids dissolve many substances, liquids have definite density, Liquids have definite mass.

Ans: Liquids dissolve many substances

This is not a physical property like the others.

Term-II

BIOLOGY

Unit – I Improvement In Food Resources

1. Choose the correct answer:

1. This is an exotic variety of honey bee.

- a) Apis florae b) Apis Admsoni c) Apis indica d) Apis dorsata

Ans: b) Apis Admsoni

2. Large ponds and the fingerlings are fed with artificial feed.

- a) Breeding ponds b) Nursing ponds c) Hatchery ponds d) Stocking ponds

Ans: d) Stocking ponds

3. This insecticide is used to kill root-cutting insects.

- a) Malathion b) Metasystox c) Lindane d) Chloropyriphos

Ans: d) Chloropyriphos

4. These crops are grown for oilseeds.

- a) Maize b) Sunflower c) Rice d) wheat

Ans: b) Sunflower

5. This is an Indian breed of fowl.

- a) Plymouth b) Rhode island c) Leghom d) Aseel

Ans: d) Aseel

6. Silver revolution means.

- a) The increase in egg production b) The increase in milk production
c) Fish ad prawn culture d) rearing of honey bees for honey and wax

Ans: a) The increase in egg production

7. Soil borne disease is _____.

- a) Tikka disease b) Blast Disease

Ans: a) Tikka disease

8. Airborne disease is _____.

- a) Blight disease b) Rust disease

Ans: b) Rust disease

2. Fill in the blanks:

1. For growth and reproduction of plants _____ elements are important.

Ans: 16

2. _____ is a macronutrient.

Ans: Nitrogen

3. _____ is a micronutrient.

Ans: Zinc

4. Insecticide is _____.

Ans: DDT

5. Rust of wheat is a/an _____ disease.

Ans: Air-borne

6. _____ is present in milk.

Ans: Potassium

7. Maximum protein content is in _____.

Ans: meat

8. Fish fingerlings are seen in _____.

Ans: rearing ponds

9. Fertilizers are used to increase growth of fishes in _____.

Ans: stocking ponds

10. The fishes are retained for _____ days in nursery pond.

Ans: 20

11. India ranks _____ in the world in total fish production.

Ans: seventh

12. Little bee is called _____.

Ans: apis florea

13. 1 kg of honey contains _____ calories.

Ans: 3200

14. The male bees are called _____.

Ans: drones

15. Nectar is converted into honey in the _____ of bees.

Ans: stomach

3. Match the following:

- | | |
|----------------|-----------------------|
| 1. Insecticide | - a) Zinc phosphate |
| 2. Fungicide | - b) 2, 4 -D |
| 3. Weedicide | - c) Bordeaux mixture |
| 4. Rodenticide | - d) D.D.T |

Ans: 1 – d, 2 – c, 3 – b, 4 – a

B. Match the following:

- | | |
|---------------------------|-----------------------------|
| 1. Monoculture | a) Natural feed |
| 2. Extensive fish culture | b) single type of fish |
| 3. Polyculture | c) Artificial feed |
| 4. Intensive fish culture | d) One or more type of fish |

Ans : 1 – b, 2 – a, 3 – c, 4 – d

C. Match the following

- | | |
|----------------|-----------------------------|
| 1. Seed borne | a) Rust of wheat |
| 2. Soil borne | b) Bacterial blight of rice |
| 3. Air borne | c) Loose smut of wheat |
| 4. Water borne | d) Tikka disease |

Ans : 1 – c, 2 – d, 3 – a, 4 – b

D. Match the following

- | | |
|-----------------|---------------------------------------|
| 1. Insecticides | a) Bordeaux mixture |
| 2. Fungicides | b) Zinc phosphate Arsenic |
| 3. Rodenticides | c) 2-4 Dichlorophenoxy acetic acid |
| 4. Weedicides | d) Dichloro diphenyl trichloro ethane |

Ans : 1 – d, 2 – b, 3 – c, 4 – a

E. Match the following

- | | |
|--------------------|--|
| 1. Poultry farming | a) Apis dorsata, Apis florea, Apis indica. |
|--------------------|--|

- | | |
|-----------------------|---|
| 2. Pisciculture | b) Chittagong, Aseel, Karaknath and Busra. |
| 3. Aquaculture canals | c) Breeding of fishes in rivers, streams, ponds & irrigation |
| 4. Apiculture | d) Prawns, lobsters, fish, pearl oysters, mussels, crabs etc. |

Ans: 1 – b, 2 – c, 3 - d, 4 – a

E. Match the following

- | | |
|--------------------------|------------------|
| 1. Breeding fish | a) Hatchery pond |
| 2. Fish fingerlings | b) Breeding pond |
| 3. Hatching young fishes | c) Rearing pond |

Ans : 1 – b, 2 – c, 3 - a

4. Spot the mistakes in the given statements:

- a) Blast of rice is a seed-borne disease.
Ans: Blast of rice is an air-borne disease.
- b) Winter ploughing helps to protect crops from pest.
Ans: Summer ploughing helps to protect crops from pests.
- a) The production of mule is an example of inbreed.
Ans: The production of mule is an example of interspecific hybridization.
- b) Artificial insemination helps to produce improved breeds in poultry farming.
Ans: Artificial insemination helps to produce improved breeds in animal breeding.
- a) The protein content of fish helps in good vision.
Ans: The Vitamin A content of fish helps in good vision.
- b) Growing one or more types of fishes is called integrated fish culture.
Ans: Growing one or more types of fishes is called polyculture.

5. Reason and Assertion

- Assertion (A) : Extensive fish culture means growing fish on natural feed.
Reason (R) : The vitamin-A content of fish liver helps in good vision.
a) A and R are right b) A and R are wrong
c) R explains A d) A is right R is wrong
Ans: a) A and R are right
- Assertion (A) : Pesticides are toxic chemicals.
Reason (R) : They have to be used in excess to kill the pests.
a) A and R are right b) A and R are wrong
c) R explains A d) A is right R is wrong
Ans: d) A is right R is wrong
- Assertion (A) : Hybridization leads to formation of individuals with desirable qualities.
Reason (R) : Genetically similar parents are selected for hybridization.
a) A and R are right b) A and R are wrong
c) R explains A d) A is right R is wrong
Ans: d) A is right R is wrong

6. Find the odd one out:

- Selfing, bagging, inbreeding, emasculation.
Ans: Inbreeding

The other three are stages in hybridization.

2. Bone meal, meat, soyabean, oats.

Ans: Meal

The others are poultry feed.

- ### 3. Manganese, Zinc, Nitrogen, Copper.

Ans: Nitrogen

Nitrogen is a macro nutrient. The others are micro nutrients.

BIOLOGY

Unit – II HUMAN BODY ORGAN SYSTEM

1. Answer the following Questions:

1. Study the relationship of the given pair and write the missing word or sentences

- a) Heart : pericardium ; Lung: Pleura
- b) Mouth : saliva ; Liver: Bile
- c) Skin : Prevents the entrance of ; WBC: Attack the invading germs and infectious agents. protect our body.

2. Understand the given words below, then write the name of the missing muscles.

- Inspiration : Scalene and External intercostals muscles.

- Expiration : 1. internal intercostals muscles
2. Transverse thoracis

Ans: Diaphragm

2. Find the odd one out:

a) Oesophagus	Stomach	Bronchi	Ileum	Colon	Bronchi
b) Capsule,	Platelet	Nephron	Ureter	Urethra	Platelet
c) Patella	Incisors	Canines	Pre-molar	Urethra	Patella
d) Cervical	cardiac	Thoracic	Lumber	Sacral	cardiac
e) Larynx	Urethra	Trachea	Bronchi	Alveoli	Urethra

3. Correct the mistake:

1. Hypodermis helps in thermoregulation.

Ans: Sweatglands help in thermoregulation.

2. Each lung is surrounded by pericardium.

Ans: Each lung is surrounded by **pleura**.

4. Fill in the blanks:

No. of bones in

1. The Face..... **(Ans: 16)**
2. In Wrist..... **(Ans: 8)**
3. No. of lumbar vertebrae **(Ans: 5)**
4. No. of teeth in each jaw **(Ans: 16)**

5. a) Match the following

A	B
1. Femur 2. Tibia 3. Scapula 4. Clavicle 5. Humerus	a) Upper arm bone b) Shoulder blade c) Thigh bone d) Shin bone e) Collar bone

Ans:

A	B
1. Femur 2. Tibia 3. Scapula 4. Clavicle 5. Humerus	a) Thigh bone b) Shin bone c) Shoulder blade d) Collar bone e) Upper arm bone

B) Match the following Movements:

Name	Location	Movements
Pectorals	Between ankle and knee	Arm raising
Biceps	Shoulders	Raising or lowering of toes
Calves	Chest	Arm bending & twisting
Deltoids	Front portion of the upper arm	Drawing of the arm across the body

Ans:

Name	Location	Movements
Pectorals	Chest	Drawing of the arm across the body
Biceps	Front portion of the upper arm	Arm bending & twisting
Calves	Between ankle and knee	Raising or lowering of toes
Deltoids	Shoulders	Arm raising

6. Which one is not correctly matched.

	Organs	Enzymes
1	Salivary glands	Ptyalin

2	Stomach	Pepsin
3	Pancreas	Sucrase
4	Jejunum	Maltase

Ans: Pancreas – Sucrase

7. Reason and Assertion

1. Assertion (A): Skin colour of human beings is determined by the presence of melanocytes present in the skin.

Reason (R) : The skin color of humans cannot be changed by cosmetics.

- a) A is right R is wrong b) A is wrong, R is right
c) R explains A d) R does not explain A

Ans : a) A is right R is wrong

Reason: Skin colour of human is determined by the melanocytes. It can be changed by cosmetics.

2. Assertion (A) : A pair of testes is located in the scrotum outside the abdominal cavity.

Reason (R) : The sperm formation requires a lower temperature than the normal body temperature..

- a) A is right R is wrong b) R explains A
c) R is right A is wrong d) R does not explain A

Ans: b) R explains A

3. Assertion (A) : The first seven pairs of ribs are called false ribs

Reason (R) : False Ribs are attached to the sternum indirectly.

- a) A and R are right b) A and R are wrong
c) A is wrong R is right d) R Explains A

Ans: c) A is wrong R is right

4. Assertion (A) : The small intestine has finger like projections called villi

Reason (R) : Absorption of food take place in small intestine

- a) A is right R is wrong b) A and R are wrong
c) R explains A d) A is wrong R is right

Ans: c) R explains A

5. Assertion (A) : The right ventricle receives impure blood.

Reason (R) : The pulmonary artery carries impure blood to the lungs.

- a) A is right R is wrong b) A is wrong R is right
c) R explains A d) R does not explains A

Ans: c) R explains A

8. Fill in the blanks:

1. Melanocytes are present in

- a) Dermis b) Epidermis

Ans: Epidermis

2. The muscles are attached to bones by

- a) Ligaments b) Tendons

Ans: b) Tendons

3.muscles are found in upper arm.

- a) Triceps b) Deltoids

Ans: a) Triceps

4. There are head bones

- a) 8 b) 12

Ans: a) 8

5. Fertilization of ovum occurs in

- a) Uterine tube b) Fallopian tube

Ans: a) Uterine tube

6. The uterus contracts under the influence of

- a) Progesterone b) Oxytocin

Ans: b) Oxytocin

7. Renin, Lactase, Lipase : Enzymes
 Clucagon, Insuli :

Ans: Hormones

8. The valves present near the mouth of pulmonary artery and aorta are

- a) Tricuspid valves b) Mitral valves
c) Auriculo – ventricular valves d) Semi lunar valves

Ans: d) Semi lunar valves

9. Find the odd one out:

1. Trypsin, Amylase, Lipase, Surcrose, Chymotrypsin.

Ans : Surcrose

Reason : Surcrose is an enzyme found in intestinal secretion and the other enzymes are found in pancreatic juice.

2. Liver, Kidney, Urethra, Nephron

Ans : Liver

Reason : Liver is associated with digestive system and the others are associated with excretion

3. Trachea, Nostril, Alveoli, Lungs, Heart

Ans : Heart

Reason : Heart is a part of circulatory system where as the others are associated with respiration.

