Choose the best answer

1. Which one the following system of units is the British System of unit?
   a) CGS  
   b) MKS  
   c) FPS  
   d) SI

2. Electric current belongs to ______ quantities
   a) base  
   b) supplementary  
   c) derived  
   d) professional

3. SI unit of temperature is
   a) celsius  
   b) Fahrenheit  
   c) kelvin  
   d) ampere

4. Amount of substance is
   a) directly proportional to the number of atoms  
   b) inversely proportional to the number of atoms  
   c) directly proportional to the square of number of atoms  
   d) inversely proportional to the square of number of atoms

5. Luminous intensity is the intensity of
   a) Laser light  
   b) UV light  
   c) visible light  
   d) IR light

7. SI unit stands for
   a) International system of units  
   b) Integrated System of units  
   c) International symbol of units  
   d) Integrated symbol of units

8. Closeness of two or more measured values is called as
   a) accuracy  
   b) precision  
   c) error  
   d) approximation

9. Quantities other than base quantities are called as
a) supplementary quantities  b) derived quantities

c) professional quantities  d) energy quantities

10. Which of the following statements about approximation is wrong?

a) Approximation gives accurate value.
b) Approximation simplifies the calculation.
c) Approximation is very useful when little information is available.
d) Approximation gives the nearest value only.

II. Fill in the blanks.

1. The solid angle is measured in **Steradian**.

2. Scientists recognized the need of ‘Standard Units’ for physical quantities.

3. The coldness or hotness of a substance is expressed by **Temperature**.

4. **Ammeter** is used to measure electric current.

5. **Amount** of substance, contains $6.023 \times 10^{23}$ atoms or molecules.

6. Luminous Intensity is the amount of visible light, that is emitted in unit area per unit **Solid angle**.

7. Quartz clock uses **Electronic** oscillations.

8. The uncertainty in measurement is called as **Error**.

9. **Accuracy** is the closeness of the measured value to the original value.

10. The intersection of two straight lines gives us **Plane angle**.

III. True or False.

1. SI units are metric system of units - **True**.

2. Temperature is a measure of total kinetic energy of the particles in a system- **False**.

3. In thermometers, freezing point of water is taken as the Upper Fixed Point - **False**.

4. One coulomb of charge flowing per minute is called ‘ampere’- **False**.
5. Amount of substance gives the number of particles present in the substance - **True**.

6. Intensity of light from a candle is approximately equal to one ‘candela’ - **True**.

7. Angle formed at the top of a cone is an example of ‘Plane Angle’ - **True**.

8. Quartz clocks are used in GPS Devices - **False**.

9. Candela is used to express electric field intensity - **False**.

10. The number 4.582 can be rounded off as 4.58 - **True**.

**IV. Match the following:**

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Temperature</td>
<td>a) Closeness to the Actual Value</td>
</tr>
<tr>
<td>2. Plane Angle</td>
<td>b) Measure of hotness or coldness</td>
</tr>
<tr>
<td>3. Solid Angle</td>
<td>c) Closeness to two or more measurements</td>
</tr>
<tr>
<td>4. Accuracy</td>
<td>d) Angle formed by the intersection of three or more planes</td>
</tr>
<tr>
<td>5. Precision</td>
<td>e) Angle formed by the intersection of two planes</td>
</tr>
</tbody>
</table>

2. **FORCES AND PRESSURE**

**I. Choose the correct answer for each of the following:**

1. If we apply a force against the direction of motion of a body, then the body will
   a) **stop moving**  
   b) move with an increased speed  
   c) move with a decreased speed  
   d) move in a different direction

2. Pressure exerted by a liquid is increased by
   a) the density of the liquid  
   b) **the height of the liquid column**
c) Both (a) & (b)  
d) None of the above

