

SOUTHERN PROVINCIAL DEPARTMENT OF EDUCATION

MID YEAR TEST - 2019

GRADE - 9

SCIENCE

Name/ Index No :-

Time : 2 Hours

Part - I

1 Answer all the questions

1 Underline the most suitable answer

01. Which of the following organism belongs to the protozoan group of microorganism?

- (1) Yeast (2) Azotobacter aceti
(3) plasmodium (4) Mucor

02. Consider the features given below

- ρ No cellular organization
ρ Multiply only inside the living cells
ρ Display both living and non - living characteristics.

The group of organisms which shows these characteristics is,

- (1) fungi (2) virus
(3) bacteria (4) protozoa

03. This is not a characteristic possessed by algae,

- (1) being electron microscopic
(2) having the ability of photosynthesis.
(3) having unicellular as well as multicellular forms
(4) having filamentous or thallus body forms

04. The organisms that can be present even under extreme environments like hot water springs, salt marshes, petrol and diesel that the other organisms cannot live is,

- (1) virus (2) algae
(3) fungi (4) bacteria

05. What is the antibiotic used to destroy fungi?

- (1) Amoxicillin (2) griseofulvin
(3) tetra cycline (4) penicillin

06. Which of the following structure present in the ear contributes to maintain the balance of the body?

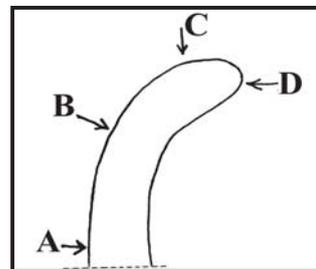
- (1) cochlea (2) ossicles
(3) eustachian tube (4) semi circular canals

07. There is a prominent place for a universal donor in transfusion of blood. The blood group that should be present in the person to be a universal donor is,

- (1) O (2) AB (3) A (4) B

08. This should not be followed for the well - being of the blood circulatory system.
- (1) maintaining a mentally less stressful life-style
 - (2) engaging in physical exercises daily
 - (3) consuming more salty foods
 - (4) reducing consumption of fatty foods
09. Select the incorrect statement out of the given statements.
- (1) Auxins inhibit the growth of lateral buds in plants.
 - (2) Twigs grow in plants when the shoot apex is cut.
 - (3) Small amount of auxins get collected in areas where intensity of light is low.
 - (4) The stem apex grows curving towards light due to elongating cells in area where light intensity is low.
10. The appendage used by dolphin for locomotion is,
- (1) fins
 - (2) flippers
 - (3) mouth
 - (4) wings

11. The apex of a plant which was kept in a box to which light enters from one direction was seen as shown in the diagram. The direction from which the plant obtained light is,



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

12. Consider the statements given below.

- (a) Invertebrates use muscles for body movements.
- (b) Bones and muscles of vertebrates contribute for maintaining their body shape
- (c) muscle fibers maintain the rigidity of the body.

The correct statement/ statements is / are,

- (1) all a,b,c
 - (2) only a and b
 - (3) only a and c
 - (4) only c
13. Lotus flowers bloom when the sun rises. Which of the following movement is the above movement?
- (1) nyctinastic movement
 - (2) haptonastic movement
 - (3) photonastic movement
 - (4) seimonastic movement
14. The theory which is proved scientifically regarding the origin of life on the earth is,
- (1) theory of biochemical evolution
 - (2) cosmozoic theory
 - (3) theory of special creation
 - (4) spontaneous generation theory
15. Which of the following gas is believed not to have being present in the atmosphere in the era of beginning of life on the earth?
- (1) carbondioxide
 - (2) hydrogen sulphide
 - (3) oxygen
 - (4) methane