BIOLOGY

Unit – III BIO – GIO CHEMICAL CYCLE

1. Choose the correct answer

1. Oxygen forms about of the air in the atmosphere.

Ans: 20%

2. Biggest storehouses of water are the

Ans: Oceans

3. This process of ammonia formation is called

Ans: ammonification

4. Plants absorb water from the soil or H₂O reservoir and add it to the atmosphere as vapour by.....

Ans: transpiration

5. Water vapour in the clouds undergoes and comes down as rain.

Ans: Condensation

6. The cyclic flow of elements or compounds between non living and living organisms is known as.....

Ans: Bio-geo chemical cycle

7. The living components are called components.

- a) biotic b) abiotic

Ans: a) biotic

8. The atmosphere contains 78% of

- a) Carbon-di-oxide b) Nitrogen

Ans: Nitrogen

9. Helps in denitrification.

- a) Azotobacter b) pseudomonas

Ans: b) pseudomonas

10. By burning of fuels..... is returned to atmosphere.

- a) carbon-di-oxide b) oxygen

Ans: a) carbon-di-oxide

11. is a fossil fuel

- a) Petroleum b) Groundnut oil

Ans: a) Petroleum

12. is the most significant element in the environment.

- a) carbon b) Nitrogen

Ans: Carbon

13. The loss of water from the plants is called

- a) Evaporation b) Transpiration c) Condensation d) Precipitation

Ans: b) Transpiration

14. About of our body is made up of water.

- a) One-third b) Two-fourths c) Two-thirds d) Three-fourths

Ans: c) Two-thirds

15. Atmosphere contains..... of Nitrogen.

- a) 62% b) 75% c) 78% d) 82%

Ans: c) 78%

16. Fossil fuels like coal and petroleum are a source of.....

- a) Nitrogen b) Hydrogen c) Carbon d) Potassium

Ans: c) Carbon

17. Is used in burning of materials.

- a) Phosphorous b) Carbon c) Carbon-dioxide d) Oxygen

Ans: d) Oxygen

2. Spot the mistake in the given statements

1. Loss of water from trees is called precipitation.

Ans: Loss of water from trees is called transpiration.

2. During photosynthesis oxygen is taken in by plants.

Ans: During photosynthesis carbon-dioxide is taken in by plants

3. Conversion of Ammonia into nitrites and nitrates is called ammonification.

Ans: Conversion of Ammonia into nitrites and nitrates is called Nitrification.

4. Nitrobacter is a denitrifying bacteria

Ans: Nitrobacter is a nitrifying bacteria

5. Carbonate rock in the earth's crust is a source of carbon.

Ans: Correct Sentence

6. The atmospheric carbon-dioxide enters into the living world through the process of photosynthesis.

Ans: Correct Sentence

3. Match the following

1	Denitrification	a)	Fungi
2	Ammonification	b)	Pseudomonas
3	Nitrogen fixation	c)	Nitrosomonas
4	Nitrification	d)	Rhizobium

Ans: 1-b, 2-a, 3-d, 4-c

B. Match the following

1	Organic molecule	a	Carbonate rock
2	Earth's crust	b	78%
3	Oxygen	c	$C_6H_{12}O_6$
4	Nitrogen	d	20%

Ans: 1-c, 2-a, 3-d, 4-b

C. Match the following

1	Nitrogen fixation	a)	Ammonifying bacteria
2	Ammonification	b)	Nitrobacter
3	Nitrification	c)	Pseudomonas
4	Denitrification	d)	Nostoc

Ans: 1-d, 2-a, 3-b, 4-c

D. Match the following

1	Nitrogen	a	20%
2	Oxygen	b	78%
3	Water content in the human being	c	4.5 litres
4	One gallon	d	About two-thirds

Ans: 1-b, 2-a, 3-d, 4-c

E. Match the following

1	Autotrophs	a)	Breakdown of organic waste and dead materials.
2	Oceans	b)	Producers of food for all living organisms.
3	Decomposers	c)	Volcanic activities
4	Carbon di-oxide	d)	Store house of water

Ans: 1- b, 2-d, 3-a, 4-c

4. Complete the table:

Sl.No	Term	Process
1		The cyclic flow of elements in living organisms.
2	Ammonification	
3		Evaporation, condensation, precipitation
4	Nitrogen fixation	

Ans:

1. **Term:** Bio-geochemical cycle
2. **Process:** Conversion of animal protein by fungi and bacteria into ammonia.
3. **Term:** Water cycle
4. **Process:** Conversion of gaseous nitrogen to ammonia and nitrates.

B. Complete the table:

Sl.No	Bio-Geo chemical cycle	Sequences
1		Decay, respiration, combustion.
2	Nitrogen cycle	
3		Respiration, Photosynthesis
4	Food chain	

Ans:

1. Carbon cycle
2. Nitrogen fixation, Nitrogen assimilation, ammonification, Nitrification and denitrification.
3. Oxygen cycle
4. Autotrophs, herbivores carnivores, decomposers.

5. Reason and Assertion:

Assertion (A) : Animal proteins are secreted out in the form of urea. Uric acid or ammonia.

Reason (R) : When plants and animals die, their proteins are broken down to release nitrates.

- a) A and R right
- b) A is right R is wrong
- c) A and R are wrong
- d) R explains A

Ans: b) A is right R is wrong

2. Assertion (A) : Denitrifying bacteria reduces nitrate ions of soil to gaseous nitrogen.

Reason (R) : The atmospheric nitrogen content is maintained constant.

- a) A and R are right
- b) A is right R is wrong
- c) R explains A
- d) A is wrong R is right.

Ans: c) R explains A

6. Spot the odd one and give reason:

1. Condensation, Evaporation, Decomposition, Transpiration

Ans: Decomposition

Decomposition is a part of food chain where as the others are stages of water cycle

2. Ammonia, Carbonate, Nitrate, Nitrogen

Ans: Carbonate

Carbonate is related to carbon cycle where as the others are associated with Nitrogen cycle.

3. Air, Water, Soil, Bees

Ans: Bees

Bee is the biotic component and others are abiotic components.

4. Rivers, Lakes, Ponds, Nitrogen

Ans: Nitrogen

Nitrogen is an element seen in the atmosphere others are sources of water.

5. Coal, Petroleum, Bio diesel, Natural gas

Ans: Bio diesel

Bio diesel is not a fossil fuel. The others are fossil fuels.

CHEMISTRY**Unit – IV CHEMICAL EQUATION****1. Choose the correct answer:**

1. Atomic number of sodium is 11, then number of electrons in sodium ion is

- a) 9 b) 10 c) 12

Ans: 10

2. Number of electrons lost by Fe^{2+} ion is

- a) 2 b) 3 c) 0

Ans: a) 2

3. Identify the polyatomic ion for the following

- a) Cl b) O_2 c) Na^+ d) NH_4^+

Ans: d) NH_4^+

4. Select the monoatomic anions from the following

- a) CN b) PO_4^{3-} c) I^- d) NO_2^-

Ans: c) I^-

5. An ion is produced as a result of gain or loss of electrons by an atom. In Au^{3+} ion, 3 electrons are

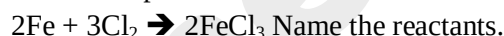
- a) gained b) lost

Ans: b) lost

6. If a monovalent polyatomic ion contains one hydrogen atom, one sulphur atom and three oxygen atoms then its name is ion.

Ans: HSO_3^- Bisulphite

7. Reactants are the substances that are present before the chemical reaction takes place.



Ans: Iron and Chlorine

8. A compound is formed by the combination of cations and anions. What are the cations and anions present in the following compounds?

- a) K_2CO_3 b) BaCl_2

Ans: a) Cation - Potassium, Anion - Carbonate b) Cation - Barium, anion - Chloride

9. Identify the valency of element C from the following compound.

- a) XH_3 b) XCl_5 c) X_2O_3 d) XO_2

Ans : a) 3, b) 5, c) 3, d) 4

10. Classify the following into monovalent, divalent and trivalent ions.

- a) Ammonium b) Oxide c) Nitride

Ans: a) Ammonium - Polyatomic cation - Monovalent

b) Oxide - Divalent

c) Nitride - Trivalent

11. Name the cations and anions present in the following compounds:

- a) MgSO_4 b) KNO_3

Ans: a) Cation - Magnesium, Anion - Sulphate b) Cation - Potassium, Anion - Nitrate

2. Pick out the odd one:

1. NO_3^- , NO_2^- , MnO_4^- , Cl^-

Ans: Cl⁻ - (monoatomic)

b) BaCl₂, NaNO₃, MgSO₄, CuO (based on the charge of the cation)

Ans: NaNO₃ (Change of cation is 1)

3. Choose the correct answer:

1. Metals usually form

- a) cations b) anions c) neutral charge

Ans: a) cations

2. The negatively charged ions are called

- a) anions b) dipositive ions c) cations

Ans: a) anions

3. The cation present in lead nitrate is

- a) Plumbic b) plumbus c) stannous

Ans: b) plumbus

4. The monovalent polyatomic ion is

- a) bisulphate ion b) borate ion c) peroxide ion

Ans: a) bisulphate ion

5. The valency of Lithium is

- a) 1 b) 2 c) 3

Ans: a) 1

6. The valency of Barium is

- a) 2 b) 1 c) 4

Ans: a) 2

7. The valency of Boron is

- a) 3 b) 2 c) 1

Ans: a) 3

8. The name of Sn⁴⁺ is

- a) Tin (IV) b) Tin (II) c) Lead (II)

Ans: a) Tin (IV)

9. In writing a chemical formula is enclosed in a bracket.

- a) precipitate b) gas c) radical

Ans: c) radical

10. The number of electrons gained by Sulphur is

- a) 1 b) 2 c) 3

Ans: b) 2

9. Non –metals usually electrons when they form ions.

- a) loss b) gain

Ans: gain

10. Atomic number of fluoride is

- a) 9 b) 10

Ans: 9

11. In sodium sulphate, sulphate is called as the

- a) acid radical b) basic radical

Ans: a) acid radical

12. In potassium, chloride, Potassium is the

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- a) acid radical b) basic radical

Ans: b) basic radical

13. Chemical formula of compound is the symbolic representation of its __composition__.

- a) structure b) composition

Ans: b) composition

14. To write the chemical formula of a compound, symbols and of constituent elements must be known.

- a) valencies b) charges

Ans: a) valencies

15. If the subscript of the radical is __one__ it is omitted.

- a) one b) two

Ans: a) one

16. The greek prefix for the number 5 is

- a) penta b) hexa

Ans: a) penta

17. A chemical reaction is always accompanied by changes.

- a) heat b) chemicals

Ans: a) heat

18. During a thunder storm, lightning converts oxygen into

- a) ozone b) water

Ans: a) ozone

4. Match the following:

- | | |
|-----------------------------|------------------------|
| 1. Au^+ | a) Chromic |
| 2. Sn^{4+} | b) Ceric |
| 3. Cr^{3+} | c) Aurous |
| 4. Ce^{4+} | d) Stannic |
| 5. $\text{Mg}(\text{OH})_2$ | e) Sodium Phosphate |
| 6. ZnCO_3 | f) Potassium Chromate |
| 7. Na_3PO_4 | g) Magnesium Hydroxide |
| 8. K_2CrO_4 | h) Zinc Carbonate |

Ans: 1-c, 2-d, 3-a, 4-b, 5-g, 6-h, 7-e, 8-f

b. Match the following:

- | | |
|-----------------------|------------------------|
| 1. Cl^- | - a) Polyatomic anion |
| 2. Cr^{2+} | - b) Monoatomic anion |
| 3. NH_4^+ | - c) Monoatomic cation |
| 4. PO_4^{3-} | - d) Polyatomic cation |

Ans: 1-d, 2-b, 3-b, 4-c

5. To spot the error / mistake in the given statements:

1. Ferrous ion exists as dimer.

Ans: Mercurous ion exists as dimer.

2. The chemical equation conveys information about the heat changes.

Ans: The chemical equation does not convey information about the heat changes.

3. During lighting, Nitrogen in the atmosphere combines with Oxygen to form Nitrogen trioxide.

Ans: During lighting Nitrogen in the atmosphere combines with Oxygen to form Nitrogen di oxide.

6. Reason and Assertion:

1. Assertion (A) : When sodium ion is formed from sodium atom, an electron is given up.

Reason (R) : When ions are formed, electrons are gained or lost.

