



**SCHOOL EDUCATION
DEPARTMENT
VELLORE DISTRICT**

10th Std
SCIENCE



SLIP TEST QUESTIONS

2018 - 2019

S. MARS

CHIEF EDUCATIONAL OFFICER,

VELLORE.

SLIP TEST 1 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

Note : Answer all the questions.

Section - I

Answer all the 10 questions.

10 × 2 = 20

1. The inheritable characters vary in different species and within the same species. Name the variation in the following cases.
 - i) The eye colour among human beings are varied as blue, black, brown, green, etc.
This is called as ----- variation.
 - ii) The dentition in the rabbit and the elephant are not the same.
This is called as ----- variation.
2. Sexually reproducing organisms produce offsprings with marked, significant and visible variation. Asexually reproducing offsprings show minor variations.
 - i) Do you agree with the above statement?
 - ii) Among the following organisms point out the asexually reproducing organism.
(Cockroach, Euglena, Earthworm and Bird).
3. Here are certain important hereditary jargons. Fill in the blanks by choosing a suitable one from the list given.
(Allele, Variation, Speciation, Gene, Allelomorphs)
 - i) ----- are the factors which form the physical basis of inheritance.
 - ii) ----- is the alternate form of the same gene.
 - iii) ----- are the expressions of contrasting pair of alleles.
4. Sequentially arrange the different species of man from primitive to modern man.
(Neanderthal man, Homo habilis, Homo erectus, Homo sapiens)

5. What do you mean by phenotype and genotype of an individual? Explain.
6. What are variations? Mention their types.
7. Who proposed the theory of Natural selection? Mention the two principles of this theory.
8. What are monoclonal antibodies? Mention its use.
9. **Find the unmatched pairs.**
 - Nif genes - Nitrogen fixation
 - tt - Alleles
 - Biochips - Biological computer manufacturing
 - Interferon - Antiproteins of Bacteria
 - Stem cells - Unspecialised mass of cells.
10. **Match the following by identifying the pair.**
(Medicines, fuel, microbes, metabolism, organic acids)
 - i) vaccine ii) Natural gas iii) Citric acid
 - iv) Monoclonal antibodies v) vitamins.

Section - II

Answer the two questions given below: 2 × 5=10

11. Write the two events involved in the sexual reproduction of a flowering plant.
 - i). Discuss the first event and write its types
 - ii). Mention the advantages and disadvantages of that event.
12. Name of parts of a dicot seed based on the given clues.
 - i). Rudimentary root -----
 - ii). Rudimentary shoot -----
 - iii). The outer protective layer of a seed -----
 - iv). The minute opening seen in the seed coat is -----
 - v). Fleshy structure storing food for the embryo -----

SLIP TEST 2 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

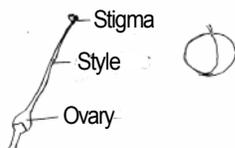
Note : Answer all the questions.

Section - I

Answer all the *Ten* questions.

10 × 2 = 20

1. What is vegetative propagation? Mention the vegetative propagates in :
i) Bryophyllum B) Spirogyra
2. Arrange the following events of sexual reproduction in plants in the correct sequential order.
seed formation, pollination, dispersal of seeds, fertilization.
3. Define pollination.
4. Differentiate dehiscent fruits and indehiscent fruits with suitable examples.
5. What are monocotyledons and dicotyledons? Give examples.
6. a) Identify fig A and B
b) Which part of A is modified into B.



7. The methods of reproduction and the organisms are given below. Match the type of reproduction with the suitable organism.

| | | |
|---------------|-------------|-----------|
| Fission | Spirogyra | Yeast |
| Budding | Protozoans | Flatworms |
| Fragmentation | Bryophyllum | Bacteria |

8. i) Composite fruits are formed by all the flowers of -----
ii) ----- fruit is developed from a single flower with a multicarpellary apocarpous superior ovary.

9. Draw the given diagram and label the following parts.

- i) Exine ii) Tube nucleus



10. Match the following with respect to dispersal of fruits/ seeds.

- (a) Autochory - i) Lotus
(b) Anemochory - ii) Xanthium
(c) Hydrochory - iii) Tridax
(d) Zoochory - iv) Balsam

Section - II

Answer the two questions given below: 2×5=10

11.i) Fruit is the product of fertilization. Is there any fruit which is formed without the act of fertilization?

ii) Represent the classification of fruits in a diagrammatic sketch.

12. Given below is a list of dry fruits. Assign the fruits to their relevant types.

(Cotton, Tridax, Paddy, Castor, Coriander, Beans, Peas, Calotropis, Mirabilis, Cashew, Acacia, Lady's Finger)

- i) Achene ii) Caryopsis iii) Nut
iv) Cremocarp v) Lomentum vi) Regma
vii) Loculicidal copsisule viii) Septicidal capsule
ix) Follicle x) Legume.

SLIP TEST 3 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

Note : Answer all the questions.

Section - I

Answer all the *Ten* questions.

10 × 2 = 20

1. Distinguish between the saturated and unsaturated solution at a temperature of 25°C using the data given below.
(Note : Solubility of NaCl is 36g)
 - i) 16 g **NaCl** 100 g water
 - ii) 36 g **NaCl** 100 g water
2. Differentiate true solution and colloidal solution.
3. Find the concentration of solution in terms of weight percent if 20 g of common salt is dissolved in 50 g of water.
4.
 - i) Which gas is dissolved in soft drinks?
 - ii) What will you do to increase the solubility of this gas?



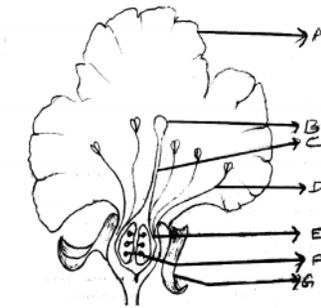
5. Beaker A has sugar mixed with water and Beaker B has starch dissolved in water.
 - i) Which solution will scatter light?
 - ii) In which beaker does the Brownian movement take place?
 - iii) Name the type of solution that beaker A and B contain.
 - iv) Which of the two solutions is homogenous?
6. Name the type of solution formed in the following cases.
 - i) 20 g of NaCl in 100 g of water
 - ii) 36 g of NaCl in 100 g of water
 - iii) Sulphur dissolved in CS₂
 - iv) Nitrogen in soil
7. Give the dispersed phase and the dispersion medium in each of the following.
 - a) cheese
 - b) soda water

8. Radha prepared a solution which could be separated by filtration.
 - i). Name the type of solution.
 - ii). It is solution transparent or opaque
 - iii). Mention the nature of the solution
 - iv). Mention the size of particle present in beaker B?
9. Beaker 'A' has chalk powder mixed with water and beaker 'B' has protein dissolved in water.
 - i) Which solution shows Brownian movement?
 - ii) Identify the solution that has particle size greater than 2000 \AA .
 - iii) Which beaker contains colloidal solution?
 - iv) Mention the size of particle present in beaker B.
10. Justify the following statement with an explanation.
 - i). Solubility of Calcium oxide decreases with increase in temperature.
 - ii). What happens to the solubility in exothermic process with regard to temperature.