3. Unit of pressure is
   a) pascal  
   b) \( N \ m^{-2} \)  
   c) poise  
   d) Both (a) & (b)

4. The value of the atmospheric pressure at sea level is
   a) 76 cm of mercury column  
   b) 760 cm of mercury column  
   c) 176 cm of mercury column  
   d) 7.6 cm of mercury column

5. Pascal’s law is used in
   a) hydraulic lift  
   b) brake system  
   c) pressing heavy bundles  
   d) All the above

6. Which of the following liquids has more viscosity?
   a) Grease  
   b) Water  
   c) Coconut oil  
   d) Ghee

7. The unit of viscosity is
   a) \( N \ m^2 \)  
   b) poise  
   c) \( \text{kg m s}^{-1} \)  
   d) no unit

II. Fill in the blanks

1. The pressure of a liquid column **varies** with the depth of the column.

2. Hydraulic lift works under the principle of **pascal law**.

3. The property of **surface tension** of a liquid surface enables the water droplets to move upward in plants.

4. A simple barometer was first constructed by **Torricelli**.

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

1. Force acting on a given area is called pressure- **False**.

2. A moving body comes to rest due to friction alone- **True**.

3. A body will sink if the weight of the body is greater than the buoyant force- **True**.

4. One atmosphere is equivalent to 1,00,000 newton force acting on one square metre- **False**.
5. Rolling friction is slightly greater than the sliding friction—**False**.

6. Friction is the only reason for the loss of energy—**False**.

**V. Match the following**

**Match: I**

<table>
<thead>
<tr>
<th>Column I</th>
<th>Column II</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Static friction</td>
<td>viscosity 4</td>
</tr>
<tr>
<td>b) Kinetic friction</td>
<td>least friction 3</td>
</tr>
<tr>
<td>c) Rolling friction</td>
<td>objects are in motion 2</td>
</tr>
<tr>
<td>d) Friction between</td>
<td></td>
</tr>
<tr>
<td>the liquid layers</td>
<td>objects are sliding 5</td>
</tr>
<tr>
<td>e) Sliding friction</td>
<td>objects are at rest 1</td>
</tr>
</tbody>
</table>

**Match: II**

<table>
<thead>
<tr>
<th>Column I</th>
<th>Column II</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Barometer</td>
<td>reduce friction 4</td>
</tr>
<tr>
<td>b) Increase friction</td>
<td>atmospheric pressure 1</td>
</tr>
<tr>
<td>c) Decrease friction</td>
<td>cause of friction 5</td>
</tr>
<tr>
<td>d) Lubricants</td>
<td>increasing area of contact 2</td>
</tr>
<tr>
<td>e) Irregular surface</td>
<td>decreasing area of contact 3</td>
</tr>
</tbody>
</table>

**3. LIGHT**

**I. Choose the best answer.**

1. Mirrors having a curved reflecting surface are called as
   a) plane mirrors
   b) **spherical mirrors**
   c) simple mirrors
d) None of the above

2. The spherical mirror with a reflecting surface curved inward is called
a) convex mirror  
     b) concave mirror  
     c) curved mirror  
     d) None of the above

3. The centre of a sphere of which the reflecting surface of a spherical mirror is a part is called
     a) pole  
     b) centre of curvature  
     c) radius of curvature  
     d) aperture

4. The spherical mirror used as a rear view mirror in the vehicle is
     a) concave mirror  
     b) convex mirror  
     c) plane mirror  
     d) None of the above

5. The imaginary line passing through the centre of curvature and pole of a spherical mirror is called
     a) centre of curvature  
     b) pole  
     c) principal axis  
     d) radius curvature

6. The distance from the pole to the focus is called
     a) Pole length  
     b) focal length  
     c) principal axis  
     d) None of the above

7. Focal length is equal to half of the
     a) centre of curvature  
     b) axis  
     c) radius of curvature  
     d) None of the above

8. If the focal length of a spherical mirror is 10 cm, what is the value of its radius of curvature?
     a) 10 cm  
     b) 5 cm  
     c) 20 cm  
     d) 15 cm