16. Select the incorrect statement out of the given statements.
- (1) The first vertebrate group of organisms on the earth is fish.
 - (2) Amphibians originated from fish.
 - (3) Reptiles originated from amphibians.
 - (4) Reptiles are not adapted to the terrestrial environment than amphibians.
17. Which of the following is considered as a live fossil?
- (1) frog
 - (2) cockroach
 - (3) butterfly
 - (4) horse
18. In the process of evolution of organisms, novel species can be formed from former species. This is known as
- (1) speciation
 - (2) natural selection
 - (3) theory of special creation
 - (4) theory of spontaneous generation
19. Consider the following statements regarding the process of evolution.
- (a) The plant world originated from the photosynthetic algae formed in the sea.
 - (b) First evolutionary less developed plants originated.
 - (c) Later flowering plants and finally non flowering plants originated
- The correct statements are,
- (1) a, b and c
 - (2) a and b
 - (3) b and c
 - (4) a and c
20. The substances with specific properties which cannot be further divided by either physical or chemical methods into substances with different properties are known as,
- (1) elements
 - (2) mixtures
 - (3) pure substances
 - (4) compounds
21. Select the incorrect statement from the following statements.
- (1) An atom consists of a positively charged nucleus and a large empty space around it.
 - (2) The electrons are revolving around the nucleus of an atom.
 - (3) The atomic number of an element is a unique property of the element.
 - (4) The sum of the number of protons and electrons of an atom is called the mass number of it.
22. A student dissolved a certain material received by him in water. He observed that the colour and transparency of it is different from place to place. According to it, the student has made a,
- (1) compound
 - (2) solution
 - (3) a heterogenous mixture
 - (4) a homogenous mixture.
23. Select the correct statement from the statements given below.
- (1) The neutrons located around the nucleus contain a negative charge.
 - (2) The protons present in the nucleus of the atom are positively charged.
 - (3) The nucleus of the atom consists of protons and electrons.
 - (4) An electron is a particle without any charge.

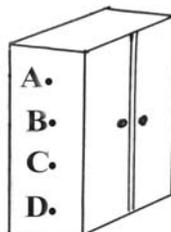
24. Which of the following can be considered as, an electrolyte?
- (1) distilled water (2) kerosene oil
 (3) solid sodium chloride (4) copper sulphate solution

25. Consider these statements regarding the process of electrolysis.
- (a) The electrolyte is turned into more complex product by it.
 (b) It can be used to protect iron from rusting.
 (c) Certain elements can be extracted by it.

The correct statements are,

- (1) all a,b, c (2) only a and b (3) only b and c (4) only a and c
26. Select the incorrect statement regarding ionic compounds from the statements given below.
- (1) When ionic compounds are dissolved in water, electricity can be conducted through them.
 (2) Ionic compounds conduct electricity in solid state.
 (3) The fused solutions of ionic compounds conduct electricity
 (4) Ionic compounds conduct electricity only when their ions move freely

27. This diagram shows a steel cupboard placed in a classroom. The most suitable point to apply the force to push it to another place in the classroom is,



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

28. An object with the weight of 6000 N is kept touching a surface with the surface area 3 m² on the earth. The pressure created by this object on the earth is,

- (1) $\left(\frac{3}{6000}\right)$ pa . (2) $\left(\frac{6000}{3}\right)$ pa .
 (3) (6000 × 3) pa . (4) $\left(\frac{1}{6000 \times 3}\right)$ pa .

29. Select the incorrect statement from the statements given below.
- (1) The perpendicular force act on a unit area is known as the pressure.
 (2) The pressure decreases when the surface area that force acts increases.
 (3) The nature of the surface dose not affect pressure.
 (4) The pressure decreases when the force act on the object increases.