Section - II

Answer the Two questions given below: 2 × 5 = 10

11. Describe the structure of a dicot seed.
12. Observe the given diagram.



- i) Draw the diagram and label the parts.
- ii) What happens to the labelled 'E' and 'F' after the process of fertilization?

SLIP TEST 4 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

Note : Answer all the questions.

Section - I

Answer all the *Ten* questions.

10 × 2 = 20

1. Fill in the blanks.
 - i) If force = mass × acceleration, the momentum = -----
 - ii) If liquid hydrogen is for rocket, then ----- is for MRI.
2. Correct the mistakes, if any in the following statements.
 - i). One newton is the force that produces an acceleration of 1ms^{-2} in an object of 1 gram mass.
 - ii). Action and reaction always act on the same body.
3. The important use of cryogenics is cryogenic fuels. What do you mean by cryogenic fuels?
4. As a matter of convention, an anticlockwise moment is taken as ----- and a clockwise moment is taken as -----.
5. A shopping cart has a mass of 65 kg. In order to accelerate the cart by 0.3ms^{-2} what force would you exert on it?
6. Why does a spanner have a long handle?
7. Why does a boxer always move along the direction of the punch of the opponent?

8. The mats used in gyms and the padding used in sports uniforms are made up of soft substance. Why are rigid materials not used?
9. Write the two principles that are used in rocket propulsion.
10. If the density of the earth is doubled to that of its original value, the radius remaining the same, what will be the change in acceleration due to gravity?

Section - II

Answer both the questions given below: 2 × 5 = 10

11. i) Space stations are used to study the effects of long - space flight on the human body. Justify.
ii) $F = Gm_1m_2/d^2$ is the mathematical form of Newton's law of gravitation, G - gravitational constant, m_1, m_2 are the masses of two bodies separated by a distance d, then give the statement of Newton's law of gravitation.
12. Two ice skaters of weight 60 kg and 50 kg are holding the two ends of a rope. The rope is taut. The 60 kg man pulls the rope with 20 N force. What will be the force exerted by the rope on the other person? What will be their respective acceleration?

SLIP TEST 5 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

Note : Answer all the questions.

Section - I

Answer all the *Ten* questions.

10 × 2 = 20

1. Marasmus and Kwashiorkor are both protein deficiency defects. Marasmus differs from Kwashiorkor in enlarged belly and swelling in the face. Are the symptoms for the above disease correct? If not, correct it.
2. A list of disorders are given below. Pick out the odd one out and give reasons.
(Thalassemia, haemophilia, night blindness, albinism, sickle cell anaemia)
3. What are the symptoms of common cold?
i) ----- ii) -----
4. Differentiate between the diseases - night blindness and colour blindness.
5. Name the vector host of the malarial parasite. Mention the species of malarial parasite which causes malignant and fatal malaria.
6. Name the tests done for the diagnosis and confirmation of AIDS.
7. What is triple antigen? Name the three diseases which can be prevented by using it.
8. Mention the type of immunity acquired by a child through breast feeding.
9. Ramya is suffering from bleeding gums and loosening teeth. On diagnosis, it was found to have been caused by vitamin deficiency.

Tell Ramya the vitamin that is lacking in her food, -----, the name of the deficiency disease she is suffering from.

10. Match B and C with A

| A | B | C |
|------------------------|---------------------|----------------------------------|
| Vitamin | Deficiency diseases | Symptoms |
| Vitamin B ₁ | Scurvy | Nervous disorder |
| Vitamin C | Rickets | Bleeding gums |
| Vitamin D | Haemorrhage | Defective calcification of bones |
| Vitamin K | Beri - beri | profuse loss of blood |

Section - II

Answer both the questions given below: 2 × 5=10

11. Kala has delivered a baby

- i). Suggest the immunization schedule for the baby in the first six months.
- ii) What are the diseases that can be cured as per the schedule.

12. List out the various diseases caused due to nutritional deficiency. Add a note on their symptoms.

SLIP TEST 6 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

Note : Answer all the questions.

Section - I

Answer all Ten questions.

10 × 2 = 20

1. Match the following.

| Disease | Symptoms |
|------------------|--|
| A). Amoebiasis | i). Chills and high fever recurring for 3 to 4 days |
| B). Tuberculosis | ii). Patches on skin and nails with itching sensation. |
| C). Ringworm | iii). Abdominal pain with blood and mucus in stools. |
| D). Malaria | iv). Persistent cough and loss of body weight. |

2. List out the diseases based on their mode of transmission (Water borne, air borne, sexual contact)
1. Cholera 2. Typhoid 3. Tuberculosis 4. Leprosy
5. Syphilis 6. Gonorrhoea 7. Pneumonia 8. Common cold
9. Amoebic dysentery 10. AIDS
3. i). Give any three examples for the most infectious diseases in man and their causative agents.
ii). To discover medicine for viral infected diseases like AIDS is more difficult than other diseases. Is this statement true or false? Discuss.
4. Name the causative organisms responsible for ring worm in humans? Mention the symptoms of the infection.

5. Pick out the odd ones.
 - i) AIDS : Retro virus, Lymphocytes, BCG, ELISA.
 - ii) DPT vaccine : Diphtheria, tuberculosis, pertussis, tetanus.
6. Say whether each of the following diseases is a metabolic disorder, a genetic disorder or a nutritional deficiency disease.
 - i) Thalassaemia ii) Beri - beri iii) Diabetes mellitus
 - iv) Bubble boy syndromes v) scurvy
 - vi) marasmus vii) Obesity viii) Alzheimer's disease
 - ix) Nyctalopia x) Haemophilia
7. Find the correct statement (True / False).
 - i) Typhoid is caused by Trichophyton fungi.
 - ii) Influenza is caused by Entamoeba histolytica protozoan.
8. Malarial fever is not caused in a person immediately after introducing the sporozoites by an infected anopheles mosquito. Why?
9. Name the stage of plasmodium.
 - i). Introduced by an infected Anopheles mosquito.
 - ii). Picked up by Anopheles mosquito from an infected human being.
10. Name two diseases that are transmitted by houseflies. Mention their causative pathogens.