9. If the image and object distance is same, then the object is placed at
     a) infinity  
     b) at F  
     c) between f and P  
     d) at C
10. The refractive index of water is
   a) 1.0       b) 1.33       c) 1.44       d) 1.52

II. Fill in the blanks.
   1. The spherical mirror used in a beauty parlour as make-up mirror is Concave mirror.
   2. Geometric centre of the spherical mirror is Pole.
   3. Nature of the images formed by a convex mirror is Virtual image.
   4. The mirror used by the ophthalmologist to examine the eye is Concave mirror.
   5. If the angle of incidence is 45°, then the angle of reflection is 45°.
   6. Two mirrors are parallel to each other, then the number of images formed is infinite.

III. Match the following.

A)  
   2. Parabolic mirror - b. wall 4
   3. Regular reflection - c. rear – view mirror 1
   4. Irregular reflection - d. Plane mirror 3

B)  
   1. Snell's law - a. Kaleidoscope 4
   2. Dispersion of light - b. sin i/sin r =μ 1
   3. Refractive index - c. Rainbow 2
   4. Multiple reflection - d. c/v = μ 3

I. Choose the best answer.
   1. Matter is composed of
      a) atoms       b) molecules       c) ions       d) all of the above
2. The liquid metal used in thermometers is
   a) Copper     b) **Mercury**     c) Silver     d) Gold

3. The Pictorial symbol for water given by the alchemists was

   a) △           b) ▽
   c) ▽           d) △

   **Ans:** C

4. Which one of the element name not derived from planet?
   a) Plutonium     b) Neptunium     c) Uranium     d) **Mercury**

5. Symbol of Mercury is
   a) Ag           b) **Hg**           c) Au          d) Pb

6. A form of non-metal which has high ductility is
   a) nitrogen     b) oxygen     c) chlorine     d) **carbon**

7. Which one of metal possess low tensile strength?
   a) Silver     b) Copper     c) **Zinc**     d) Aluminium

8. The property which allows metals to be hammered into their sheets is ___________
   a) ductility     b) **malleability**     c) conductivity     d) tensile strength

9. The non-metal which conduct current is
   a) **carbon**     b) oxygen     c) aluminium     d) sulphur

10. Pencil lead contains
   a) **graphite**     b) diamond     c) aluminium     d) sulphur

**II. Fill in the blanks.**

1. The element which possesses character of both metals and non metals are called **Metalloids**
2. The symbol of Tungsten **W**

3. Melting point of most metal is **higher** than non-metal.


5. **Silicon and germanium** is used in semiconductor industry.

**IV. Match the substance given in column A with their use given in Column B.**

1. Match the following:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td>For making wires <strong>2</strong></td>
</tr>
<tr>
<td>Copper</td>
<td>Sewing needle <strong>1</strong></td>
</tr>
<tr>
<td>Tungsten</td>
<td>As a fuel for ignition in rocket. <strong>4</strong></td>
</tr>
<tr>
<td>Boron</td>
<td>Making the filament of a bulb <strong>3</strong></td>
</tr>
</tbody>
</table>

2. Match the following:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atom</td>
<td>A. building block of matter <strong>1</strong></td>
</tr>
<tr>
<td>Element</td>
<td>B. atoms of different kinds <strong>2</strong></td>
</tr>
<tr>
<td>Compound</td>
<td>C. atoms of the same kind <strong>3</strong></td>
</tr>
</tbody>
</table>

**III. True or False, if false correct the statement**

1. Metals are generally good conductors of electricity, but not good conductors of heat- **False.**

2. Gallium metal is in solid state at or just above room temperature- **False.**

3. Compounds can be made up of one atom- **False.**

4. Coal can be drawn into wires- **False.**

5. Zinc is highly ductile in nature- **True.**
5. CHANGES AROUND US

I. Multiple choice questions.

1. Burning of paper is a______ change.
   a) Physical   b) **chemical**   c) physical & chemical   d) neutral

2. The burning of matchstick is an example for chemical reaction based on______
   a) Contact   b) electricity   c) light   d) **catalyst**