30. The masses of 25 cm³ volumes of 4 different liquids were measured. These masses are given below.

Substance A = 21 g

Substance B = 28 g

Substance C = 25 g

Substance D = 23 g

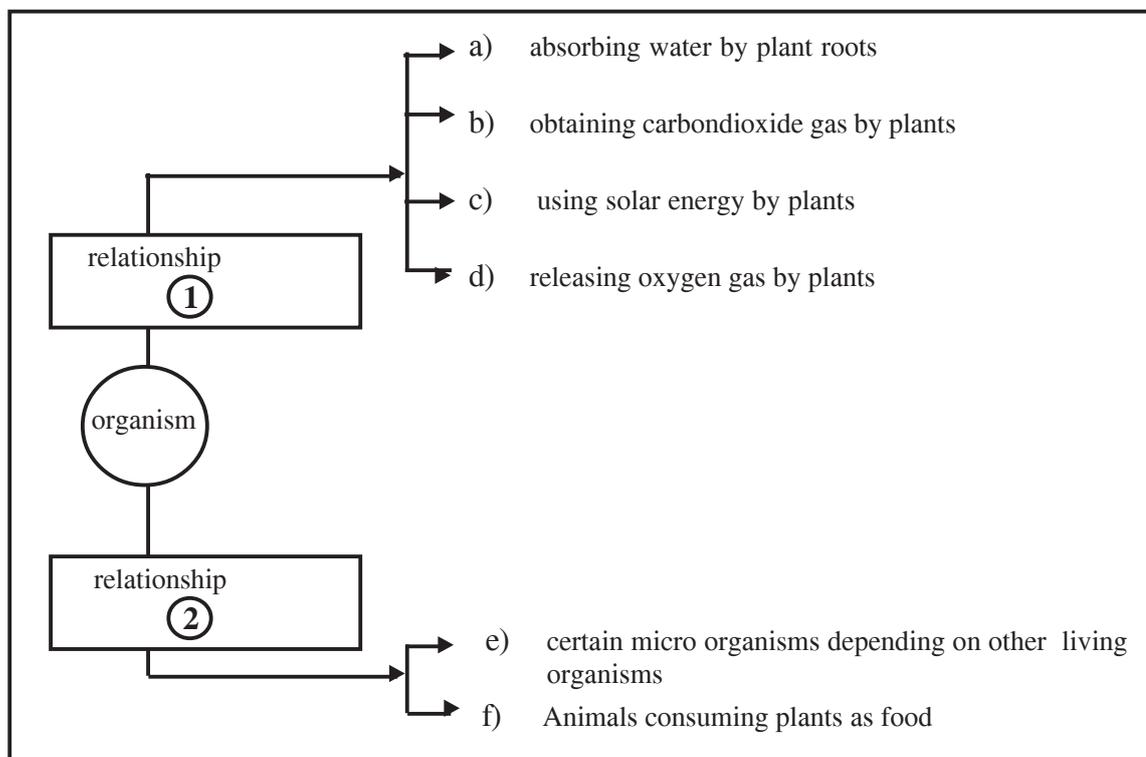
The substance with the least density and the highest density respectively are,

- (1) A and B (2) B and A (3) C and D (4) D and C

Part II

Question no 01 is compulsory. Select any four questions from the other six questions and answer for 05 questions.

01. (A) A characteristic of an eco system is the occurrence of interactions between living components as well as non living components. A part of a concept map with such interactions is shown below.



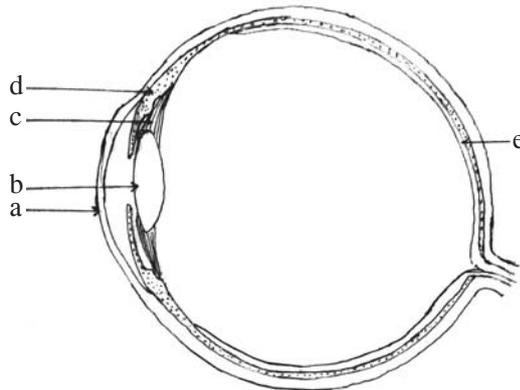
- (i) Name the ways of relationships shown as (1) and (2).
- (ii) a, b, c and d show several interactions related with a certain biological process. What is this biological process?.
- (iii) It will loose the balance of the atmosphere if only the processes of b and d take place in the environment. This balance is protected by a certain biological process. What is this biological process?
- (iv) A feature of an ecosystem is flowing energy through one way stream. According to the concept map, which letter shows the beginning of flowing energy?
- (v) The concept map shows several examples for relationships shown as 2 as e and f. Write another suitable example for this.