- a) A is wrong R is right b) R explains A
c) R does not explain A d) A is right R is wrong

Ans: b) R explains A

2. Assertion (A) : During lighting, Nitrogen in the atmosphere combines with Oxygen to form Nitrogen dioxide.

Reason (R) : Plants use Nitrogen dioxide to produce proteins.

- a) A is wrong R is right b) R explains A
c) R and A are wrong d) A is right R is wrong

Ans: d) A is right R is wrong

7. Fill in the blanks:

1. The formula of sulphate ion is

Ans: SO_4^{2-}

2. In Lithium hydride the anion is where as in Hydrochloric acid the cation is

Ans: H^- , H^+

3. The valency of phosphate ion is

Ans: 3

4. The polyatomic monovalent cation is

Ans: NH_4^+ (ammonium)

5. The chemical formula of Sodium thiosulphate is

Ans: $\text{Na}_2\text{S}_2\text{O}_4$

6. The chemical formula of Barium peroxide is

Ans: BaO_2

7. Ca_2O and CuO are oxides of copper. The cations present in each of the compound are and

Ans: Cuprous (Cu^+), Cupric (Cu^{2+})

8. The colours of Tin (IV) oxide and Tin (II) oxide are and

Ans: white, black

8. To find the odd one out:

1. Bromine, Chlorine, Iodine, Boron

Ans : Boron

Reason : The valency of Boron is 3 while others are monovalent.

2. Stannous, Ferrous, Cupric, Chloride

Ans : Chloride

Reason : It is an anion, while others are cations.

3. NaCl , KBr , HCl , Ca(OH)_2

Ans : Ca(OH)_2

Reason : Calcium is a divalent cation while Sodium, potassium and Hydrogen are monovalent cations.

4. Na^+ , F^- , Mg^{2+} , K^+

Ans : K^+

Reason : The number of electrons is different, whereas others have same number of electrons i.e. 10 electrons.

5. Iodine, Hydrogen, Lithium, Magnesium

Ans : Magnesium

Reason : The valency is two while others have a valency of one.

PHYSICS

Unit – V SOUND

1 .Choose the correct answer:

1. When we listen to music, the medium through which sound is propagated is

- a) Solid b) Liquid c) Gas

Ans: Gas

2. The principle on which stethoscope works is

- a) Reflection b) Multiple reflection

Ans: Multiple Reflection

3. In a transverse mechanical wave, the particles of the medium vibrate in a direction to the direction in which the wave travels.

- a) Parallel b) Perpendicular

Ans: Perpendicular

4. Wave velocity = Frequency x

- a) Amplitude b) Time period c) Wave length

Ans: Wave length

5. Time taken by a particle of the medium to complete one vibration is called

- a) Time period b) Frequency c) Wave length

Ans: Time period

6. The sensation of sound persists in the brain for about of a second.

- a) 1/100 b) 1/1000 c) 1/10 **Ans: 1/10**

7. Bats send out and receive Wave reflected by the prey and obstacles.

- a) Supersonic b) Infrasonic c) Ultrasonic **Ans: Ultrasonic**

8. From the list of frequencies, find the ultrasonic frequency.

- a) 2000 Hz b) 20000 Hz c) 30000 Hz d) 10000 Hz

Ans: 30000 Hz

9. Find the odd one out on the basis of audible range.

- a) Elephant b) Bat c) Dolphin d) Rabbit

Ans: Elephant

10. Musical sound gives us

- a) Pleasure b) Pain c) Information d) Tension

Ans: Pleasure

11. We are able to with each other through sound.

- a) Quarrel b) Speak c) Work d) Communicate

Ans: Communicate

12. The maximum displacement of a particle from the mean position is called

- a) Frequency b) Amplitude c) Wave length d) Time period

Ans: Amplitude

13. Distance moved by a wave during the time a particle completed one vibration is

- a) Wave length b) Time period c) Amplitude d) Frequency

Ans: Wave length

14. Speed of light is

- a) 340 m/s b) 3×10^8 m/s c) 320 m/s d) 5000 m/s

Ans: 3×10^8 m/s

15. Bats hunt their prey by sending and receiving wave.

- a) Infrasonic b) Echo c) Sonic d) Ultrasonic

Ans: Ultrasonic

16. Ships use to find the depth of seas.

- a) Radar b) Sonar c) Echo d) Sound wave

Ans: Sonar

17. With decrease in water vapour content in air, velocity of sound

- a) Increases b) Decreases c) Is constant d) None

Ans: Decreases

18. Doppler shift in frequency depends upon

- a) velocity of sound b) Velocity of source c) Velocity of listener d) All of the above

Ans: All of the above

19. Which of the following statements is correct?

- a) Both sound and light waves in air are longitudinal
b) Both sound and light waves in air are transverse
c) Sound waves in air are transverse and light waves are electromagnetic transverse.
d) Sound waves in air are longitudinal and light waves are electromagnetic transverse.

Ans: Sound waves in air are longitudinal and light waves are electromagnetic transverse.

20. Which of the following waves are not mechanical?

- a) Torsional waves b) Microwaves c) Seismic waves d) Ripples

Ans: Microwaves

21. waves propagate in a medium to form compressions and rarefactions.

- a) Transverse b) Longitudinal c) Stationary d) None

Ans: Longitudinal

22. In transverse wave the downward and maximum displacement is called

- a) trough b) crest c) compression d) rarefaction

Ans: trough

23. Speed of sound in air is

- a) 330 m/s b) 360 m/s c) 340 m/s d) 320 m/s

Ans: 340 m/s

24. The repeated reflection that results in the persistence of sound is

- a) Echo b) Absorption c) reverberation d) none

Ans: Reverberation

25. Time taken by a particle of the medium to complete one vibration is called

- a) time period b) frequency

Ans: time period

26. The number of vibrations completed by a particle in one second is called

- a) Frequency b) Time period

Ans: Frequency

27. The principle on which stethoscope works is

- a) reflection b) multiple reflection

Ans: Multiple reflection

28. Sound waves require a to travel.

- a) Medium

Ans: Medium

29. is the area with maximum pressure.

- a) compression b) rarefaction

Ans: Compression

30. is used to determine the velocities and movements of submarines and aircraft.

- a) Radar

Ans: Radar

2. A) Match the following:

- | | | |
|--------------------------------|---|--------------------------|
| 1. Ripple son surface of water | - | a) Longitudinal wave |
| 2. Light waves | - | b) Mechanical transverse |
| 3. Sound waves | - | c) Electro magnetic |

Ans: 1 – (b), 2 – (c), 3 – (a)

B) Match the following:

- | | | |
|----------------|---|----------------------------|
| 1. Light waves | - | a) Transverse mechanical |
| 2. Sound waves | | b) Electromagnetic |
| 3. Water waves | - | c) Longitudinal mechanical |

Ans: 1 – (b), 2 – (c), 3 – (a)

C) Match the following:

- | | | |
|------------------------|---|--|
| 1. Amplitude | - | a) Time taken by a particle to complete one vibration. |
| 2. Period of vibration | - | b) Distance moved by a wave in one vibration. |
| 3. Frequency | - | c) Maximum displacement of a particle. |
| 4. Wave length | - | d) the number of vibrations in one second. |

Ans: 1 – (c), 2 – (a), 3 – (d), 4 – (b)

3. Spot the error / mistake in the given statements:

1. Sound is transmitted through vacuum.

Ans: Sound is transmitted through a **medium**

2. If the particles of a medium vibrate parallel to or along the direction of propagation it is called transverse wave.

Ans: If the particles of a medium vibrate parallel to or along the direction of propagation it is called **longitudinal wave**

3. Water waves and vibration of a stretched string are examples for longitudinal waves.

Ans: Water waves and vibration of a stretched string are examples for **Transverse waves**.

4. Velocity of sound waves = t/λ .

Ans: Velocity of sound waves = λ/t

5. In echo ranging, total distance travelled by the wave $d = V \times L$

Ans: In echo ranging, total distance travelled by the wave $2d = V \times L$

4. Reason and Assertion:

1. Assertion (A) : Sound waves travel faster on a rainy day than on a dry day.

Reason (R) : Moisture increases the pressure.

- a) A is wrong R is right b) R explains A
c) R does not explain A d) A is right R is wrong

Ans: c) R does not explain A

5. Fill in the blanks:

1. Transverse waves = Crest and trough then Longitudinal waves = and

Ans: Compressions, Rarefactions

2. Frequency = Hertz, Wave length =

Ans: Metre

3. The maximum displacement of a particle from the mean position is

Ans: Amplitude

4. The unit of amplitude is

Ans: Metre

5. The sound uttered by a person heard two or three times after reflection from an object is.....

Ans: Echo

6. The sensation of sound persists in our brain for about of a second.

Ans: 1/10th

7. The apparent change in the frequency of the source due to the relative motion between the source and observer is

Ans: Doppler effect

8. Bats detect location of prey by

Ans: Doppler effect

9. When the sound waves enter the ear of the listener, it sets thein the ear vibrating; causing the of sound in our ears.

Ans: tympanic membrane, sensation

10. The speed of sound in water is approximately

Ans: 1440 m/s

6. To find the odd one out:

1. Determination of depth of sea, location of submarine, detection of iceberg, investigation.

Ans: Investigation

Reason: Other three concepts depend on the principle of SONAR.

2. Radar, traffic control vehicles, sonar, bats

Ans: Sonar

Reason: Sonar is based on the ultrasonic waves reflected back from the objects whereas other three depend on the Doppler shift observed.

IIIrd -TERM**BIOLOGY****Unit – I STRUCTURE AND PHYSIOLOGICAL FUNCTIONS OF PLANTS****I. Choose the correct answer:**

1. A plant cell differs from an animal cell in the presence of

- a) cell membrane b) endoplasmic reticulum c) plasma membrane d) cell wall

Ans: Cell Wall

2. is the seat of biological oxidations.

- a) Endoplasmic reticulum b) ATP c) Mitochondria d) Golgi complex

Ans: Mitochondria

3. A parasitic plant is

- a) mushroom b) mucor c) cuscuta d) yeast)

Ans: cuscuta

4. The loss of water from the aerial parts of the plant is known as

- a) photosynthesis b) transpiration c) reproduction d) respiration

Ans: transpiration

5. The movement of a plant part in response to light is called

- a) geotropism b) hydrotropism c) phototropism d) thigmotropism

Ans: phototropism

6. Mimosa pudica displays movement.

- a) phototropic b) photonastic c) thigmonastic d) thermonastic

Ans: thigmonastic

7. transpiration accounts for the loss of large volumes of water.

- a) Lenticular b) Stomatal c) Cuticular d) Areolar

Ans: Stomatal

8. is mainly concerned with the transport of nutrients, water and minerals upwards in the plant body.