Section - II

Answer both the questions given below: 2 × 5 = 10

11. There is a widespread outbreak of malaria in your area.
 - i) Suggest some controlling measures to the local authorities concerned.
 - ii) Pick out the right symptoms for malaria.
(Chills, shivering and a rise in temperature, diarrhoea)
12. Describe the life cycle of plasmodium in man.

SLIP TEST 7 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

Note : Answer all the questions.

Section - I

Answer all the Ten questions.

10 × 2 = 20

1. What is nutrition? What type of nutrition is seen in green plants and the majority of animals?
2. Match the methods of nutrition of special organs with suitable examples.

| | | |
|-------------|-------------|-----------|
| Autotrophs | mycorrhiza | cuscutta |
| parasites | chlorophyll | monotropa |
| saprophytes | Haustoria | Hibiscus |

3. Observe the diagram.
 - i) Mention the type of movements shown in figure A and B.
 - ii) How does this movement differ from the movement of mimosa?



4. In the process of anaerobic respiration ---- is a 6 carbon compound which gets converted into ----- carbon compound called lactic acid.

5. Sugar is converted to alcohol. In the above reaction what kind of process takes place? Which micro organism is involved?
6. In human beings, air enters into the body through ----- and moves into ----- . In fishes, water enters into the body through ----- and the dissolved oxygen diffuses into -----.
7. What are saprophytes? Give two examples.
8. What is the length of the alimentary canal in human beings? List out the parts of the gastro - intestinal tract in the correct sequential order based on the passage of food.
9. What is respiration? Give a balanced equation fore aerobic respiration.
10. What are ammoniatelic and uroetelic animals? Give examples.

Section - II

Answer both the questions given below. 2 × 5=10

11. 15th October is observed as 'World Handwashing Day'.
 - i). Tell your friend the effects of hand washing.
 - ii). How frequently do you wash your hands everyday and when?
12. What is immunity? Write a note on the various types of immunity?

SLIP TEST 8 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

Note : Answer all the questions.

Section - I

Answer all the *Ten* questions. $10 \times 2 = 20$

- From the given examples, form the pair of isotopes and the pair of isobars.
 $^{18}\text{Ar}^{40}$, $^{17}\text{Cl}^{35}$, $^{20}\text{Ca}^{40}$, $^{17}\text{Cl}^{37}$
- Molecular mass of Nitrogen is 28. Its atomic mass is 14. Find the atomicity of Nitrogen.
- Gram molecular mass of oxygen is 32g. Density of oxygen is 1.429 g/litre. Find the gram molar volume of oxygen.
- 'Cl' represents chlorine atom, ' Cl_2 ' represents chlorine molecule. List out any two differences between atoms and molecules.
- Calculate the gram molecular mass of water from the values of gram atomic mass of Hydrogen and of oxygen.
Gram atomic mass of Hydrogen = 1g. Gram atomic mass of oxygen = 16g.
- One mole of any substance contains 6.023×10^{23} particles. If 3.0115×10^{23} particles are present in CO_2 , Find the number of moles.
- have equal number of neutrons.
i) Isobars ii) Isotones iii) Isotopes iv) Mass number
- Classify the following based on atomicity.
i) chlorine ii) Neon iii) Phosphorous iv) Ozone
- Identify and correct the mistakes in each of the following.
i). $2 \times \text{R.M.M} = \text{V.D}$
ii). H_2O is a homoatomic molecule.
- Give a single term substitute for each of the following.
i). 6.023×10^{23} molecules.
ii). Molecular mass / atomic mass.

Section - II

Answer both the questions given below. $2 \times 5 = 10$

- Modern atomic theory takes up the wave concept, principle of uncertainty and other latest discoveries to give a clear cut picture about an atom. State the findings of modern atomic theory.
- How many grams are there in :
a). 5 moles of water b). 2 moles of ammonia.
c). 2 moles of glucose

SLIP TEST 9 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

Section - I

Answer all the *Ten* questions.

10 × 2 = 20

- Fill in the blanks
 - Potential difference : Voltmeter, then current -----
 - Hydro power plant : Conventional source of energy, then solar energy : -----
- In the list of sources of energy given below, find out the odd one.
(wind energy, solar energy, hydroelectric power)
- Correct the mistakes, if any, in the following statement.
 - A good source of energy would be one which would do a small amount of work for unit volume of mass.
 - Any source of energy we use to do work is consumed and can be used again.
- The schematic diagram, in which different components of the circuit are represented by symbols conveniently used, is called a circuit diagram. What do you mean by the term components?
- Draw the schematic diagram of an electric circuit consisting of a battery of two cells of 1.5 v each, three resistance of 5 ohm, 10 ohm and 15 ohm respectively and a plug key all connected in series.
- Fuse wire is made up of an alloy of ----- which has high resistance and -----
- Complete the table choosing the right terms within the brackets.
(zinc, copper, carbon, lead, lead dioxide, aluminium).

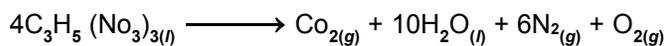
| | | |
|----------------|-----------------------|--|
| +ve electrode | lead acid accumulator | |
| - ve electrode | Lechlanche cell | |

8. How many electrons flow through an electric bulb every second, if the current that passes through the bulb is 1.6 A.
9. Two bulb of 40 W and 60 W are connected in series to an external potential difference. Which bulb will glow brighter? Why?
10. What are the limitations in harnessing wind energy?

Section - II

Answer both the questions given below: 2 × 5 = 10

11. Nitro glycerine is used as an explosive. The equation for the explosive reaction.



(Atomic mass of C = 12, H = 1, N = 14, O = 16)

- i). How many moles does the equation show for
i) Nitroglycerine ii) gas molecules produced?
- ii). How many moles of gas molecules are obtained for 1 mole of nitroglycerine?
- iii). What is the mass of 1 mole of nitroglycerine?
12. Find how many moles of atoms are there in.
- i). 2 g of nitrogen ii) 23 g of sodium iii) 40 g of calcium
iv). 1.4 g of lithium v) 32 g of sulphur

SLIP TEST 10 - 2018 - 19

10 - Std.

SCIENCE

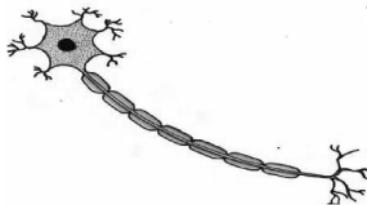
Marks : 30

Section - I

Answer all the *Ten* questions.