(B) At present ecosystems affected by human activities are met in plenty except the natural eco systems.

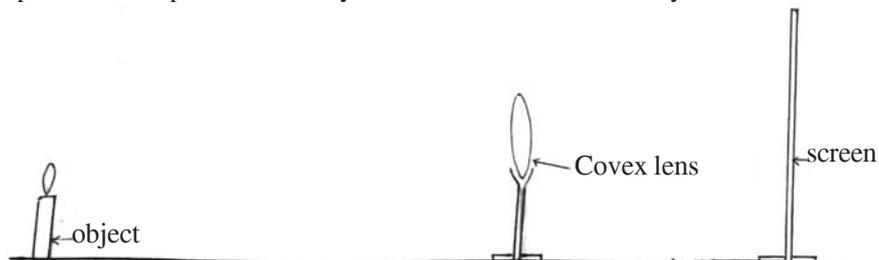
- (i) Write an example for such a man made environment.
- (ii) If there is no proper management in such an eco-system, it will be harmful for the existance of organisms. How do you call this condition?
- (iii) Micro-organisms are used most commonly to minnimize the condition mentioned in part (ii). What is the techonology used for this?
- (iv) Write 3 instances of using the above mentioned technology.
- (v) Bio fertilizer is added to agricultural lands with the aim of increasing the harvest. What is meant as bio fertilizer?

- (C) Micro organisms can be introduced as the main group of organisms that contribute to maintain natural cycles.
- Write 2 important factors for the action of micro organisms.
 - Mention a product that can be produced at home using the decomposition action of micro - organisms
 - Write an example each for an instance of decreasing the quality of food item and increasing the quality of food item due to actions of micro-organisms.
 - Write a disease caused for humans and a disease caused for plants due to micro organisms. Mention separately the group of micro - organisms responsible for causing these diseases.
 - What is meant by antibiotics used as medicines?

2. A. A rough diagram of a cross section of a human eye is shown below.

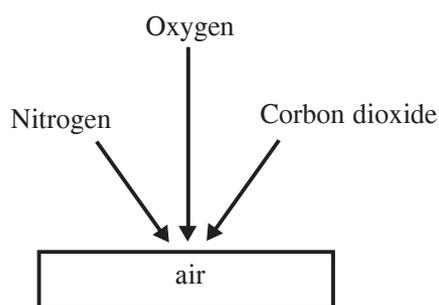


- label the parts denoted by the letters a, b, c, d and e.
- A set-up and few steps of an activity related to demonstrate an eye defect is shown below.

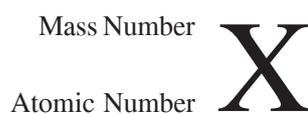


- A clear image can be taken on to the screen when the object is placed somewhat away from the convex lens as shown in the diagram.
 - But the image become blur when the object is taken somewhat closer to the lens.
 - Later when an extra lens is placed in between the object and the first lens the image become clear again.
- Mention whether a convex lens or concave lens with a suitable focal length should be used as this extra lens.
 - To explain what eye defect is the above activity done?
 - According to it spectacles with what lenses should be worn as a remedy for this eye defect?
 - How is the curvature of eye lens changed, when observing a closer object after observing a far away object by a healthy eye?
 - What part of the eye does this change of the eye lens?
- B
- What is the nerve that carries impulsions of an ear to the brain?
 - From which part of the ear does this nerve start?
 - Mention another function done by human ear except hearing.