3. ______ metal undergoes rusting.
   a) tin   b) sodium   c) copper   d) **iron**

4. The pigment responsible for browning of apples is______.
   a) Hydrated iron (II) oxide   b) **melanin**
   c) starch   d) ozone

5. Brine is a concentrated solution of ______.
   a) Sodium sulphate   b) **sodium chloride**
   c) calcium chloride   d) sodium bromide

6) Limestone contains ______ mainly.
   a) Calcium chloride   b) **Calcium carbonate**
   c) Calcium nitrate   d) Calcium sulphate

7. Which of the following factor induces electrolysis?
   a) Heat   b) light   c) **Electricity**   d) catalysis

8. In Haber’s process of producing ammonia ______ is used as a catalyst.
   a) Nitrogen   b) hydrogen   c) **Iron**   d) nickel

9. Dissolved gases like Sulphur dioxide, nitrogen oxides in rain water causes______
   a) **Acid rain**   b) base rain   c) Heavy rain   d) neutral rain

10. ______ is responsible for Global warming.
a) Carbon dioxide  
b) Methane  
c) Chloro fluoro carbons  
d) all the above

II. Fill in the blanks.
1. Reactants → Products.
2. Photosynthesis is a chemical reaction that takes place in presence of Sunlight.
3. Iron objects undergo rusting when exposed to Water and Oxygen.
4. Ammonia is the basic material to manufacture urea.
5. Electrolysis of Brine solution gives hydrogen gases.
6. Catalyst is a chemical substance which alters the speed of a chemical reaction.
7. Polyphenol oxidase or tyrosinase is the enzyme responsible for browning of vegetables, fruits.

III. Write TRUE OR FALSE for the following.
1. A chemical reaction is a temporary reaction - False
2. Change in color may take place during a chemical reaction - True.
3. Formation of slaked lime from quicklime is a endothermic reaction - True.
4. CFC is a pollutant - True.
5. Browning of some vegetables and fruits is due to tannin formation - False.

IV. Match the following:

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Rusting</td>
<td>a) photosynthesis 4</td>
</tr>
<tr>
<td>2. Electrolysis</td>
<td>b) Haber’s process 5</td>
</tr>
<tr>
<td>3. Thermolysis</td>
<td>c) Iron 1</td>
</tr>
<tr>
<td>4. Food</td>
<td>d) Brine 2</td>
</tr>
<tr>
<td>5. Catalysis</td>
<td>e) Decomposition of limestone 3</td>
</tr>
</tbody>
</table>
A | B  
---|---  
1. Rancidity | a) Decomposition  
2. Ozone | b) biocatalyst  
3. Tarnishing | c) oxygen  
4. Yeast | d) chemical reaction  
5. Calcium Oxide | e) fish  

6. MICRO ORGANISMS

I. Multiple choice questions.

1. Micro organisms are measured in ______.
   a) cm  
   b) mm  
   c) micron  
   d) meter.

2. _______ shows both living and nonliving characteristics.
   a) Protozoa  
   b) virus  
   c) bacteria  
   d) Fungi

3. ______ is a prokaryotic micro organism.
   a) Virus  
   b) algae  
   c) fungi  
   d) bacteria

4. Based on shape, the bacteria are classified into ______ types.
   a) 2  
   b) 3  
   c) 4  
   d) 5

5. The plant body of algae is called as ______.
   a) stem  
   b) thallus  
   c) leaf  
   d) root

II. Fill in the blanks.

1. Penicillin is prepared from a mould called Penicillium.

2. Prion is the infectious protein particles.

3. The intact virus particle found outside the host cell is Virion.

4. Micro organism can be seen with the help of a microscope.

5. Bacteria, which have a flagellum at one end is classified as Monotrichous.
III. Match the following:

1. Nitrogen fixing bacteria - Vaccine 5
2. Tuberculosis - Prion 3
3. Kuru - Lactobacillus acidophilus 4
4. Probiotics - Bacteria 2
5. Edward Jenner - Rhizobium 1

IV. True or False.

1. Diseases causing micro organisms are called pathogens - True.
2. Female anopheles mosquito is a carrier of dengue virus - True.
3. Chicken pox is a communicable disease - True.
4. Citrus canker is transmitted by insects - False.
5. Yeast is used in the large scale production of alcohol - True.