- a) Phloem b) Xylem c) Tracheids d) Parenchyma

Ans: Xylem

9. The cells of are polygonal in cross – section and have unevenly thickened walls.

- a) parenchyma b) collenchymas c) aerenchyma d) sclerenchyma

Ans: collenchyma

10. The study of the structure and function of the cell is called

- a) Botany b) Cytology c) Microbiology d) Bio Technology

Ans: Cytology

11. Cells having dense cytoplasm and large nucleus are called

- a) simple tissue b) compound tissue c) meristematic tissue d) permanent tissue

Ans: meristematic tissue

12. Find which one of the following is dead tissue.

- a) Parenchyma b) Collenchyma c) Sclerenchyma d) Chlorenchyma

Ans: Sclerenchyma

13. Which one of the following is the Xylem tissue?

- a) sieve elements b) companion cells c) phloem fibres d) Tracheids

Ans: Tracheids

14. Which part helps the plant absorb water and minerals from the soil?

- a) root hairs b) roots c) root cap d) tap root

Ans: root hairs

15. Which is shown by the experiment 'Ascent of sap'?

- a) The food materials are transmitted by phloem b) Water is transmitted by phloem
c) Water is transmitted by xylem c) The food material is transmitted by xylem

Ans: Water is transmitted by xylem

16. Find out which one is not related to leaves.

- a) Photosynthesis b) Respiration c) Transpiration d) Transportation

Ans: Transportation

17. Find which one of the following does anaerobic respiration?

- a) flies b) mosquito c) yeast d) hydrilla

Ans: yeast

18. This is an example of chemo autotrophs

- a) green sulphur bacteria b) bacillus subtilus c) Nitrosomonas bacteria d) purple sulphur bacteria

Ans: Nitrosomonas bacteria

19. This is an example of insectivorous plant.

- a) Monotropa b) Cuscuta c) Drosera d) Hibiscus

Ans: Drosera

20. Find the one that is not doing symbiotic nutrition.

- a) Lichen b) Mycorrhiza c) Mucor d) Rhizobium

Ans: Mucor

21. Plants take CO_2 during

- a) Transpiration b) Protein synthesis c) Respiration d) Photosynthesis

Ans: Photosynthesis

22. In Photosynthesis

- a) H_2O and CO_2 are reduced b) H_2O is reduced and CO_2 is oxidized
c) H_2O and CO_2 are oxidized c) H_2O is oxidized and CO_2 is reduced

Ans: H_2O and CO_2 are reduced

23. Which of the following is called energy currency of the cell?

- a) ATP b) NADPH_2 c) $\text{C}_6\text{H}_{12}\text{O}_6$ d) $\text{C}_2\text{H}_5\text{OH}$

Ans: ATP

24. Aerobic and anaerobic respirations differ from each other in all aspects except

- a) Involvement of oxygen b) output of energy
c) end products d) break down of glucose in cytoplasm

Ans: output of energy

25. Find put the correct sequence of the following in the decreasing order of rate of transpiration.

- a) Stomatal – Cuticular – lenticular b) Cuticular – Lenticular – Stomatal
c) Lenticular- Stomatal – Cuticular d) Stomatal – Lenticular – Cuticular

Ans: Stomatal-Lenticular-Cuticular

26. The study of the structure and function of cells.

- a) Zoology b) Biology c) Cytology d) Physiology

Ans: Cytology

27. The cells of this tissue are capable of division.

- a) Permanent tissue b) Xylem c) Meristematic tissue d) Sclerenchyma tissue

Ans: Meristematic tissue

28. is a dead tissue with thick walls.

- a) Parenchyma b) Collenchyma c) Phloem d) Sclerenchyma

Ans: Sclerenchyma

29. Conducts water.

- a) Phloem b) Sieve tube c) Xylem d) Companion cell

Ans: Xylem

30. involves movement of molecules by the use of metabolic energy.

- a) Osmosis b) Active transport c) Passive transport d) Imbibition

Ans: Active transport

31. conducts food.

- a) Collenchyma b) Xylem c) Sclerenchyma d) Phloem

Ans: Phloem

32. is released during photosynthesis.

- a) CO₂ b) ATP c) Nitrogen d) Oxygen

Ans: Oxygen

33. is known as the energy currency of the cell.

- a) NADPH₂ b) Oxygen c) CO₂ d) ATP

Ans: ATP

34. is not a factor which influences photosynthesis.

- a) Carbon dioxide b) Chlorophyll c) Oxygen d) Water

Ans: Oxygen

35. The transport of food from leaves to the other parts of the plant is called

- a) Photosynthesis b) Transpiration c) Nutrition d) Translocation

Ans: Translocation

36. is the seat of biological oxidation.

- a) Mitochondrion b) Stomatal pore c) Leaf d) ATP

Ans: Mitochondrion

37. An example for photo autotrophs.

- a) Nitrosomonas b) Animals c) Fungus d) Sulphur bacteria

Ans: Sulphur bacteria

38. is an example for parasites.

- a) Cuscuta b) Lichen c) Nitrosomonas d) Mucor

Ans: Cuscuta

39. is an example for symbionts.

- a) Nitrosomonas b) Fungus c) Xanthomonascitri d) Lichen

Ans: Lichen

40. Transportation take place through

- a) Stem b) Leaves c) Root d) Flowers

Ans: Leaves

41. is an example for chemo autotrophs.

- a) Plam b) green sulphur bacteria
c) Purple sulphur bacteria d) Nitrosomonas

Ans: Nitrosomonas

42. In the dark reaction carbondioxide is reduced to

- a) Carbon b) Carbon monoxide c) ATP d) Carbohydrate

Ans: Carbohydrate

43. is an example for insectivorous plants.

- a) Lichen b) Cuscuta c) Sepentes d) Mucor

Ans: Sepentes

44. Mimosa pudica is an example for

- a) Thigmotropism b) Photonasty c) Thigmonasty d) Thermonary

Ans: Thigmonasty

45. Are heterotrophs.

- a) Animals b) Green plants c) Nitrosomonas bacteria d) Sulphur bacteria

Ans: Animals

46. Is a living tissue.

- a) Parenchyma b) Sclerenchyma

Ans: Parenchyma

47. conducts water.

- a) Xylem b) Phloem

Ans: Xylem

48. CO_2 is reduced to carbohydrate during

- a) Light reaction b) Dark reaction

Ans: Dark Reaction

49. Food is completely oxidized in respiration.

- a) Anaerobic b) Aerobic

Ans: Aerobic

50. Organisms which are not able to synthesize their own food are called

- a) autotrophs b) heterotrophs

Ans: Heterotrophs

51. Removal of excess water through aerial parts of the plant like leaves is called

- a) Transpiration b) Translocation

Ans: Transpiration

2. a) Match the Column A with Column B

Stimulus (A)

Gravity
Chemical
Touch

Type of Tropism (B)

a) Chemotropism
b) Thigmotropism
c) Geotropism

Ans: 1 – (c), 2 – (a), 3 – (b)

B) Match The following:

A

B

- | | |
|-------------------------|-----------------------------|
| 1. Lateral meristem | a) Increase in length |
| 2. Apical meristem | b) Sclerenchyma |
| 3. Conducting tissue | c) Increase in width |
| 4. Intercalary meristem | d) Xylem |
| 5. Supporting tissue | e) elongation of intermodes |

Ans: 1 – (c), 2 – (a), 3 – (d), 4 – (e), 5 – (b)

C) Match The following:

- | A | B |
|---------------------|-----------------------------|
| 1. Parenchyma | a) conducting tissues |
| 2. Sclerenchyma | b) thickened at the corners |
| 3. Xylem and phloem | c) thin walled living cells |
| 4. Collenchyma | d) uniformly thickened |

Ans: 1 – (c). 2 – (d), 3 – (a). 4 – (b)

D) Match The following:

- | A | B |
|------------------------|---------------------|
| 1. Saprophyte | a) Cuscuta |
| 2. Parasite | b) Sulphur bacteria |
| 3. Insectivorous plant | c) mucor |
| 4) Autotroph | d) Nepenthes |

Ans: 1 – (c). 2 – (a), 3 – (d). 4 – (b)

E) Match the following types of tropism with stimulus:

- | Stimulus | Type of Tropism |
|-------------|------------------|
| 1. Light | a) Thigmotropism |
| 2. Gravity | b) Hydrotropism |
| 3. Chemical | c) Phototropism |
| 4. Water | d) Geotropism |
| 5. Touch | e) Chemotropism |

Ans: 1 – (c). 2 – (d), 3 – (e). 4 – (b), 5 – (a)

F) Match the following Tropic and Nastic movements with example

- | Movement | Example |
|------------------|-----------------|
| 1. Thigmonasty | a) Crocus |
| 2. Thermonasty | b) Tendrils |
| 3. Photonasty | c) Touch-me-not |
| 4. Thigmotropism | d) Dandelion |

Ans: 1 – (c). 2 – (a), 3 – (d). 4 – (b)

3. Sort the error and correct it:

- Permanent tissue is capable of division.
Ans: Meristematic tissue is capable of division.
- Sclerenchyma is a living tissue.
Ans: Sclerenchyma is a **dead** tissue.
- Xylem conducts food.
Ans: Phloem conducts food.
- Passive transport involves the use of metabolic energy.
Ans: Active transport involves the use of metabolic energy.
- Anaerobic Respiration takes place in the presence of oxygen.
Ans: Aerobic Respiration takes place in the presence of oxygen.
- All green plants are heterotrophs.

Ans: All green plants are autotrophs.

4. Reason and Assertion:

1. Assertion (A) : Apical meristem brings about increase in the width.

Reason (R) : Intercalary meristem helps in the elongation of the intermodes.

- | | |
|-----------------------------|------------------------------|
| a) A is correct, R is wrong | b) A is wrong, R is correct |
| c) Both A and R are wrong | d) A is correct R Explains A |

Ans: b) A is wrong, R is Correct

2. Assertion (A) : Meristematic cells help in increasing the length and thickness of the plant.

Reason (R) : These cells divide continuously.

- | | |
|------------------------------|-----------------------------|
| a) A is correct, R is wrong | b) A is wrong, R is correct |
| c) A is correct R explains A | d) R does not explain A |

Ans: c) A is correct R explains A

3. Assertion (A) : Phloem conducts food materials.

Reason (R) : Xylem conducts water.

- | | |
|-------------------------------|-----------------------------|
| a) A is correct, R is wrong | b) A is wrong, R is correct |
| c) A is correct, R Explains A | d) R does not explain A |

Ans: d) R does not explain A

4. Assertion (A) : Green plants are autotrophic.

Reason (R) : Green plants synthesize their food.

- | | |
|-------------------------------|-----------------------------|
| a) A is correct, R is wrong | b) A is wrong, R is correct |
| c) A is correct, R explains A | d) R does not explain A |

Ans: c) A is correct, R explains A

5. Assertion (A) : If the direction of response is determined by the direction of stimulus, it is called nastic movement.

Reason (R) : Osmosis is an example for active transport.

- | | |
|-----------------------------|-----------------------------|
| a) A is correct, R is wrong | b) R is correct, A is wrong |
| c) R explains A | d) Both A and R are wrong |

Ans: d) Both A and R are wrong

5. Spot the odd one and give reason:

1. Parenchyma, Collenchyma, Chlorenchyma, Sclerenchyma

Ans: Sclerenchyma

Reason: It is a dead tissue while others are living tissues.

2. Carbondioxide, Chlorophyll, Water, Hydrogen

Ans: Hydrogen

Reason: It is not a factor influencing photosynthesis.

3. Green plants, animals, nitrosomonas, sulphur bacteria

Ans: Animals

Reason: Animals are heterotrophs while others are autotrophs

4. Cuscuta, Mycorrhiza, Rhizobium, Lichen.

Ans: Cuscuta

Reason: It is a parasite while others are symbionts.

5. Xanthomonas Citri, Nepenthes, Cuscuta, Cercospora personata.

Ans : Nepenthes

Reason: It is an insectivorous plant while others are parasites.

BIOLOGY**Unit – II ADDITION AND HEALTHY LIFESTYLE****1. Choose the correct answer:**

1. causes liver cirrhosis.

- a) smoking b) Alcohol c) Obesity d) Tobacco

Ans: b) Alcohol

2. is an example for street drugs.

- a) opium b) LSD c) sleeping d) Pain-killer

Ans: LSD

3. Formula of Ethyl Alcohol is

- a) CH_3OH b) $\text{C}_3\text{H}_7\text{OH}$ c) $\text{C}_2\text{H}_5\text{OH}$ d) None of these

Ans: c) $\text{C}_2\text{H}_5\text{OH}$

4. Smoking increases the risk of Disease in the digestive system.

- a) ulcer b) typhoid c) crohn's d) Cardio Vascular

Ans: c) crohn's

5. Smoking creates an imbalance in Hormone in women.

- a) progesterone b) androgen c) testosterone d) estrogen

Ans: d) estrogen

6. Is the toxic addictive drug in cigarettes

- a) Opium b) LSD c) Nicotine d) Tobacco

Ans: c) Nicotine

7. Addiction to rich food can lead to

- a) diabetes b) liver cirrhosis c) cancer d) obesity

Ans: d) obesity

8. Due to smoking the skin is deprived of

- a) Carbondioxide b) oxygen c) Oil d) moisture

Ans: b) oxygen

9. Medicines like are effective in the recovery of alcoholic addiction.

- a) nicotine b) opium c) benzodiazepine d) LSD

Ans: c) benzodiazepine

10. We should eat plenty of

- a) high calorie foods b) chocolates c) food rich in fibres d) fried foods

Ans: c) food rich in fibres

11. Is an example for narcotic drugs.

- a) Heroin b) Nicotine c) Phenothiazine d) benzodiazepine

Ans: a) Heroin

12. is an example of behaviour-related addiction.