3. The diagram below shows several information relevant to the atmosphere.



- (i) Give an example for each of these instances from the above diagram.
- a mixture.
 - a compound.
 - a homo atomic molecule.
- (ii) Name the materials that can be separated into their basic components by physical methods from the above materials.
- (iii) Write the formulae for the compounds shown below.
- water
 - sodium chloride
 - ammonia
- (iv) Name the elements present in the compounds shown below.
- CuSO_4
 - $\text{C}_6\text{H}_{12}\text{O}_6$
 - CaCO_3
- (v) The diagram below shows the standard method of writing information of an atom of elements.



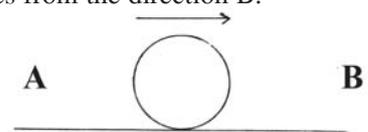
Write the information about Hydrogen, Nitrogen and Sodium elements in the standard way using the information given in the table.

Symbol of the element	No. of Protons	No. of Neutrons
H	1	0
N	7	7
Na	11	12

(04) This diagram shows a ball which is moving towards A - B due to applying a force.

Changes of the movement as given below can be done by applying forces from the direction B.

- (a) Making the ball motionless.
- (b) Moving the ball towards A.
- (c) Decreasing the speed of the movement towards B.

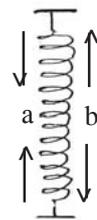


- (i) Write the magnitude of the forces that should be applied to do the changes shown above as a, b, c, in their ascending order.
- (ii) The above activity shows that force has a magnitude and a direction. As what type of quantities are these quantities known?
- (iii) What is the international standard unit of measuring force?
- (iv) Mention an instrument that can be used for measuring force.

(v) A spiral is shown in this diagram.

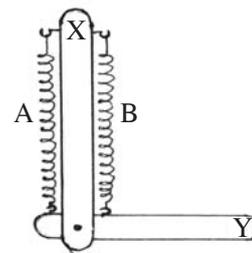
Write the changes taken place in the spiral when the force is applied as shown below.

- (a) When the force is applied to the center of the spiral.
- (b) When the force is applied to either sides of the spiral from the center.



(vi) The diagram below shows how 2 similar spirals A and B are connected to two wooden stripes X and Y. Mention whether the free end of the wooden stripe Y moves upwards or downwards in the instances shown below.

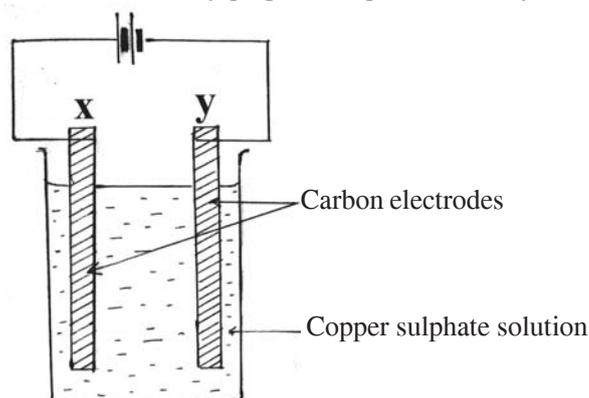
- (a) When the force is applied to the center of the spiral A
- (b) When the force is applied to the center of the spiral B.



(vii) This activity can be equalized to the motion of a human hand. According to it, to which parts of the human hand can the parts of this setup shown below be equalized?

- (a) Spirals A and B.
- (b) Wooden stripes X and Y.

(05) (A) The diagram below shows an activity prepared to pass electricity through a Copper Sulphate solution.



The observations shown below were obtained when this activity was done for a certain time.

- ρ Emission of gas bubbles near the electrode X.
- ρ Depositing a reddish brown substance on the electrode Y.
- ρ Decreasing the blue colour of the solution.