7. PLANT KINGDOM

I. Fill in the blanks:

1. The word ‘Taxonomy’ is derived from Greek word (Taxis Nomos)
2. Binomial Nomenclature was first introduced by Gaspard Bauhin
3. The book “Genera Plantarum” was written by Bentham and Hooker
4. Monocotyledon seeds bear only one cotyledon.
5. Brown algae belongs to phaeophyceae class.
6. Agar Agar is obtained from red algae.
7. The reserve food material of fungi are glycogen and oil.
8. The first true land plant is Pteridophytes.
9. Xylem and phloem are absent in Bryophyte plants.
10. Reticulate venation is present in Dicotyledon plants.
II. Choose the correct answers:

1. Solanum trilobatum is the binomial name of Thoothuvalai. Here the word ‘Solanum’ refers to
   a) Species   b) Genus   c) Class   d) Orders

2. __________ is an example for colonial form of algae.
   a) Oscillatoria   b) Nostac   c) Volvox   d) Chlorella

3. Floridian starch is a reserve food material of __________
   a) Chlorophyceae   b) Phaeophyceae
   c) Rhodophyceae   d) Cyanophyceae

4. The edible mushroom is __________
   a) Polyporus   b) Agaricus   c) Penicillium   d) Aspergillus

5. Soil erosion is prevented by __________ plants.
   a) Algae   b) Fungi   c) Bryophytes   d) Pteridophytes

6. The first vascular cryptogams in land plants are __________
   a) Bryophytes   b) Pteridophytes
   c) Gymnosperm   d) Angiosperm

7. The well-developed sporophytic plant body is seen in
   a) Bryophytes   b) Pteridophytes
   c) Gymnosperms   d) Angiosperms

8. Binominal Nomenclature was first introduced in the year of __________
   a) 1970   b) 1975   c) 1978   d) 1623

9. Penicillin is an antibiotic, which is extracted from __________
   a) Algae   b) Fungi   c) Bryophytes   d) Pteridophytes

III. True of False
1. In polypetalae, the petals are free - **True**.

2. Binomial name should contains more than two words - **False**.

3. Artificial system of classification is based on the vegetative characters of the plant - **False**.

4. Cell wall of fungi is made up of chitin - **True**.

5. Pinus is a closed seeded plant - **False**.

6. All bryophytes are hydrophytes - **False**.

7. Dicotyledons have well developed characters than the monocotyledons - **True**.

8. Mosses are the well developed plant in bryophytes - **True**.

9. The dominant phase of the bryophytes is sporophytes.

10. The dominant phase of the pteridophytes is diploid (2n) - **True**.

11. Seeds of angiosperm are produced inside the ovary - **True**.

12. In gymnosperms ovules are developed from the flowers - **True**.

**IV Match the following**

1. Which of the following pairs are in correct?
   a) Laminaria – Iodins
   b) Nostoc – N2 fixation
   c) Polysiphonia – Green algae
   d) Rhodophyceae – Fucoxanthin
   i) a, b, c 2) c,d c) a, c, d d) a,b ,c, d

2. Find out the correct pairs:
   Phyllanthus amarus – Euphorbiaceae
   Solomum trilobatum – Solanaceae
   Acalypha indica – Malvaceae
Aegle marmelos – Rutaceac

i) a,b          ii) c,d          iii) a,b,c          d) a,b,d

3. Which of the following characters are not suitable to angiosperm?

a) Reticulate / parallel venation, closed seeded plants, sieve tubes are present in phloem.

b) Seeds are open, ovary is not present, gametes are produced in cones.

c) Tracheids are the conducting cells, companion cells not are present in phloem.

d) Trimerous or tetramerous, closed seed, seed with seed coat, bears fruit.