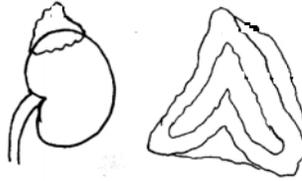
10 × 2 = 20

1. Name the two systems which help in the control and co - ordination of metabolic activities. Write any one difference between them.
2. Name the part of the brain which regulates heart beat and respiration. Where are they found in the brain?
3. What are endocrine gland? Name the secretions of these glands. How do these secretions reach the target organs?
4. Which hormone (s) is / are called
 - i) personality hormone
 - ii) Fight, flight and fright hormone.
5. Name the male and female sex hormones. List out their functions.
6. Copy the diagram and label any two parts in the group given. (cyton, axon, dendron, terminal branches)



7. Correct the statements, if they are wrong.
 - i) Alpha cells produce insulin and beta cells produce glucagon.
 - ii) Ovary producess eggs and androgen.

8. Copy the diagram and label the parts with the help of the clues given



- i). It is otherwise called supra renal gland.
 - ii). It secretes two hormones, namely aldosterone and cortisone.
9. Match the following :

| | |
|----------------|---|
| A). Leptoten | i). Nuclear membrane and nucleous disappear |
| B). Zygotene | ii). terminalization |
| C). Diplotene | iii). pair, synapsis, bivalents |
| D). Diakinesis | iv). Chromosomes condense and like threads |

10. Which gland is called the 'dual gland'? Why?

Section - II

Answer the Two questions given:

2 × 5 = 10

11. Describe the structure of a neuron with the help of a neat, labelled diagram.
12. Match these parts with their functions :
- (medulla oblongata, cerebellum, forebrain, thalamus, hypothalamus, pons)
- A). Sleep centre and respiratory centre.
 - B). Consists of cerebrum, thalamus and hypothalamus.
 - C). A major conducting centre for sensory and motor signalling.
 - D). Regulation of sexual behaviour.
 - E). Co - ordinates the group movements of voluntary muscles, as in walking or running.

SLIP TEST 11 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

Section - A

Answer all the ten questions given below. $10 \times 2 = 20$

1. Differentiate medullated neurons from non - medullated neurons. Where are they found in nervous system?
2. What is corpora quadrigemina? Name the functions associated with it.
3. Name the following endocrine glands.
i) The master of endocrine orchestra ii) The dual gland
4. In which sub - stage of meiosis I do the following events occur?
i) Terminalization ii) crossing over
5. Shade the areas marked A and B in the parts of the human brain, the function.



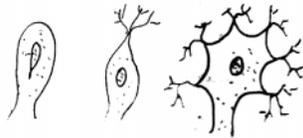
A - seat of smell

B - seat of vision

6. On the basis of the function performed, pick out the right statements
i). Pituitary gland secretes hormones and enzymes.
ii). Thyroid gland secretes thyroxine and insulin.
iii). Pancreas produces enzymes and hormones.
7. Copy and complete the following table.

| Hormones of adenohypophysis | Functions and malfunctions |
|--|--|
| Somatotropic or growth hormone (STH or GH) | - |
| - | It stimulates the growth of thyroid gland produces thyroxine |

8. Copy and identify the types of neurons given below.



20

X Science

9. Match the following.
- A). Vasopressin - i) Resist infection
 - B). Insulin - ii) Diabetes insipidus
 - C). Oxytocin - iii) Diabetes mellitus
 - D). Thymosin - iv) Contraction and relaxation of uterus
10. A 16 years old boy was brought to a doctor with a complaint of non. masculine features. After keen examination, the doctor found that it was a hormonal disorder and the endocrine glands responsible were not function properly. Mention the glands and the hormones lacking in the boy.

Section - II

Answer the Two questions given below: 2 × 5 = 10

11. Name the endocrine glands and their location in the human body. Describe any two of them in detail.
12. Observe the diagram of the human brain and identify the areas mentioned.



- A). The area responsible for consciousness, intelligence, memory, imagination and reasoning.
- B). The area responsible for regulation and co - ordination of group movements of voluntary muscles.
- C). The area responsible for sleeping and respiration.
- D). The area responsible for reflexes involved in the regulation of heart, blood vessel contraction, breathing etc.

SLIP TEST 12 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

Section - I

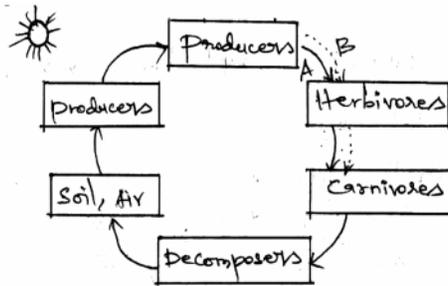
Answer all the Ten questions given below. 10 × 2=20

1. Classify the following into producers, consumers, decomposers.
 - i). Butterfly ii) grass hopper iii) calotes
 - iv) Shoe flower v) snakes vi) nitrobacter
2. Living organisms adapt themselves according to their habitat match the following.
 - a). Fish - wings
 - b). Camel - hard skin
 - c). Frog - fins
 - d). Birds - hind limbs with web
3. Fill in the blanks.
 - a). Animals give out ----- through respiration.
 - b). In the presence of sunlight, plants prepare -----
4. Bacteria and fungi are responsible for the decay of dead plants and animals. Decaying matter is recycled to grow plants. What do we call this?
5. Fill in the blanks with suitable answers from the given in the brackets.
(harmful, heavy metals, carbon dioxide, sulphur particles)
Generation of waste products which contain Mercury, Uranium, Thorium, Arsenic, and other ----- are ----- to human health and environment. ----- present in the coal will cause acid rain and release of -----, a green house gas, causes climate change and global warming.
6. Depict a food chain by placing the following organisms in the correct trophic levels.
(snake, grass, eagle, frog, grasshopper)
7. Show an aquatic food chain using the following organisms.
(small fish, phytoplanktons, kingfisher, zooplanktons)

8. Study the food chain below, correct it and convert it into a pyramid of energy.

Mulberry → Sparrow → Caterpillar → Kite.

9. Study the illustration and answer the questions.

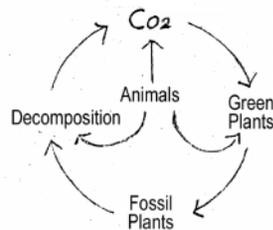


A). Which line (A or B) represents the flow of energy? Why do you say so?

B). Give an example of a decomposer

10.A). Name the processes noted as No. 1 and 3.

B). Define process 1.



Section - II

Answer the Two questions given below: 2 × 5 = 10

11. In your locality people are affected due to water scarcity.

What measures will you take to deal with the problem of water scarcity?

12. List out the harmful effects of burning coal.

SLIP TEST 13 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

Section - I

Answer all the Ten questions.