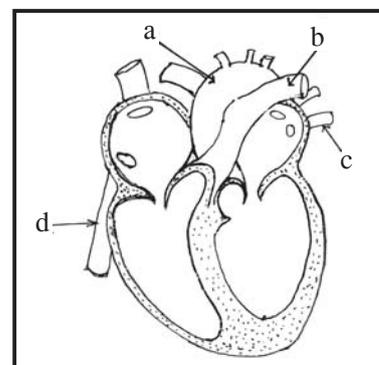
- (i) Name the electrodes X and Y as + and –.
- (ii) What is the gas emitted near the electrode X?
- (iii) Name the substance deposited on the electrode Y.
- (iv) Taking place of what type of change will be explained by decreasing the colour of the solution?
- (v) Mention another type of electrodes that can be used in this activity instead of Carbon electrodes.

(B) Electroplating is also a result of electrolysis process.

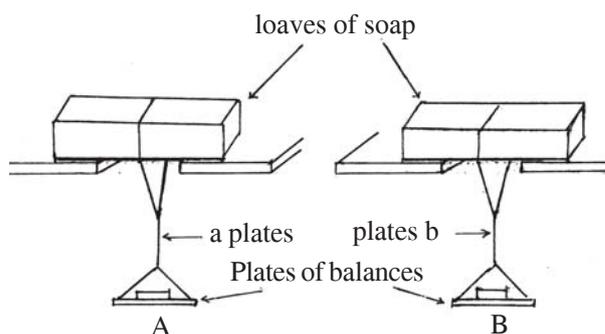
- (i) Mention two instances of using electroplating in day to day life.
- (ii) To which terminal of the cell should the Nickel electrode be connected if Nickel is to be plated by electroplating?
- (iii) The solution of which metal should be used as the electrolyte to plate Nickel on the surface?
- (iv) Write two steps that should be followed for a high quality electroplating.
- (v) Mention a characteristic of a high quality electroplating.

(06) (A) The diagram below shows a rough sketch of a human heart.

- (i) Classify the vessels a,b,c,d as mentioned below.
 - (a) The vessels which carry blood towards the heart.
 - (b) The vessels which carry blood away from the heart.
- (ii) As what form can these vessels be seen in the body organs?
- (iii) (a) In which two cavities does the tricuspid valve locate?
 - (b) Mention the function done by this valve.
- (iv) Show how the blood vessels that carry blood away from the heart are adapted to bear the high pressure.



(B) Liquids as well as solids create a pressure. This diagram shows how two loaves of soap are prepared to cut by two wires (a) and (b). These two wires are made out of same metal but with different cross sectional areas.

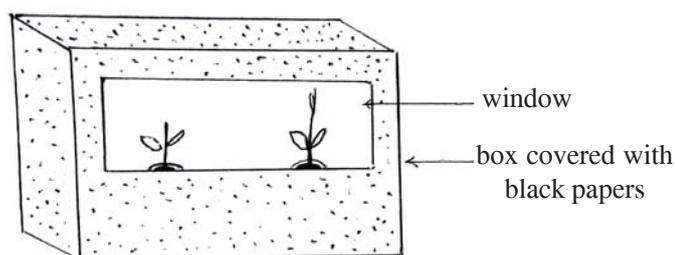


The activity was started by keeping 10 g weights one by one on equal size of balance plates.

- ρ The loaf of soap in the set up A began to cut when 50 g weight was placed.
- ρ The loaf of soap in the set up B began to cut when 30 g weight was placed.

- (i) Which factor that affect pressure is increased by increasing the balance weights?
- (ii) According to the above activity, which wire has the highest cross sectional area?
- (iii) What are the factors that affect pressure?
- (iv) Build up an equation for pressure using the above mentioned factors.

(07) (A) An activity prepared to study about the growth of plants is shown below.



Two similar potted plants are taken. The apex of one plant is cut and removed. Both plants are kept in a box covered with black papers. A window is cut in the box in a way that both plants get light only from one direction. The observations are taken after few days.