- a) Tobacco b) Opium c) Internet d) Alcohol

Ans: c) Internet

13. International Day against Drug Abuse is on

- a) 5th June b) 26th June c) 1st December d) 2nd October

Ans: b) 26th June

14. is predicted to become the diabetic and cardiovascular disease capital.

- a) America b) Africa c) China d) India

Ans: d) India

15. The Harmful alkaloid present in the leaves of tobacco plant is.....

- a) Quinine b) Nicotine c) Phynothiazine d) Morphine

Ans: b) Nicotine

16. Liver cirrhosis is mainly associated with

- a) smoking cigarettes b) excessive use of pain killers
c) Alcoholism d) excessive use of narcotic drugs

Ans: c) Alcoholism

17. is rich in omega-3 fatty acids.

- a) red-meat b) milk products c) fish d) green vegetables

Ans: c) fish

18. An intoxicating ingredient found in bear, wine and liquor.

- a) nicotine b) ethyl alcohol c) LSD d) Opium

Ans: b) ethyl alcohol

19. Lethargy, sluggishness and difficulty in carrying out daily activities are due to

- a) smoking b) obesity

Ans: b) obesity

20. Smoking accelerates the process of

- a) fertility b) osteoporosis

Ans: b) osteoporosis

21. Playing Video games is an example for

- a) substance related addiction b) behavior related addiction

Ans: b) behavior related addiction

22. Alcohol is an example for

- a) depressant b) antidepressant

Ans: a) depressant

23. Smoking accelerates of bones.

- a) fracture b) osteoporosis

Ans: b) osteoporosis

24. We should eat foods.

- a) steamed b) fast

Ans: a) steamed

25. Liver cirrhosis is caused by

- a) smoking b) drinking alcohol

Ans: b) drinking alcohol

2. a) Match the following

1.	Fish	a)	Rich in fibre
2.	Fruit & Vegetables	b)	Omega – 3 fatty acids
3.	Mutton & beef	c)	High calorie fast food
4.	Pizza	d)	Red meat

Ans: 1-b, 2-a, 3-d, 4-c

B) Match the following

Sl.No	Addictive Substances		El effects of Addiction
1.	Smoking	a)	Obesity
2.	Alcoholism	b)	Drowsiness
3.	Narcotics	c)	Crohn's disease
4.	Rich food	d)	Tendency to commit crime
5.	Sleeping pills	e)	Liver cirrhosis

Ans: 1-c, 2-e, 3-d, 4-a, 5-b

C) Match the following

Sl.No	Dietary Items		Source of
1.	Milk and Milk products	a)	Omega – 3 fatty acids
2.	Fish	b)	High calories
3.	Red meat	c)	Calcium
4.	Pickles	d)	Cholesterol
5.	Pizzas, burgers	e)	Salt

Ans: 1-c, 2-a, 3-d, 4-e, 5-b

3. Spot the error and correct it

1. Excessive eating is substance-related addiction.

Ans: Excessive eating is **behavior related** addiction.

2. IF the addiction is developed by the pressure of job, nature of the job should not be changed

Ans: IF the addiction is developed by the pressure of job, nature of the job **should be changed**

3. Addiction is an acute disease.

Ans: Addiction is a **chronic** disease.

4. Smoking causes liver cirrhosis.

Ans: **Alcoholism** causes liver cirrhosis.

5. Opium is an antidepressant

Ans: Opium is **a narcotic drug**

4. Reason and Assertion

1. Assertion (A) : Alcohol is an example of behavior related addiction.

Reason (R) : Smoking causes Heart attack, Hypertension and Cardiovascular diseases.

a) A is right, R is wrong

b) A is wrong, R is right

c) A is right, R explains A

d) Both A and R are wrong

Ans: **b) A is wrong R is right**

2. Assertion (A) : Tobacco smoke contains more than 60 substances that cause cancer.

Reason (R) : We should eat high calorie fast foods like pizzas and burgers.

a) A is right, R is wrong

b) A is wrong, R is right

c) A is right, R explains A

d) Both A and R are wrong

Ans: **a) A is right, R is wrong**

3. Assertion (A) : Smoking reduces fertility in women.

Reason (R) : Smoking creates an imbalance in estrogen hormone and reduces bloodflow to genital organs.

a) A is right, R is wrong

b) A is wrong, R is right

c) A is right, R explains A

d) R does not explain A

Ans: c) A is right, R explains A

4. Assertion (A) : Heroin and Opium are narcotic drugs.

Reason (R) : Addiction to rich food can lead to obesity.

- | | |
|-----------------------------|---------------------------|
| a) A is right, R is wrong | b) A is wrong, R is right |
| c) A is right, R explains A | d) R does not explain A |

Ans: d) R does not explain A

5. Assertion (A) : Eating fish twice a week helps to prevent blood clot formation

Reason (R) : Fish contains omega – 3 fatty acids.

- | | |
|-----------------------------|---------------------------|
| a) A is right, R is wrong | b) A is wrong, R is right |
| c) A is right, R explains A | d) R does not explain A |

Ans: c) A is right, R explains A

5. Spot the odd one and give reason:

1. Phenothiazine, Heroin, Opium, Cocaine.

Ans: Phenothiazine

Reason : It is an antidepressant while others are narcotics.

2. Tobacco, gambling, Alcohol, LSD

Ans: Gambling

Reason: It is a behavior related addiction. Others are examples of substance – related addiction.

3. Benzodiazepine, vitamin B, Opium, Phenothiazine.

Ans: Opium

Reason : It is a narcotic drug while others are effective in the recovery of alcoholic addiction.

4. Lethargy, sudden change of mood, sluggishness and difficulty in carrying out activities of daily life.

Ans: Sudden change of mood

Reason : It is a sign of drug abuse. Others are adverse effects of obesity.

5. Idli, Pizza, Idiyappan, Puttu

Ans: Pizza

Reason: It is a fast food while others are steamed foods.

BIOLOGY

Unit – III POLLUTION AND OZONE DEPLETION

I. Fill in the blanks:

1. The man made pollutants are

Ans: Anthropogenic

2. The process of cleaning oil spills by using bacterial is known as

Ans: Bioremediation

3. can damage bone marrow, spleen, lymph nodes and can cause leukemia.

Ans: Iodine -131

4. Loud noises above 130db can cause damage to the

Ans: Ear drum

5. The trapping of energy from the sun by green house gases in the atmosphere which increases earth's temperature is known as

Ans: Green house effect

6. are coolant gases used in refrigerators.

Ans: Chloroflurocarbons

7. The use ofbulbs is a great way to save energy.

Ans: CFL

8. The ozone layer is continuously broken down by human activity and becomes very thin. This leads to

Ans: Ozone depletion

9. The most efficient way to convert sea water into purified drinking water is by

Ans: reverse osmosis

10. The oxygen shortage which leads to the death of aquatic organisms found in the water is known as

Ans: eutrophication

11. Biological magnification of is seen in aquatic food chain.

Ans: DDT

12. Oil spills have proved to cause extensive damage to the

Ans: marine biodiversity

2. Choose the correct answer:

1. Find out the conventional source of energy,

- a) solar energy b) hydel energy c) tide energy d) hydrocarbon energy

Ans: Hydrocarbon energy

2. The Tajmahal which is historical monument built with marble is being corroded due to the gases let out by the nearby oil refineries. The chief pollutant is

- a) CO b) CO₂ c) SO₂ d) NO₂

Ans: SO₂

3. It is found that crop fields located near the highways give less yield due to low photosynthetic activity and stunted growth. The pollutant responsible for this

- a) PAN b) CFC's c) CO₂ d) SO₂

Ans: PAN

4. The pollutant responsible for Ozone depletion is

- a) CFC b) MIC c) CO₂ d) SO₂

Ans: CFC

5. PAN is

- a) Peroxide Acetic Nitrate b) Peroxy Acetyl Nitrate c) Peroxy Acetic Nitrate

Ans: Peroxy Acetyl Nitrate

6. Hypothermia in aquatic mammals is due to

- a) Noise pollution b) Air pollution c) Oil spills

Ans: Oil spills

7. Man-made source of pollution is called source.

- a) natural b) artificial c) anthropogenic d) human

Ans: Anthropogenic

8. Reduces the oxygen carrying capacity of blood.

- a) Suphur dioxide b) Carbon monoxide c) Methane d) Nitrogen oxide

Ans: Carbon monoxide

9. has corrosive effect on buildings,

- a) Carbon dioxide b) Carbon monoxide c) Nitrogen oxide d) Sulphur dioxide

Ans: Sulphur dioxide

10. cause drastic damage to the marine biodiversity.

- a) Domestic sewage b) Oil spills c) Algal bloom d) Surface run-offs

Ans: Oil spills

11. The bacteria used in bioremediation is

- a) Nitrosomonas b) Rhizobium c) Pseudomonas putida d) Acetobacter acetii

Ans: Pseudomonas putida

12. Eutrophication is the depletion of due to algal bloom resulting in the death of aquatic organisms.

- a) Nitrogen b) micro organisms c) carbon dioxide d) oxygen

Ans: oxygen

13. contributes to the formation of acid rain.

- a) Carbon dioxide b) methane c) nitrogen oxide d) oxygen

Ans: Nitrogen oxide

14. causes Global warming.

- a) Carbon monoxide b) carbon dioxide c) Sulphur dioxide d) oxygen

Ans: Carbon dioxide

15. Smog is a mixture of smoke and

- a) oxygen b) mist c) fog d) acidrain

Ans: fog

16. Black lung disease is due to the inhalation of

- a) nitrogen b) carbon monoxide c) carbon d) pesticides

Ans: carbon

17. Bhopal gas tragedy was due to inhalation of

- a) methyl isocyanate b) methyl mercury c) DDT d) radio active gas

Ans: methyl isocyanate

18. Cause brown air in traffic congested city.

- a) Carbon dioxide b) Carbon monoxide c) Methane d) Nitrogen oxide

Ans: Nitrogen oxide

19. causes bone cancer.

- a) Cobalt 60 b) Phosphorous 32 c) Iodine 131 d) Strontium -90

Ans: Strontium -90

20. Loud noise above db can damage the eardrum.

- a) 50 b) 100 c) 120 d) 130

Ans: 130

21. Forest Act was promulgated in

- a) 1980 b) 1981 c) 1986 d) 1988

Ans: 1980

22. Water Act was passed in

- a) 1980 b) 1981 c) 1974 d) 1988

Ans: 1974

23. 1988 was the hottest month in the world.

- a) May b) April c) June d) July

Ans: July

24. can cause blood cancer.

- a) Iron -59 b) Iodine 131 c) Strontium -90 d) Cobalt -60

Ans: Iodine 131

25. Ozone is found in the

- a) Troposphere b) Ionosphere c) Stratosphere d) Magnetosphere

Ans: Stratosphere

26. is a green house gas.

- a) Carbon monoxide b) Carbon dioxide c) Oxygen d) Sulphur dioxide

Ans: Carbon dioxide

27. contributes to the formation of acid rain.

- a) Nitrogen oxide b) Hydrogen

Ans: Nitrogen oxide

28. Causes global warming

- a) Carbon monoxide b) Carbon dioxide

Ans: Carbon dioxide

29. Malaria is an disease.

- a) Insect borne b) air borne

Ans: insect borne

30. Environmental pollution act was passed in

- a) 1986 b) 1988

Ans: 1986

31. Exposure to causes skin cancer.

- a) infra red rays b) UV rays

Ans: UV Rays

3. A. Match the following:

- | | |
|--------------------|--|
| 1. Smog | a) Acidic soil |
| 2. Acid rain | b) reduces oxygen carrying capacity of blood |
| 3. Carbon Monoxide | c) reduced visibility |

Ans: 1 – c , 2 – a. 3 -b

B. Match the following:

- | | |
|-----------------------|---------------------------------------|
| 1. Carbon monoxide | - a) Chronic bronchitis |
| 2. Sulphur dioxide | - b) Global warming |
| 3. Particulate matter | - c) reduces oxygen carrying capacity |
| 4. Carbon dioxide | - d) Acid rain |

Ans: 1 – c , 2 – d. 3 –a, 4 – b

C. Match the following:

- | | |
|-------------------------|-------------------------------|
| 1. Industrial wastes | - a) impairs ability to fly |
| 2. Oil spills | - b) contaminate ground water |
| 3. Domestic sewage | - c) fly ash |
| 4. Surface run-offs | - d) thermal pollution |
| 5. Thermal power plants | - e) eutrophication |

Ans: 1 – d , 2 – a. 3 – e, 4 – b, 5 – c

D. Match the following:

- | | |
|--------------------|--------------|
| 1. Ozone depletion | - a) decibel |
|--------------------|--------------|

- 2. U V Rays - b) 120 decibels
- 3. Insect borne disease - c) skin cancer
- 4. Unit of sound - d) chloroflurocarbon
- 5. Harmful to human beings- e) malaria

Ans: 1 – d , 2 – c. 3 – e, 4 – a, 5 – b

4. Correct Mistakes:

- a) Particulate matter is a mixture of smoke and fog.