1) a,b          2) b,c          3) e,d          4) a,d

4. Which of the following sequences are correct


d) In pteridophytes – pollination by wind, fertilization in the presence of water – zygote prothallus, new plant.

1) a, b, c          2) a, b          3) c, d          4) b, d

5. Match column I with coloumn II

<table>
<thead>
<tr>
<th>Column I</th>
<th>Column II</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. *Penicillium</td>
<td>1) Blast disease of paddy.</td>
</tr>
<tr>
<td><em>chrysogenum</em></td>
<td></td>
</tr>
<tr>
<td>B. <em>Ginko biloba</em></td>
<td>2) Ornamental plants</td>
</tr>
<tr>
<td>C. <em>Araucaria bidwilli</em></td>
<td>3) Athlet foot.</td>
</tr>
<tr>
<td>D. <em>Tinea pedis</em></td>
<td>4) Penicillin</td>
</tr>
<tr>
<td>E. <em>Pyricularia oryzae</em></td>
<td>5) Living fossil</td>
</tr>
</tbody>
</table>

a) A-4, B-5, C-2, D-3, E-1
b) A-4, B-5, C-1, D-2, E-1

c) A-3, B-2, C-4, D-5, E-1

d) A-4, B-2, C-1, D-5, E-3

8. ORGANIZATION OF LIFE

I. Choose the best answer.

1. ______________ is tough and thick white sheath that protect the inner parts of the eye.
   a) Sclera     b) conjunctiva     c) Cornea     d) iris

2. Maintenance of constant internal environment of the body is known as ____________
   a) Homeostasis     b) Homeophytes
   c) Homeokinesis     d) Homeophilics

3. In the absence of oxygen, glucose is broken down in to ______________
   a) Lactic acid     b) Citric acid     c) Acetic acid     d) Nitric acid

4. ______________ cells are specialized cells that can be transformed into any kind of cells.
   a) Nerve     b) Stem     c) Heart     d) Bone

5. The process of air passing in and out the lungs is called ______________.
   a) Inhalation     b) Exhalation     c) Breathing     d) None of these

6. Osmosis is the movement of water molecules from a ______________.
   a) Higher concentration to a region of lower concentration.
   b) Lower concentration to a region of higher concentration.
   c) Both of these
   d) None of these

7. The erythrocyte is placed in ______________ solution which has lesser concentration of solutes and greater concentration of water than in the cytoplasm.
a) Hypotonic  b) Hypertonic  c) Neutral  d) Acidic

II. Fill in the blanks.

1. **Cell** is the structural and functional unit of living organisms.
2. The largest cell is, egg of an **ostrich**.
3. **Yeast** is a good example for anaerobic respiration.
4. **Optic** nerve is located at the end of the eyes behind the retina.
5. The size of the cells are measured in units of **micron**.

III. Write true or False. If false, give the correct answer.

1) In hypotonic condition, concentration of the external and the internal solution of the organism are same - **False**.
2) Diffusion is the movement of particles from an area of lower concentration to higher concentration - **False**.
3) Human beings are warm blooded in nature - **True**.
4) The larynx has fold of tissue which vibrate with the passage of air to produce - **True**.
5) Aqueous humour plays an important role in maintaining the shape of the eye - **False**.

IV. Match the following.

I. Match the following examples for catabolism.

1. Carbohydrates - CO2, water and heat
2. Glucose - amino acid
3. Protein - glucose

II. Match the following examples for anabolism:

1. Glucose - cholesterol and other steroid
2. Amino acids - glycogen and other sugars
3. Fatty acids - enzymes, hormone, protein