- (i) What are your observations regarding the growth of plants?
- (ii) It can be concluded that the reason for these observations is plant growth substances. Name such a plant growth substance.
- (iii) According to the above observations, closer to which parts of the plant are these growth substances produced?
- (iv) Artificial growth substances as well as natural growth substances produced by plants are used in the agriculture. Mention such a usage and the artificial growth substance used for it.

(B) The instruments shown below were used in an activity done to measure the density of a salt solution.

- ρ Measuring cylinder of 250 ml.
- ρ Beaker of 250 ml.
- ρ Triple Beam Balance
- ρ Adequate amount of salt solution.

- (i) Mention three steps you followed to find the mass of salt solution of 250 ml using the above instruments.
- (ii) What is the unit that can be used to express the density if the mass is measured in gramms and volume is measured in cm^3 ?
- (iii) What is the international standard unit of density?
- (iv) What is the density of pure water?

SOUTHERN PROVINCIAL DEPARTMENT OF EDUCATION

MID YEAR TEST - 2019

GRADE - 9

SCIENCE ANSWER

Part I

- | | | | | |
|---------|---------|---------|---------|---------|
| 01. (3) | 07. (1) | 13. (3) | 19. (2) | 25. (3) |
| 02. (2) | 08. (3) | 14. (1) | 20. (1) | 26. (2) |
| 03. (1) | 09. (3) | 15. (3) | 21. (4) | 27. (4) |
| 04. (4) | 10. (2) | 16. (4) | 22. (3) | 28. (2) |
| 05. (2) | 11. (4) | 17. (2) | 23. (2) | 29. (4) |
| 06. (4) | 12. (2) | 18. (1) | 24. (4) | 30. (1) |

Part II

- (01)A.(i) ① Living - Nonliving interactions (01m)
- ② Living - Living interactions (01m)
- (ii) Photosynthesis (01m)
- (iii) Respiration (01m)
- (iv) C (01m)
- (v) For any suitable living - living interaction (01m)
- B. (i) Agricultural environments / Industrial environments / Settlement environments (01m)
- (ii) Environmental pollution (01m)
- (iii) Bio-remediation (01m)
- (iv) Using microbes to remove organic waste matter in polluted water.
- 1 Using microbes to decompose oil layer on the ocean.
- 1 Using microbes to remove toxic heavy metals from water.
- 1 To produce bio degradable polythene, plastic.
- (For any two 02m)
- (v) Rhizobium, acetobacter like bacteria which help for fixing Nitrogen. (01m)
- C. (i) Air / Moisture / Food / Temperature (01m)
- (ii) Compost fertilizer (01m)
- (iii) An instance of decreasing the quality - Spoilage of food
- An instance of increasing the quality - Making cheese / Making Yoghurt (Any suitable answer) (01m)
- (iv) A disease caused for man (1/2) its pathogen (1/2)
- A disease caused for plants (1/2) its pathogen (1/2) (02m)
- (v) Antibiotics - Chemicals produced in the body of a microbe to destroy another micro-organism (01m) **(18m)**
- (02) (i) a) - Cornea (01m)
- b) - Eye lens (01m)
- c) - Cilliary Muscles (01m)
- d) - Iris (01m)
- e) - Retina (01m)
- (ii) a) - Convex lens (01m)
- b) - Long sightedness (01m)
- c) - With convex lenses (01m)
- d) - Curvature should be increased (01m)
- e) - Cilliary Muscles (01m)
- (iii) a) - Auditory Nerve (01m)
- b) - Cochlea (01m)
- c) - To maintain the balance of the body (01m) **(13m)**
- (03) (i) a) - Air (01m)
- b) - Carbondioxide (01m)
- c) - Nitrogen / Oxygen (01m)
- (ii) Air (01m)
- (iii) a) - H₂O (01m)
- b) - NaCl (01m)
- c) - NH₃ (01m)
- (iv) a) Copper / Cu, Sulphur / S, Oxygen / O (01m)
- b) Carbon / C, Hydrogen / H, Oxygen / O (01m)
- c) Calcium / Ca, Carbon / C, Oxygen / O