Ans: Smog is a mixture of smoke and fog.

- b) Solar energy, hydel energy and tidal energy are conventional sources of energy.

Ans: Solar energy, hydel energy and tidal energy are non-conventional source of energy.

- c) Carbon monoxide contributes to the formation of acid rain.

Ans: Nitrogen oxide contributes to the formation of acid rain.

- d) Nitrosomonas is a genetically engineered bacterium.

Ans: Pseudomonas putida is a genetically engineered bacterium.

- e) Incineration is burning in the absence of oxygen.

Ans: Prolysis is burning in the absence of oxygen.

- f) Carbon monoxide is a green house gas.

Ans: Carbon dioxide is a green house gas.

- g) Ozone layer is in the Troposphere

Ans: Ozone layer is in the Stratosphere

5. Reason and Assertion:

1. Assertion (A) : UV Rays cause cancer and contracts.

Reason (R) : Iodine -131 causes bone cancer.

- a) A is correct, R is wrong
- b) R is correct, A is wrong
- c) A is correct, R explains A
- d) Both A and R are wrong

Ans: a) A is correct, R is wrong

2. Assertion (A) : Pseudomonas putida, a genetically engineered bacterium is used in bioremediation.

Reason (R) : The process of cleaning oil spills by using bacteria is called bioremediation.

- a) A is correct, R is wrong
- b) A is wrong, R is correct
- c) A is correct, R explains A
- d) R does not explain A

Ans: c) A is correct, R explains A

3. Assertion (A) : Carbon monoxide is highly poisonous

Reason (R) : Iodine -131 causes bone cancer.

- a) A is correct, R is wrong
- b) A is wrong, R is correct
- c) A is correct, R explains A
- d) R does not explain A

Ans: c) A is correct, R explains A

4. Assertion (A) : Biological oxygen demand is one of the effects of water pollution.

Reason (R) : Organic wastes in water bodies cause algal bloom which results in oxygen depletion.

- a) A is correct, R is wrong
- b) A is wrong, R is correct
- c) A is correct, R explains A
- d) R does not explain A

Ans: c) A is correct, R explains A

5. Assertion (A) : Smoke contains carcinogens such as benzopyrene.

Reason (R) : Fly ash contains particulates released from thermal power plants.

- a) A is correct, R is wrong
c) A is correct, R explains A
b) A is wrong, R is correct
d) R does not explain A

Ans: d) R does not explain A

6. Find the odd one out and give reason:

- a) Radium, thorium, uranium, domestic sewage.

Ans: Domestic sewage

Reason: It causes water pollution while others are radioactive elements which cause radioactive pollution.

- b) Benzene, toluene, xylene, acid rain

Ans: acid rain

Reason: acid rain is inorganic, others are organic compounds.

CHEMISTRY

Unit – IV PERIODIC CLASSIFICATION OF ELEMENTS

1. Choose the correct answer:

1. Classification of elements into two division, namely metals and non-metals was firstly attempted by.....

- a) Dobereiner b) Lavoisier c) Mandaleev

Ans: Lavoisier

2. As per newland's 'Law of Octaves' which of the two elements given below have repetition of similar properties.

- 1) Na 2) Mg 3) Al 4) Si 5) P 6) S 7) Cl 8) K

Ans: Na- Sodium, K – Potassium

3. In Mendeleev's periodic table, all the elements are sorted in the periodic functions of their

- a) Mass number b) Atomic number

Ans: Mass number

4. One of the coinage metal is

- a) Copper b) Sodium c) Nickel

Ans: Copper

5. Liquid metal at room temperature is

- a) Mercury b) Bromine c) Tin

Ans: Mercury

6. Osmium is the heaviest metal. It is time heavier than iron,

- a) 221/2 b) 3 c) about half

Ans: 3

7. Metalloids have some metallic properties and some non-metallic properties. An example for metalloid is

- a) Silicon b) Argon c) Iodine

Ans: Silicon

8. Complete the reaction $\text{Mg} + \text{O}_2 \rightarrow$

Ans: $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$

9. Sodium reacts with water and gives sodium hydroxide and

- a) O_2 b) H_2 c) Cl_2

Ans: H_2

10. Arrange the following elements in the increasing order of reactivity.

- a) Na b) Ca c) Mg

Ans: Na > Mg > Ca

11. Bronze is an alloy of

- a) Copper and tin b) Silver and tin c) Copper and silver

Ans: Copper and tin

12. An alloy used in manufacturing aircraft parts is

- a) Solder b) Brass c) Duralumin

Ans: Duralumin

13. Write a balanced chemical equation for the reaction between zinc and iron (II) sulphate.

Ans: $\text{Zn} + \text{FeSO}_4 \rightarrow \text{ZnSO}_4 + \text{Fe}$

14. Choose the correct word

A (more / less) reactive metal displaces a (more / less) reactive metal from its salt solution.

Ans: More, Less

15. From the following metals, pick out the metals which can displace hydrogen from dilute acids.

Zinc, Copper, Calcium, Aluminium, Gold, Silver, Magnesium

Ans: Zinc, Calcium, Aluminium, Magnesium

16. Which of the following metals does not liberate H_2 from dilute acids?

- a) Zinc b) Iron c) Tin d) Lead

Ans: Lead

17. Which of the following metals can be displaced by Zn to form their salt solution?

- a) iron b) Copper c) Silver d) Gold

Ans: Iron, Copper

18. Number of groups in Mendeleev's Periodic table is

- a) 8 b) 9 c) 10

Ans: 9

19. Number of periods in Mendeleev's periodic table is

- a) 6 b) 7 c) 8

Ans: 7

20. Pick out the alkali metals

Sodium, Potassium, Calcium, Magnesium, Nickel, Aluminium, Tin, Silicon

Ans: Sodium and Potassium

21. Pick the odd one out and give reasons for your answer.

- a) Na_2O b) MgO c) SO_2 d) CaO

Ans: SO_2 it is an acidic oxide, others are basic oxides.

22. The scientist who classified elements into metals and non-metals,

- a) Dobereiner b) Lavoisier c) Newland d) Lothar Meyer

Ans: Lavoisier

23. The law of Triads was proposed by

- a) Lavoisier b) Mendeleev c) Newland d) Dobereiner

Ans: Dobereiner

24. The Law of Octaves was proposed by

- a) Dobereiner b) Mendeleev c) Newland d) Lavoisier

Ans: Newland

25. The scientist who plotted atomic weight against atomic volume of various elements.

- a) Mendeleev b) Newland c) Lavoisier d) Lothar Meyer

Ans: Lothar Meyer

26. The element in the first period of the periodic table

- a) Lithium b) Magnesium c) Helium d) Carbon

Ans: Helium

27. An example of Alkali metals

- a) Sodium b) Calcium c) Magnesium d) Aluminium

Ans: Sodium

28. An example of Transition metal.

- a) Sodium b) Potassium c) Iron d) Calcium

Ans: Iron

29. An example for metalloids.

- a) Sodium b) Calcium c) Silicon d) Alluminium

Ans: Silicon

30. The metal which is the best conductor of electricity.

- a) mercury b) magnesium c) copper d) silver

Ans: Silver

31. is the lightest metal.

- a) sodium b) calcium c) lithium d) potassium

Ans: Lithium

32. The non-metal which is a good conductor of electricity.

- a) Hydrogen b) Chlorine c) Graphite d) Neon

Ans: Graphite

33. is the heaviest metal.

- a) Iron b) Lithium c) Aluminium d) Osmium

Ans: Osmium

34. Has the highest melting point.

- a) sodium b) potassium c) Tungsten d) Iron

Ans: Tungsten

35. The most reactive metal which is at the top of the reactivity series.

- a) Sodium b) Silver c) copper d) potassium

Ans: Potassium

36. The least reactive metal

- a) sodium b) potassium c) magnesium d) platinum

Ans: Platinum

37. The alloy used to make Aircraft parts.

- a) steel b) bronze c) duralumin d) solder

Ans: Duralumin

38. The metal which melts in the hand (at the temperature of human body)

- a) Mercury b) Gallium c) Sodium d) Potassium

Ans: Gallium

39. The alloy which is used for making status.

- a) Brass b) Silver c) Bronze d) Steel

Ans: Bronze

40. The alloy used for joining metal surfaces without melting them.

- a) Duralumin b) Brass c) Steel d) Solder

Ans: Solder

41. Amalgam is an alloy in which one of the constituents is

- a) Sodium b) Potassium c) Mercury d) Iron

Ans: Mercury

42. The Law of Triads was proposed by

- a) Newland b) Dobereiner

Ans: Dobereiner

43. is a metalloid.

- a) Germanium b) Gallium

Ans: Germanium

44. An example for least reactive metal.

- a) Sodium b) Silver

Ans: Silver

45. Atoms of one metal randomly take the place of atoms of another metal in alloy.

- a) Substitutional b) Interstitial

Ans: Substitutional

46. Amalgam is an alloy in which one of the constituents is

- a) Mercury b) Sodium

Ans: Mercury**2. Identify the incorrect combinations**

Name of the alloy	metals Present	Uses
Brass	a) Sn, pb	k) construction of bridged
Duralumin	b) Fe, C, Cr, Ni, W	l) Plumbing industries to join metal surfaces
Bronze	c) Cu, Sn	m) Statues
Solder	d) Cu, Zn	n) Aircraft parts

Ans: 1 – a –k, 2 – b – l, 4 – d –n

3. A. Match the following:

- | | | |
|-----------------|---|--------------------------------------|
| 1. Lavoisier | - | a) Law of Triads |
| 2. Newland | - | b) Metals and non-metals |
| 3. Lothar Meyer | - | c) law of Octaves |
| 4. Doberenier | - | d) Atomic weight Atomic volume curve |

Ans: 1 – b , 2- c, 3 – d, 4 – a

B. Match the following:

- | | | |
|-------------------------|---|--------------|
| 1. Alkali metal | - | a) Calcium |
| 2. Alkaline earth metal | - | b) Germanium |
| 3. Transition metal | - | c) Sodium |
| 4. Metalloid | - | d) Iron |

Ans: 1 – c , 2 - a, 3 – c, 4 – b

C. Match the following:

- | | | |
|------------------|---|---------------------|
| 1. Mercury | - | a) Solder |
| 2. Most reactive | - | b) Liquid non-metal |

3. Bromine - c) Sodium
4. Alloy - d) Liquid metal

Ans: 1 – b , 2- c, 3 – b, 4 – a

D. Match the following:

1. Duralumin - a) Cooking utensils
2. Bronze - b) window and door fitting
3. Steel - c) Aircraft parts
4. Solder - d) Statues
5. Brass - e) Tin and lead

Ans: 1 – c , 2- d, 3 – a, 4 – e, 5 – b

4. Spot the error and correct it:

1. The law of triads was proposed by Newland.
The law of triads was proposed by Doberieiner.
2. The third period has 18 elements.
The third period has 8 elements.
3. Iodine-131 causes bone cancer.
Strontium- 90 causes bone cancer.
4. Carbon monoxide causes Global warming.
Carbon dioxide causes Global warming.
5. Brass is used for making statues.
Bronze is used for making statues.