10 × 2 = 20

1. What type of chemical reaction takes place when
 - i) Limestone is heated?
 - ii) a magnesium ribbon is burnt in air?
2. The pH values of certain substances are given below.

| Substances | pH values |
|-------------------|-----------|
| Blood | 7.4 |
| Baking soda | 8.2 |
| Vinegar | 2.5 |
| Household ammonia | 12 |

Analyse the data in the table and answer the following questions.

- A). Which substances are acidic in nature?
 - B). Which substances are basic in nature?
3. Why does the colour of copper sulphate change when an iron nail is kept in it? Justify your answer.
 4. The hydroxide ion concentration of a solution is 1.0×10^{-8} M. What is the P^H of the solution?
 5. Two acids 'A' and 'B' were kept in beakers. Acid 'A' undergoes partial dissociation in water whereas, acid 'B' undergoes complete dissociation in water.
 - i) Of the two acids 'A' and 'B' which is weak acid and which is strong acid?
 - ii) Give one example each - a weak acid and a strong acid.
 6. Take copper nitrate in a test tube and heat it over the flame.
 - i). Name the type of reaction that takes place.
 - ii). Write the balanced equation.

7. Identify the wrong statement and correct them.
- The P^H of acid is greater than 7.
 - Acetic acid is used in aerated drinks.
8. Redox reactions are reactions during which electron transfer takes place. Here magnesium atom transfers two electrons one each to the chlorine atoms.
- What are the products of this reactions?
 - Write the balanced equation for the complete reaction.
9. Suggest a reason for each observation given below.
- In fireworks, powdered magnesium is used rather than magnesium ribbon.
 - zinc and dilute H₂SO₄ react much more quickly when a few drops of copper sulphate solutions are added.
10. Sodium hydroxide and hydrochloric acid react as shown in this equation.
- $$\text{NaOH}_{(aq)} + \text{HCl}_{(aq)} \longrightarrow \text{NaCl}_{(aq)} + \text{H}_2\text{O}_{(l)}$$
- Which type of chemical reaction is this?
 - The reaction is exothermic. Explain what that means.

Section - II

Answer both the questions.

2 × 5 = 10

11. i). Classify the following substances :
Wood, paper, plastic and grass.
- Give a detailed account of your classification.
12. We are surrounded by smoke. Is this situation good for our health. Give reasons.

SLIP TEST 14 - 2018 - 19

10 - Std.

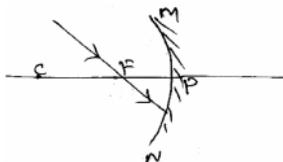
SCIENCE

Marks : 30

Section - I

Answer all the Ten questions given below. $10 \times 2 = 20$

- Fill in the blanks.
 - For a motor : a permanent magnet, then commercial motor : -----
 - Focal length of a lens : metre, then for power of a lens ----
- The ray diagram shown below is introduced to show how a concave mirror forms the image of an object.



- Identify the mistake and draw the correct ray diagram.
 - Write the justifications for your corrections.
- Fill the table with the appropriate words given in bracket.

| | | |
|---|--------------------------|----------------|
| - | the tooth's | enlarged image |
| - | rear side of the vehicle | erect image |

(convex, mirror, plano convex, concave mirror, plane mirror, convex lens, concave lens)

- You know that myopia is a common refractive defects of vision. A person with this defect can clearly see only objects that are near. Using concave lens of suitable power this defect is corrected.
 - Mention the other two types of defects.
 - Explain how they can be corrected.
- Does magnetic monopole exist? Give reasons.
- A person cannot clearly see objects farther than 12m from the eye. Name the defect in vision he is suffering from and the lens that should be used to correct this defect.
- Light enters from air to kerosene having refractive index of 1.47. What is the speed of light in kerosene, if the speed of light in air is 3×10^8 m/s.

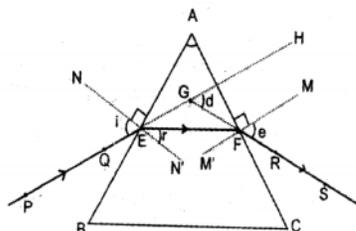
8. Light travels at 1.90×10^8 m/s in a crystal. What is the crystal's index of refraction?
9. If the far point of a myopic person is 75 cm. What should be the focal length of the lens used to rectify this defect.
10. How can you identify the three types of mirrors without touching them? Give reasons.

Section - II

Answer both the questions:

2 × 5 = 10

11. (a). Draw the given diagram and label the following in the diagram.



- (i) Incident ray (ii) Refracted ray (iii) Emergent ray
 - (iv) Angle of refraction (v) Angle of deviation
 - (vi) Angle of emergence.
- (b). The refractive index of diamond is 2.42. What is the meaning of this statement in relation to the speed of light?
12. The optical prescription of pair of spectacles is
Right eye : -3.5 D Left eye : -4.00 D
 - i). Name the defect of the eye.
 - ii). Are these lenses thinner at the middle or at the edges?
 - iii). Which lens has a greater focal length?

SLIP TEST 15 - 2018 - 19

10 - Std.

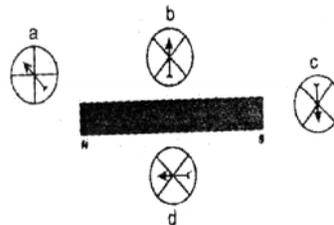
SCIENCE

Marks : 30

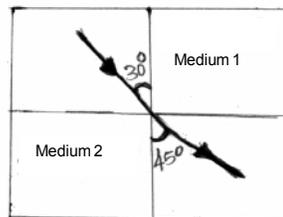
Section - I

Answer all the Ten questions given below. $10 \times 2 = 20$

1. Correct the mistakes, if any, in the following statement.
 - i). The magnetic field is a quantity that has magnitude only.
 - ii). Outside the bar magnet, the magnetic field lines emerge from the south pole and merge at the north pole.
2. In traffic signals ----- colour light is used to stop the vehicles because it has ----- wavelength.
3. Write down the names of the specified parts of the human eye.
 - i). Dark muscular diaphragm that controls the pupil.
 - ii) The screen where the image is formed by eye lens.
4. Which of the compass needle orientations in the following diagram correctly describes the magnetic field at the point?



5. A 3cm tall bulb is placed at a distance of 20 cm. from a diverging lens having a focal length of 10.5cm. Determine the distance of the image.
6. A ray from medium 1 is refracted below while passing to medium 2. Find the refractive index of the second medium with respect to medium 1.