- (01m)
 (v) a) - ${}^1_1\text{H}$ (01m)
 b) - ${}^{14}_7\text{N}$ (01m)
 c) - ${}^{23}_{11}\text{Na}$ (01m)
(13m)
- (04) (i) c < a < b (02m)
 (ii) Vector quantities (01m)
 (iii) $\text{kgms}^{-2}/\text{N}$ (01m)
 (iv) Newton Balance / Spring Balance (01m)
 (v) a) - Decreases the length of the spiral (01m)
 b) - Increases the length of the spiral (01m)
 (vi) a) - Downwards (01m)
 b) - Upwards (01m)
 (vii) a) A - Tricep Muscle (01m)
 B - Bicep Muscle (01m)
 b) x - Humerus (01m)
 y - Ulna / Radius Bone (01m)
(13m)
- (05) A. (i) x + (Positive) (01m)
 y -- (Negative) (01m)
 (ii) Oxygen (O_2) (01m)
 (iii) Copper / Cu (01m)
 (iv) A chemical change (01m)
 (v) Platinum (01m)
- B. (i) | Plating Gold on jewellery (01m)
 | Plating Nickel on instruments (01m)
 (ii) To the positive terminal (01m)
 (iii) Solution of a Nickel metal (01m)
 (iv) | Salt solution (electrolyte) should be dilute. (01m)
 | Supplying a low voltage current.
 Cleaning the surface well (For any two) (01m)
 (v) Coating should be firmly adhere to the surface / Coating should be confirm thickness / Coating should be shiny (01m)
(13m)
- (06) A. (i) (a) - a, b (01 + 01m)
 (b) - a, d (01 + 01m)
 (ii) As capillaries (01m)
 (iii) In between right atrium and right ventricle (01m)
 To avoid entering blood from right ventricle to the right atrium when pumping blood to the pulmonary artery (01m)
 (iv) Artery walls are thick (01m)
- B. (i) Perpendicular Force / Weight (01m)
- (ii) In wire A (01m)
 (iii) Perpendicular Force (01m)
 Surface area that the force acts (01m)
 (iv) Pressure = $\frac{\text{Perpendicular Force}}{\text{Surface area that force acts}}$ (01m)
(13m)
- (07) A. (i) The plant with the apex grows towards light (01m)
 The plant without apex does not turn towards light. (01m)
 (ii) Auxin / Gibberellins / Cytokinin (01m)
 (iii) Closer to the plant apex (01m)
 (iv) - 2,4-DPA (2,4 dichloro phenoxy acetic acid) - Weedicide in paddy fields.
 2,4,5 TPA (2,4,5 trichloro phenoxy acetic acid) - Weedicide in paddy fields.
 - IBA (Indole butric acid) to induce root formatin of stem cuttings.
 - NAA (Naphthalene acetic acid) - To prevent premature fruit drop / To induce flowering in Pineapple in off seasons.
 Cytocel - To get Mango fruits in the off season. (01 + 01)
- B. (i) | Adjust the triple beam balance to its zero mark.
 | Measuring the mass of cleaned, dry beaker.
 | Measuring 250 ml of water using the measuring cylinder
 | Putting this water into the beaker and measuring the mass of water with the beaker.
 | Getting the mass of 250 ml of water by substracting the mass of the beaker with water from the mass of empty beaker.. (03m)
 (ii) Gramms per cubic centimeter / gcm^{-3} / g/cm^3 / g
 gcm^{-3} / g/cm^3 / $\frac{\text{g}}{\text{cm}^3}$ (01m)
 (iii) kilogramms per cubic meter / kgm^{-3} / kg/m^3 / kg
 kgm^{-3} / kg/m^3 / $\frac{\text{kg}}{\text{m}^3}$ (01m)
 (iv) kilogramms per cubic meter / kgm^{-3} / Kg/m^3 / Kg (02m)
(13m)