5. Reason and Assertion:

1. Assertion (A) : Newland arranged the elements in the ascending order of atomic masses and found that the eight element had the same properties as the first.
Reason (R) : As it resembled the musical octaves, he called this arrangement the law of octaves.
a) A is right, R is wrong b) A is wrong, R is right
c) A is right, R explains A d) R does not explain A
Ans: c) A is right, R explains A
2. Assertion (A) : Lavoisier proposed the law of Triads.
Reason (R) : There are seven periods in the periodic table.
a) A is right, R is wrong b) A is wrong, R is right
c) A is right, R explains A d) Both A and R are wrong
Ans: b) A is wrong, R is right
3. Assertion (A) : Aluminium combines with oxygen to form a layer of Aluminium oxide.
Reason (R) : When metals like Aluminium react with dilute hydrochloric acid, Hydrogen is liberated.
a) A is correct R is wrong b) R is correct, A is wrong
c) A is correct, R explains A d) R does not explain A
Ans: d) R does not explain A
4. Assertion (A) : Sulphur burns in air to form sulphur dioxide.
Reason (R) : Phosphorous burns in air to form phosphorous pentoxide.
a) A is correct, R is wrong b) A is wrong, R is correct
c) A is correct, R explains A d) Both A and R are correct

Ans: d) Both A and R are correct

5. Assertion (A) : Sodium is at the top of the reactivity series.

Reason (R) : Highly reactive metals occupy the top portion of the reactivity series.

- a) A is correct, R is wrong b) A is wrong, R is correct
c) A is correct, R explains A d) R does not explain A

Ans: c) A is correct, R explains A

6. Spot the odd one and give reason:

1. Neon, Fluorine, Sodium, Argon.

Ans: Sodium

Reason: It is a metal while others are gases.

2. Carbon, Germanium, Iodine, Sulphur.

Ans: Germanium

Reason: It is a metalloid while others are non-metals.

3. Sodium, Magnesium, Silver, Aluminium.

Ans: Silver

Reason: It is the least reactive while others are most reactive.

4. Sodium, Mercury, Potassium, Magnesium.

Ans: Mercury

Reason: It is a liquid metal while others are solids.

5. Brass, Bronze, Steel, Iron.

Ans: Iron

Reason: It is a metal while others are alloys.

7. Classify the compounds involving oxygen are termed as oxides.

Oxides of non-metals – metals are called **acidic oxides**

Oxides of metals are called **basic oxides**

Sodium oxide	=	metal + oxides	=	Basic oxide
Zinc oxide	=	metal + oxides	=	Basic oxide
Aluminium oxide	=	metal + oxygen	=	Basic oxide
Carbon dioxide	=	non-metal + oxygen	=	acidic oxide
Sulphur dioxide	=	non-metal + oxygen	=	acidic oxide

CHEMISTRY

Unit – V CHEMICAL BONDS

1. Choose the correct answer:

1. As per the octet rule, noble gases are stable in nature. This is due to the presence of Electrons in their outer most shell.

- a) eight b) seven c) six

Ans: eight

2. The element that would form cation due to loss of electron during the chemical reaction

- a) chlorine b) lithium c) fluorine

Ans: lithium

3. Atomic number of magnesium is 12. Then its electron distribution is

- a) 2,2,8 b) 2,8,2 c) 8,2,2

Ans: 2,8,2

4. An element X has 6 electrons in the outermost shell. Then the number of electrons shared by X with another atom to form a covalent bond is

- a) 3 b) 2 c) 6

Ans: 2

5. The compound that possesses high melting point is

- a) NH₃ b) NaF

Ans: NaF

6. Bond in which the electrons are equally shared is

- a) polar bond b) non-polar bond c) ionic bond

Ans: non-polar bond

7. Pick out the wrong statement about the properties of covalent compounds.

- a) They are neither hard nor brittle b) Molecular reactions are fast

Ans: Molecular reactions are fast

8. CH₄ is a/an compound.

- a) covalent b) ionic

Ans: Covalent

9. If an atom loses an electron, it forms a

Ans: Cation

10. Ionic compounds are In nature.

- a) Solids b) Liquids

Ans: Solids

11. The scientist who gave the octet rule.

- a) Dalton b) Lothar Meyer c) Lewis d) Newland

Ans: Lewis

12. The element which gives off an electron to become an anion.

- a) Sodium b) Fluorine c) Chlorine d) Argon

Ans: Sodium

13. The element which accepts an electron to become an cation.

- a) Hydrogen b) Magnesium c) Chlorine d) Neon

Ans: Chlorine

14. Number of valence electrons in Magnesium.

- a) 1 b) 2 c) 3 d) 4

Ans: 2

15. Atomic number of sodium is

- a) 11 b) 10 c) 12 d) 17

Ans: 11

16. Bond in which electron pairs are equally shared is

- a) polar bond b) non-polar bond c) ionic bond d) none of these

Ans: Non-polar bond

17. Electronic configuration of sodium atom

- a) 2,8,7 b) 2,8,1 c) 2,8,2 d) 2,8,8

Ans: 2,8,1

18. Valence electrons of Nitrogen.

- a) 6 b) 2 c) 5 d) 1

Ans: 5

19. Noble gases have electrons in the valence shell.

- a) eight b) seven c) six d) five

Ans: eight

20. Bonds in which electron pairs are not equally shared are called bonds.

- a) electrovalent b) polar c) non polar d) ionic

Ans: Polar

21. An atom which gives off electrons becomes a.....

- a) anion b) cation

Ans: cation

22. Covalent compounds are formed by

- a) Transfer of electrons b) Sharing of electrons

Ans: Sharing of electrons

23. Bonds in which electron pairs are equally shared are bonds.

- a) Non-polar b) polar

Ans: Non-polar

24. Noble gases have electrons in the outermost shell.

- a) eight b) seven

Ans: eight

25. Covalent compounds are of electricity.

- a) Conductors b) non-conductors

Ans: non-conductors

2. **Find the odd one out** in NaXCl, MgCl₂, H₂ (based on type of bonding) and Li, Na, F (based on metals and non-metals).

Ans: H₂ (covalent bond) and F (non-metal)

3. **Correct the wrong statement**

- a) Bonds in which electrons are equally shared are polar bonds.

Ans: Bonds in which electrons are equally shared are non-polar bonds.

- b) Sharing of 3 pairs of electrons make a double bond.

Ans: Sharing of 2 pairs of electrons make a double bond.

4. **A. Match the following:**

Element	Atomic Number
1. Sodium	- a) 17
2. Magnesium	- b) 10
3. Chlorine	- c) 11
4. Neon	- d) 12

Ans: 1 – c, 2- d, 3- a, 4 - b

B. Match the following:

Element	Valence Electrons
1. Magnesium	- a) 6

2. Oxygen - b) 5
3. Sodium - c) 2
4. Nitrogen - d) 1

Ans: 1 – c, 2- a, 3- d, 4 – b

C. Match the following:

- | Compound | Bonds |
|--------------------|--------------------------------|
| 1. Sodium chloride | - a) non-polar bond |
| 2. Benzene | - b) polar bond |
| 3. Carbon monoxide | - c) ionic bond |
| 4. Water | - d) Co-ordinate covalent bond |

Ans: 1 – c, 2- a, 3- d, 4 – b

D. Match the following:

- | | |
|--------------------|---------------------------|
| 1) MgCl_2 | - a) Co-ordinate covalent |
| 2) Cl_2 | - b) Ionic component |
| 3) NH_4 | - c) Covalent compound |

Ans: 1 – b, 2 – c, 3 - a

5. Sort the error and correct it:

- Inert gases have no stable electronic configuration.
Ans: Inert gases have stable electronic configuration.
- Ionic bond is formed by the sharing of electrons.
Ans: Ionic bond is formed by the transfer of electrons.
- The atom which gives off electrons becomes an anion.
Ans: The atom which gives off electrons becomes an cation.
- Covalent compounds have high melting and boiling points.
Ans: Ionic compounds have high melting and boiling points.
- Water is a coordinate compound.
Ans: Water is a covalent compound.

6. Reason and Assertion:

- Assertion (A) : Argon and Neon are inert gases.
Reason (R) : They have the stable electronic configuration of 8 electrons in their outermost shell.
a) A is correct, R is wrong b) A is wrong, R is correct
c) A is correct, R does not explain A d) R explains A
Ans: d) R explains A
- Assertion (A) : Octet Rule was given by G N Lewis.
Reason (R) : Sodium chloride is formed by the sharing of electrons.
a) A is correct, R is wrong b) A is wrong, R is correct
c) A is correct, R explains A d) Both A and R are wrong
Ans: a) A is correct, R is wrong
- Assertion (A) : The atom which accepts electrons becomes the cation.
Reason (R) : Sodium has one valence electron.
a) A is correct, R is wrong b) A is wrong, R is correct

c) A is correct, R explains A

d) Both A and R are wrong

Ans: b) A is wrong, R is correct

4. Assertion (A) : In solid state ionic compounds are poor conductors of electricity.

Reason (R) : Only in molten state or in aqueous solutions the ions are free to move.

a) A is correct, R is wrong

b) R is correct, A is wrong

c) A is correct, R explains A

d) R does not explain A

Ans: c) A is correct, R explains A

5. Assertion (A) : Ionic reactions are fast.

Reason (R) : Covalent compounds are gases, liquids or soft solids at room temperature.

a) A is correct, R is wrong

b) R is correct, A is wrong

c) A is correct, R explains A

d) Both A and R are correct

Ans: d) Both A and R are correct

7. Spot the odd one and give reason:

1. Chlorine, Hydrogen, Helium, Fluorine.

Ans: Helium

Reason: it is an inert gas

2. Water, Ammonia, Carbon monoxide, Carbon dioxide

Ans: Carbon monoxide

Reason: it is a coordinate compound others are covalent compounds.

3. Hydrogen molecule, Chlorine molecule, Water molecule, Ammonia molecule,

Ans: Ammonia molecule

Reason: It has a lone pair of electrons.

4. Sodium, Magnesium, Chlorine, Aluminium

Ans: Chlorine

Reason: Chlorine accepts electron to achieve the stable octet electronic configuration. Others transfer electrons.

5. Water, Sodium chloride, Ammonia, Methane.

Ans: Sodium chloride

Reason: it is an electrovalent compound. Others are covalent compounds.

PHYSICS

Unit – VI WORK, POWER AND ENERGY

1. Choose the correct answer:

1. Work done by the force is said to be negative, if the displacement of a body is

a) Along the force

b) against the force

Ans: against the force

2. Pick the odd one out from the following based on the nature of energy possessed by them.

a) moving car

b) water stored in a tank

c) a book on a table

d) ceiling fan in off position

Ans: Moving car

3. Commercial unit of electrical energy is

a) joule

b) joule/second

c) watt

d) kilowatt hour

Ans: kilowatt hour

4. The SI unit of work is

a) watt

b) joule

Ans: joule

5. Capacity of doing work is called

- a) power
b) energy

Ans: energy

6. Work done = power x

- a) time taken
b) displacement

Ans: time taken

7. One Kwh is equal to

- a) $3.6 \times 10^6 \text{ J}$ b) 360000 J

Ans: $3.6 \times 10^6 \text{ J}$

8. Potential energy of an object raised through a height h is

- a) $\frac{1}{2} mv^2$ b) mgh

Ans: mgh

9. The SI unit of work is

- a) joule b) watt c) newton d) killogram

Ans: Joule

10. The larger unit mega joule is

- a) 10^5 joules b) 10^6 joule c) 10^3 joules d) 10^{10} joules

Ans: 10^6 joules

11. Energy possessed by an object due to its motion is called

- a) potential energy b) gravitational potential energy
c) conventional energy d) kinetic energy

Ans: Kinetic energy

12. Formula for potential energy

- a) $\frac{1}{2} mv^2$ b) mv^2 c) mgh d) mv^2/r

Ans: mgh

13. An example for potential energy

- a) an apple falling b) moving water c) compressed spring d) rotating mixie

Ans: compressed spring

14. An example for kinetic energy

- a) an apple falling b) a book lying on the table
c) water stored in a reservoir d) a ball at rest

Ans: an apple falling

15. The init of power is

- a) joule b) watt

Ans: watt

16. Electricity can produce when passed through a resistance.

- a) heat b) light

Ans: heat

17. Energy possessed by an object by virtue of its position is

- a) $\frac{1}{2} mv^2$ b) mgh

Ans: $\frac{1}{2} \text{ mv}^2$

18. One kilowatt – hour =

- a) 3600000 J b) 1000 J

Ans: 3600000 J

2. For the following situations, determine, whether work was done. Write 'work done' or 'no work done' for each situation.