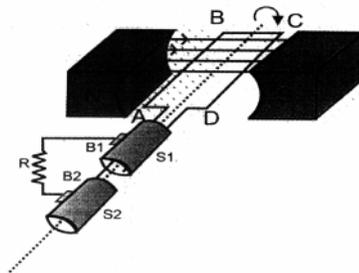
7. A real image $\frac{1}{5}$ th the size of the object, is formed at a distance of 18 cm from a mirror. What is the nature of the mirror? Calculate its focal length.
8. Explain the use of concave mirror as solar concentrators with the help of a ray diagram.
9. Light which is incident on a flat surface makes an angle of 15° with the surface.
 - i). What is the angle of incidence?
 - ii). What is the angle of reflection?
 - iii). Find the angle of deviation.
10. What will happen when the frequency of rotation in an AC dynamo is doubled?

Section - II

Answer both the questions:

2 × 5 = 10

11.



- i). Redraw the diagram
 - ii). This diagram represents -----
 - iii). Label the parts of the diagram.
 - iv). Mention the principle used in the device denoted by this diagram.
12. (i) Find the nature, position and magnification of the image formed by a convex lens of focal length 10 cm, if the object is placed at a distance of (a) 15 cm. (b) 8 cm.
- (ii) Which of the above represents the use of convex lens in
 (a) film projector
 (b) the magnifying glass used by palm reader.

SLIP TEST 16 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

Section - I

Answer all the Ten question given below. $10 \times 2 = 20$

1. Mention the two unique characteristics of mammals.
2. Give Two examples.
1). ruminating mammals. 2). marine mammals.
3. What type of dentition is seen in mammals? What are elephant tusks?
4. Mention any four adaptations seen in the Camel so that it can live successfully in deserts.
5. What is echo location? Give an example.
6. Mention the various valves and their location in the human heart.
7. Write any four differences between arteries and veins in mammals.
8. Name the three important blood proteins seen in Plasma. Add a note on their functions.
9. Which blood cells are without nuclei? What is the advantage of this condition?
10. Name the protein and the blood - cells responsible for the clotting of blood.

Section - II

Answer both the questions:

$2 \times 5 = 10$

11. Calculate the number of moles in
 - i). 12.046×10^{23} atoms of copper
 - ii). 27.95 g of Iron.
 - iii). 1.51×10^{23} molecules of CO_2
12. Sodium carbonate breaks down on heating.
$$2 \text{NaHCO}_3 \longrightarrow \text{Na}_2\text{CO}_3 + \text{H}_2\text{O} + \text{CO}_2$$
 - i) How many mole of sodium bi carbonate are there in the equation?
 - ii) What is the mass of sodium bi corbanate used in this equation?
 - iii). How many moles of carbondioxide are there in this equation.

SLIP TEST 17 - 2018 - 19

10 - Std.

SCIENCE

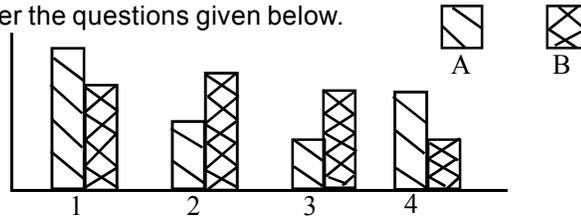
Marks : 30

Section-A

Answer all the questions.

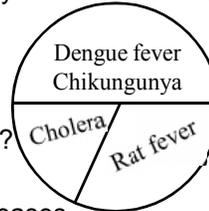
10 × 2=20

1. The bar graph indicates the prevalence / wide spread attack of infectitious diseases in two cities A and B . Observe it and answer the questions given below.



- i). Dengue fever ii) Rat fever iii) cholera iv) chickungunya
 a) What may be the reason for the diseases in city "A"?
 b) Which city need more effective system of waste.
 c) How can the diseases be controlled in city "C"?

2. The pie diagram represents a survey result of infectious disease in a village during 2008 - 2009 . Analyse it and answer the following.



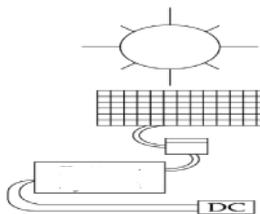
- i). Which disease affect the majority of the population?
 ii) How are these diseases transmitted?
 iii) Mention any three measures that can control the other two diseases.

3. Match the suitable renewable and non- renewable resources.

| Sources | A | B | C |
|-----------------|----------|-------------|--------------|
| Renewable | Coal | Wind | Petroleum |
| Non - Renewable | Hydrogen | Natural gas | Solar energy |

4. Find the odd one out:
 i). Bioalcohol, green diesel, bioethers, petroleum
 ii). Cholera, typhoid scabies, dysentery.
5. A non- renewable resource is a natural resource. if it is replaced by natural process at a rate equal to or faster than its rate of consumption by humans. Read this statement and say whether it is correct or incorrect. If it is incorrect, give the correct statement.

6. Pick out the appliances that can conserve electric energy.
Fluorescent bulb, copper choke, Solar water heater, electric water heater, tungsten bulb, electronic choke.
7. What are the various liquid bio - fuels used for transportation?
8. What are the benefits of the household waste - water recycling?
9. Observe the picture given below and find out what type of energy is produced.



- i). Identify whether the energy is conventional or non-conventional?
 - ii). In the given picture ----- energy is transformed into ---- energy.
10. Wind power is generated from uneven heating of the earth's surface by the sun and the hot core.
 - i). Which country is called the country of Winds?
 - ii). In which district of Tamilnadu do we have wind energy farm?

Section - B

Answer the questions:

2 × 5 = 10

11. How will you establish the relation between Vapour density and molecular mass of a gas by applying Avogadro's Law?
12. How many grams are there in the following?
 - A) 1 mole of chlorine molecules, Cl_2
 - B) 4 mole of sulphur molecules, S_8
 - C) 2 mole of Ozone molecules, O_3
 - D) 2 mole of nitrogen molecules, N_2

SLIP TEST 18 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

Section - A

Answer all the questions:

10 × 2 = 20

1. Can rusting of Iron nails occur in distilled water?
2. Iron reacts with con. HCl and con. H₂SO₄ but it does not react with con. HNO₃. Justify your answer with proper reasons.
3. To design the body of an aircraft, aluminium alloys are used. Give reasons.
4. 'X' is a silvery white metal. X reacts with oxygen to form Y. The same compound is obtained from the metal on reaction with steam with the liberation of hydrogen gas. Identify X and Y.
5. Give a single term for each of the following.
 - i) The process of extracting ores from the earth's crust.
 - ii) The rocky impurities associated with ores.
6. Match the following.

| Ore | Chemical formula |
|---------------|---|
| Haematite | PbS |
| Bauxite | Fe ₂ O ₃ |
| Copper pyrite | Al ₂ O ₃ ·2H ₂ O |
| Galena | CuFeS ₂ |

7. Here are a few statements related to alloys. Identify the incorrect ones and correct them.
 - i) It is a homogeneous mixture of metals.
 - ii) Zinc amalgam is used in dental filling.

iii) Duralumin is used for making statues, coins, bells and gongs.

8. Guess who I am?

i). I am a constituent of blood pigment. When I am less in quantity, the person is anaemic.

ii). I am formed when matrix and flux react.

9. Answer the following questions in one or two sentences.

i) What is the percentage of gold present in "Hallmark"

ii) Name the metal present in chlorophyll which is used in photosynthesis.

10. Match the following:

| TYPE OF IRON | USES |
|--------------|---|
| Steel | Making man hole covers and drain pipes |
| Wrought Iron | Construction of buildings and machinery |
| Pig Iron | Making electromagnets |

Section-B

Answer both the questions:

2 × 5 = 10

11. Homologous series predict the properties of the members of the series. Justify this statement through its characteristics.

12. Write the common name and IUPAC name of the following.

i) $\text{CH}_3\text{CH}_2\text{CHO}$ ii) CH_3COCH_3 iii) $\text{CH}_3-\underset{\text{OH}}{\text{C}}-\text{CH}_3$

iv) CH_3COOH v) HCHO

SLIP TEST 19 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

Section - A

Answer all the questions:

10 × 2 = 20

- Write down the possible isomers and give their IUPAC names using the formula C_4H_{10} .
- Diamond is the hardest allotrope of carbon. Give reason for its hardness.
- An organic compound (A) is widely used as a Preservative in pickle and has a molecular formula $C_2H_4O_2$. This compound reacts with ethanol to form a sweet smelling compound (B)
 - Identify the compounds A and B
 - Name the process and write the corresponding chemical equation.
- An organic compound (A) of molecular formula C_2H_6O on oxidation with alkaline $KMnO_4$ Solution gives an acid (B) with the same number of carbon atoms. compound A is used as an antiseptic to sterilize wounds, in hospitals. Identify A and B. Write the chemical equation involved in the formation of B and A.
- C_2H_6O is the molecular formula for two compounds A and B. They have different structural formula.
 - Give structural formula for A and B.
 - Write down their common and IUPAC name.
- Rewrite the following choosing the correct word from each pair given in brackets.

The hydrocarbons containing atleast one carbon to Carbon ---- (double/triple) bond are called ----- (alkenes/alkynes). They have the general formula C_nH_{2n} . These were previously called ----- (olefins/paraffins). When this compound is treated with (bromine/lime) water, decolouration occurs because it is ----- (unsaturated/saturated).
- Identify the compounds using the clues given below:
 - This is a dark coloured syrupy liquid containing 30% of sucrose.
 - This enzyme converts sucrose into glucose and fructose.

8. Read each description given below and say whether it fits for ethanal or ethanoic acid.
- It is used to preserve biological specimens in laboratories.
 - It is used to preserve food and fruit juices.
9. Give the correct answer for the following statements:
- The ability of the carbon to form large number of compounds through self linking property.
10. Write the uses of ethanoic acid.

Section-B

Answer the both questions given below: $2 \times 5 = 10$

11. Complete the following table:

| Molecular Formula | Common Name | IUPAC Name |
|--|-----------------|------------|
| $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$ | | |
| | Dimethyl Ketone | |
| | | Propanal |
| HCOOH | | |
| | | Butanone |
| | | |

12. Write the balanced equation using the correct symbols for these chemical reaction.
- Action of hydrogen on ethane in the presence of Nickel catalyst.
 - Combustion of the methane evolving carbondioxide and water
 - Dehydration of ethanol.
 - Decarboxylation of sodium salt of ethanoic acid.

SLIP TEST 20 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

Section-A

Answer all the questions

10 × 2 = 20

1. You have prepared a saturated solution of sugar at room temperature. Is it possible to dissolve some more grams of sugar to this solution? Justify your answer.
2. Complete the table.

| Substance | Medium in which it is Soluble | Reason |
|----------------------|-------------------------------|--------|
| a. Common Salt | | |
| b. Naphthalene balls | | |
| c. Camphor | | |
| d. Baking soda | | |
| e. Washing soda | | |

3. Identify the correct mistake in each of the following.
 - i) The molar volume of gas at STP is 22.4 cm^3
 - ii) An atom cannot exist independently.
4. Give a single term substitute for each of the following:
 - i) 22.4 litres of gas at STP
 - ii) The half of relative molecular mass.

5. Match the following

| Washing soda | Chemical formula | Use |
|---------------------|---|-------------------------|
| a. Washing soda | CaOCl_2 | for making statues |
| b. Baking soda | Na_2CO_3 | Softening of hard water |
| c. Bleaching powder | $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$ | for making cake |
| d. Plaster of Paris | NaHCO_3 | bleaching |

-8

- i) What is the P^{H} of the solution?
 - ii) What is the P^{OH} of the solution?
7. Give a single term for each of the following :
 - i) The substance added to the ore to reduced fusion temperature.
 - ii) Noble metals occur in this state.

8. Guess who I am?
- I am a cheap metal but highly reactive. Therefore, I sacrifice myself to save object made of iron.
 - I am a solid solution. Dentists use me to fill cavities.
9. Identify the compounds using the clues given below:
- During manufacture of ethanol this is added as food for yeast.
 - This compound contains 95.5% ethanol and 4.5% water.
10. Write the suitable answer for the statements given below.
- This series helps in giving knowledge and enables systematic study of members.
 - Unlike ethanal, the intake of this compound in very small quantities can cause death.

Section-B

Answer both the questions:

2 × 5 = 10

11. Fill in the blanks in the given table using suitable formulae:

| No | Alkane | Alkene | Alkyne |
|----|--|--|---|
| 1. | C ₂ H ₆ ethane | ethene | C ₂ H ₂ ethyne |
| 2. | --- propane | C ₃ H ₆ propene | propyne |
| 3. | C ₄ H ₁₀ Butane | Butene | Butyne |

12. Organic compounds "A" and "B" are the isomers with the molecular formula C₂H₆. Compound "A" produces hydrogen gas with sodium metal. whereas compound "B" do not. Compound "A" reacts with acetic acid in the presence of concentrated H₂S₄ to form compound 'C' with a fruity flavour. What are the isomer 'A', 'B' and the Compound 'C'.