1. An ice skater glides for two meters across the ice. - **no work done**
2. The ice skater's partner lifts her up to a distance of 1 meter. - **work done**

3. Name the energy transformation that occurs in the following:

1. Electric energy is converted into mechanical energy

Ans: Electric motor

2. Solar energy is converted into electrical energy.....

Ans: Photoelectric cell

3. Electrical energy is converted into heat energy

Ans: Electric heater

4. Solar energy is converted into chemical energy.....

Ans: Photosynthesis in plants

5. Electrical Energy is converted into light energy.....

Ans: Light bulb

4. A. Match the following:

Quantity		Unit
1. Kinetic energy	-	a) newton
2. Electrical energy	-	b) watt
3. Power	-	c) joule
4. Force	-	d) kilowatt hour

Ans: 1 – c, 2 – d, 3 – b, 4 – a

B. Match the following:

1. 1 Megawatt	-	a) $W = F \times S$
2. 1 Kilowatt hour	-	b) mgh
3. Kinetic energy	-	c) 106 joules / second
4. Work	-	d) 3600000 joules
5. Potential energy	-	e) $\frac{1}{2} mv^2$

Ans: 1 – c, 2 – d, 3 – e, 4 – a, 5 – b

5. Spot the error and correct it:

1. When an object is lifted from the ground, work is said to be done by the force of gravity?

Ans: When an object is lifted from the ground, work is said to be **done against the force of gravity**.

2. The SI unit of power is joule.

Ans: The SI unit of power is **watt**.

3. Energy possessed by an object due to its motion is called potential energy.

Ans: Energy possessed by an object due to its motion is called **kinetic energy**.

4. When work is done on an object and results in increase in height, the object gains kinetic energy.

Ans: When work is done on an object and results in increase in height, the object gains **potential energy**.

5. Ceiling fan in off position is an example for kinetic energy.

Ans: Ceiling fan in off position is an example for **potential energy**.

6. Reason and Assertion:

1. Assertion (A) : Windmills transform wind energy into mechanical energy.

Reason (R) : Energy cannot be converted from one form to another.

- a) A is correct, R is wrong
b) A is wrong, R is correct
c) A is correct, R explains A
d) Both A and R are correct

Ans: a) A is correct, R is wrong

2. Assertion (A) : If the body is displaced in the same direction as the force, the work is said to be done against the force.

Reason (R) : Energy is the capacity to do work.

- a) A is correct, R is wrong
b) A is wrong, R is correct
c) A is correct, R explains A
d) Both A and R are wrong

Ans: b) A is wrong, R is correct

3. Assertion (A) : Heat is a form of energy.

Reason (R) : Heat can do work. Eg. Steam engine

- a) A is correct, R is wrong
b) R is correct, A is wrong
c) A is correct, R explains A
d) R does not explain A

Ans: c) A is correct, R explains A

7. Spot the odd one and give reason:

- ## 1. Force, Displacement, Time, Gravity.

Ans: Time

Reason: It is not related to work like others.

- ## 2. Electric motor, Fan, Mixie, Bulb

Ans: Bulb

Reason: Here electric energy is converted into light. In others electric energy is converted into mechanical energy (kinetic energy)

3. Moving car, rotating fan, book on table, a hammer used to drive a nail.

Ans: book on table

Reason: It is an example for potential energy. Others are example for kinetic energy.

4. Water stored in a reservoir, book on table, rotating ceiling fan, compressed spring.

Ans: rotating ceiling fan

Reason: it is an example of kinetic energy. Others are examples of potential energy,

8. Fill in the blanks:

1. High melting and boiling points Compounds

Ans: Ionic

2. Low melting and boiling points Compounds

Ans: Covalent

- ### 3. Transfer of electrons formed by Compounds

Ans: Covalent

- #### 4. Sharing of electrons formed by Compounds

Ans: Ionic

PHYSICS**Unit – VII HEAT GAS LAWS****I. Choose the correct answer:**

1. The degree of hotness or coldness of a body is

- a) heat b) temperature

Ans: temperature

2. Select the liquid from the following which has the specific heat capacity of $4180 \text{ Jkg}^{-1} \text{ K}^{-1}$

- a) mercury b) kerosene c) water d) coconut oil

Ans: water

3. Heat is that form of energy that is transferred from one object to another due to

- a) height difference b) temperature difference c) mass difference d) velocity difference

Ans: temperature difference

4. Heat is energy that is

- a) in transit b) stationary c) contained in a body

Ans: in transit

5. The quality of heat transferred is equal to the product of, and

Ans: mass, specific heat capacity and the change in temperature.

6. Heat is

- a) moving energy b) unmoving energy

Ans: moving energy

7. Absolute scale of temperature is known as

- a) Celsius b) scale c) Kelvin scale

Ans: Kelvin scale

8. The SI unit of specific heat capacity is

- a) $\text{JKg}^{-1} \text{ K}^{-1}$ b) JK^{-1}

Ans: $\text{JKg}^{-1} \text{ K}^{-1}$

9. The zero of Kelvin scale corresponds to

- a) OK b) 0° C

Ans: OK

10. Thermal capacity of an object =

- a) $m \times c \times \Delta t$ b) $m \times c$

Ans: $m \times c$

11. One of the pioneers of manned balloon.

- a) Jacques Charles b) Ben Franklin c) Ferdinand Zeppelin d) Henri Giffard

Ans: Jacques Charles

12. The unit of specific heat capacity is

- a) Kelvin b) $\text{JKg}^{-1} \text{ K}^{-1}$ c) Joule/Kelvin d) Joule

Ans: $\text{JKg}^{-1} \text{ K}^{-1}$

13. The specific heat capacity of water.

- a) 140 J/Kg/K b) 4180 J/Kg/K c) 3851 J/Kg/K d) 900 J/Kg/K

Ans: 4180 J/Kg/K

14. The lowest possible temperature.

- a) 0° C b) 273 K c) -273° C d) 1° C

Ans: 2730C

15. The substance with highest specific heat capacity

- a) copper b) aluminium c) mercury d) water

Ans: water

16. The substance with lowest specific heat capacity.

- a) Aluminium b) Water c) Mercury d) Copper

Ans: Mercury

17. Gas equation

- a) $P/T = \text{Constant}$ b) $V/T = \text{Constant}$ c) $PV/T = \text{Constant}$ d) $PV = \text{Constant}$

Ans: $PV/T = \text{Constant}$

18. The concept of absolute zero was proposed by.....

- a) Jacques Charles b) Lord Kelvin c) Gay Lussac d) Dalton

Ans: Lord Kelvin

19. The formula for quantity of heat

- a) $m \times c \times \Delta t$ b) $m \times c$ c) $Q \times \Delta t$ d) $m \times L \times \Delta t$

Ans: $m \times c \times \Delta t$

20. The formula for latent heat

- a) $Q = m \times c \times \Delta t$ b) $(PA + h) \times L$ c) mL d) $m \times L \times \Delta t$

Ans: mL

21. The heat required to raise the temperature of unit mass of a substance through unit temperature.

- a) Thermal capacity b) Specific heat capacity

Ans: Specific Heat Capacity

22. At constant temperature, when the volume increases, the pressure

- a) Decreases b) Increases

Ans: Decreases

23. Pressure remaining constant, the volume of a given mass of gas is directly proportional to the absolute temperature. This is called the law of

- a) Pressures b) Volumes

Ans: Volumes

24. The zero of the Kelvin scale is equal to

- a) +273K b) -273C

Ans: -273C

25. is Mars Orbiter Spacecraft.

- a) Chandrayan b) Mangalyan

Ans: Mangalyan

2. A. Match the following:

Change of State

1. Vaporization
2. Condensation
3. Freezing
4. Sublimation

Example

- a) Burning of champhor
- b) Water changed into ice
- c) Steam
- d) Rain

Ans: 1 – c, 2 – d, 3 – b, 4 – a

B. Match the following:

- | | |
|---------------------|------------------------------|
| 1. Boyle's Law | a) $P/T = \text{a constant}$ |
| 2. Charles Law | b) $PV = \text{a constant}$ |
| 3. Law of pressures | c) $V/T = \text{a constant}$ |

Ans: 1 – b, 2 – c, 3 – a

C. Match the following:

Quantity	Unit
1. Specific latent heat	a) Kelvin
2. Thermal capacity	b) $\text{JKg}^{-1}\text{K}^{-1}$
3. Specific heat capacity	c) J/Kg
4. Temperature	d) JK^{-1}

Ans: 1 – c, 2 – d, 3 – b, 4 – a

D. Match the following:

Quantity / Law	Formula
1. Boyle's Law	a) $V/T = \text{a constant}$
2. Latent heat	b) $m \times c \times \Delta t$
3. Charles's Law	c) mL
4. Quantity of heat	d) $PV = \text{a constant}$

Ans: 1 – d, 2 – c, 3 – a, 4 – b

3. Spot the error and correct it:

1. The SI unit of specific Heat capacity is JK^{-1} .

Ans: The SI unit of specific Heat capacity is $\text{JKg}^{-1}\text{K}^{-1}$

2. Thermal capacity of an object = $m \times L$

Ans: Thermal capacity of an object = $m \times c$

3. The quantity of latent heat required to melt a substance is greater than the heat energy that is released when it solidifies.

Ans: The quantity of latent heat required to melt a substance is the same as the heat energy that is released when it solidifies.

4. The ideal gas equation is P/T is a constant.

Ans: The ideal gas equation is PV/T is a constant.

5. India's Mars Orbiter spacecraft Mangalyan was launched on September 24, 2014

Ans: India's Mars Orbiter spacecraft Mangalyan was launched on November 5, 2013.

4. Reason and Assertion:

1. Assertion (A) : The specific heat capacity of water is the highest of all substances.

Reason (R) : Thermal capacity is the amount of heat required to raise the temperature of 1kg of a substance through 1 K.

- | | |
|---------------------------------|-----------------------------|
| a) A is correct, R is wrong | b) R is correct, A is wrong |
| c) A is correct, R explains s A | d) Both A and R are correct |

Ans: a) A is correct, R is wrong

2. Assertion (A): Temperature remaining constant, the pressure of a given mass of gas is directly proportional to its volume.

Reason (R) : The heat required to melt a substance without change in temperature is called latent heat of fusion.

- a) A is correct, R is wrong
b) A is wrong, R is correct
c) A is correct, R explains A
d) Both A and R are wrong

Ans: b) A is wrong, R is correct

3. Assertion (A) : The zero of the Kelvin scale corresponds to -273°C

Reason (R) : At this temperature all molecules come to rest. So it is called absolute zero.

- a) A is correct, R is wrong
b) A is wrong, R is correct
c) A is correct, R explains A
d) R does not explain A

Ans: c) A is correct, R explains A

5. One Line questions:

1. The amount of heat energy required to raise the temperature of 1kg of a substance through 1 K is specific heat capacity.....

Ans: specific Heat

- 2. Thermal capacity:** Thermal capacity is the quantity of heat required to raise the temperature of an object through 1 K.

3. What is change of state?

The process of converting a substance from one state to another is called change of state.

4. What is latest heat of fusion?

The heat required to melt a substance without change in temperature is called latent heat of fusion.

5. Define specific Latent heat?

The specific latent heat of fusion of any substance is the quantity of heat energy required to melt one kilogram of a substance without change in temperature.

6. State – Boyle’s Law.

Temperature remaining constant, the pressure of a given mass of gas is inversely proportional to its volume.

7. State Charles Law.

Pressure remaining constant, the volume of a given mass of gas is directly proportional to the absolute temperature.

VI. Spot the odd one and give reason:

1. Freezing, vaporization, boiling, fusion.

Ans: Fusion

Reason: It is change of state of solids while others are change of state of liquids.

2. Sublimation, fusion, crystallization, melting.

Ans: Crystallization

Reason: It is the change of state of gas. Others are change of state of solids.

- ### 3. Condensation, vaporization, expansion, crystallization.

Ans: Vaporization

Reason: It is the change of state of liquid others are change of gas.

4. GSLMIII, Mars Orbiter spacecraft, Chandrayan, Mangalyan.

Ans: Chandrayan

Reason: It is the satellite which was sent to probe the moon. Others are satellites and launch vehicle of MOM.