Section-A

Answer all the questions:

10 × 2 = 20

1. Sequentially arrange the different species of man from primitive to modern man.
(Neanderthal man, Homohabilis, Homo erectus, Homosapiens)
2. Mention the dominant and recessive traits observed by Mendel in the garden pea plant with respect to the seed and flower.
3. What is double fertilization?
4. Coconut seeds are dispersed by hydrochory (dispersal by water. If coconut seed assumed to disperse through air (anemochory), mention two modifications that coconut should possess.
5. Give suitable terms for the following methods of seed/fruit dispersal, with one example each:
i) by wind ii) by birds (through excreta) iii) by human beings
6. Fill in the blanks:
i) Animals give out ----- through respiration.
ii) In the presence of sunlight, plants prepare -----
7. Study the food chain below, correct it and convert it into a pyramid of energy.
Mulberry → sparrow → caterpillar → petroleum

8. Find the odd one out:

i) bioalcohol, green diesel, bioethers, petroleum.

ii) Cholera, typhoid, scabies, dysentery.

9. Match the suitable renewable and non-renewable sources

| Sources | A | B | C |
|---------------|----------|------|-----------|
| Renewable | Coal | Wind | Petroleum |
| Non-renewable | Hydrogen | gas | energy |

10. Pick out the appliances that can conserve electric energy.

fluorescent bulbs, copper choke, solar water heater, electric water heater, tungsten bulbs, electronic choke.

Section-B

Answer both the questions:

2 × 5 = 10

11. Compare aggregate fruits with multiple fruits and give suitable example.

12. What are the types of Pollination? Which among them is more advantageous? Why?

SLIP TEST 22 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

Section-A

Answer all the questions:

10 × 2 = 20

1. What are the symptoms of common cold?
i) ----- ii) -----
2. Name the tests done for the diagnosis and conformation of AIDS.
3. Which hormones (s) is / are called,
i) Personality hormone ii) fight, flight and fright hormones.
4. Which gland is a "dual gland"? why?
5. i) What are the structural and functional units of Kidney?
ii) Arrange the organs of the human excretory system in the correct order based on the passage of Urine?
Ureter, Urethra, Kidney, Urinary bladder.
6. Identify the suitable adaptation :
i). Conservation of body heat in large marine mammalse like whale -----
ii). Locating food source by bats : -----
7. Which organ is called the "Master chemist of our body?" Why?
8. Sugar is converted into alchochol .
i). In the above reaction, What kind of process takes place?
Which micro - organism is involved?
- .9. A fish taken out of water can not survive for a long time - Why?
10. Describe the change that occurs in a touch - me - not plant when it is touched?

Section-B

Answer both the questions:

2 × 5 = 10

11. Kala has delivered a baby.
i) Suggest the immunization schedule for the baby in the first six months.
ii) What are the dieases that can be cured as per the schedule?
12. List out the various parts of the human brain and write a note on their functions.

SLIP TEST 23 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

Section-A

Answer all the questions.

10 × 2 = 20

1. Differentiate true solution and colloidal solution.
2. Take 10g of common salt and dissolve it in 40g of water. Find the concentration of solution in terms of weight percent.
3. Molecular mass of Ozone is 48, its atomic mass is 16. Find the atomicity of Ozone.
4. Gram atomic mass of carbon is 12g. Gram atomic mass of Oxygen is 16g. Calculate the gram molecular mass of Carbon - di -oxide.
5. The hydroxide ion concentration of a solution is 1.0×10^{-6} M. What is the P^H of the solution?
6. When lead powder is added to copper chloride solution , a displacement reaction occurs and solid copper is formed.
 - i) Write the equation for the reaction.
 - ii) Why does the displacement reaction occur?
7. Fill in the blanks:
 - i) a process employed for the concentration of sulphide ore is -----
 - ii) The amalgam used for dental filling is -----

8. To design the body of an air craft, aluminium alloys are used.
Give reason.
9. Diamond is the hardest allotrope of Carbon. Give reason for its hardness?
10. Write down the possible isomers and give their IUPAC names using the formula C_4H_{10} .

Section-B

Answer both the questions:

2 × 5 = 10

11. Find the gram molecular mass of the following:
- A) H_2O B) CO_2 C) $NaOH$
D) NO_2 E) H_2SO_4
12. C_nH_{2n+2} is the general formula of a homologous series of hydrocarbons.
- Is this series saturated or unsaturated?
 - Name the series described above give the formula and name of the member with two carbon atoms.
 - Draw the structural formula of the first member of this series.
 - Define - the homologous series.
 - Write the formula of n - butane and n- pentane.

SLIP TEST 24 - 2018 - 19

10 - Std.

SCIENCE

Marks : 30

Section - I

Answer all the Ten questions given below. $10 \times 2 = 20$

1. Fill in the blanks
 - i). If force = mass \times acceleration, then momentum = -----
 - ii). If liquid hydrogen is for rocket, then ----- is for MRI.
2. Correct the mistakes, if any in the following statements.
 - i). One newton is the force that produces an acceleration of 1 ms^{-2} in an object of 1 gram mass.
 - ii). Action and reaction always act on the same body.
3. As a matter of convention, an anticlockwise moment is taken as ---- and a clockwise moment is taken as -----
4. Fill in the blanks.
 - i). Potential difference : Voltmeter ; then current ----
 - ii). Hydro power plant : Conventional source of energy ; then solar energy.
5. Correct the mistakes, if any in the following statements.
 - i) A good source of energy would be one which would do a small amount of work per unit volume of mass.
 - ii) Any source of energy we use to do work is consumed and can be used again.
6. Draw the schematic diagram of an electric circuit consisting of a battery of two cells of 1.5 v each, three resistances of 5 ohm, 10 ohm and 15 ohm respectively and a plug key all connected in series.

7. Fuse wire is made up of an alloy of ----- which has high resistance and -----
8. Fill in the blanks.
- For a motor : a permanent magnet, then commercial motor : -----
 - Focal length of a lens : metre, then for power of a lens ---
9. Correct the mistakes, if any, in the following statements.
- The magnetic field is a quantity that has magnitude only.
 - Outside the bar magnet, the magnetic field lines emerge from the south pole and merge at the north pole.
10. Fill the table with appropriate words given in bracket.

| | | |
|--|--------------------------|----------------|
| | the tooth's | enlarged image |
| | rear side of the vehicle | erect image |

Section - II

Answer the Two questions given below: $2 \times 5 = 10$

11. State Newton's law of gravitation. Write an expression for acceleration due to gravity on the surface of the earth. If the ratio of acceleration due to gravity of two heavenly bodies is 1 : 4 and the ratio of their radii is 1 : 3, what will be the ratio of their masses?
12. An object of 5 cm tall is placed at distance of 10 cm from a concave mirror of radius of curvature 30 cm.
- Find the nature, position and size of the image.
 - Draw the ray diagram to represent the above case.