Solved Paper

Time: 2 ½ Hours **Maximum Marks: 80**

General Instructions:

- ❖ The question paper consists of 34 questions and is divided into four sections, A, B, C, and D.
- ❖ All questions are compulsory.
- ❖ Section A comprises of question numbers 1 to 15. These are multiple choice questions which carry one mark each. You are to select the one most appropriate answer out of the four provided options.
- ❖ Section B comprises of question numbers 16 to 22. These are short answer questions that carry two marks each.
- ❖ Section C comprises of question numbers 23 to 31. These are short answer questions carrying four marks each.
- ❖ Section D comprises of question numbers 32 to 34. These are short answer questions carrying five marks each.

Section A

Q1: How many chambers does a human heart have?

a. One

b. Two

c. Four

d. Six

Q2: Blood gets its red color due to:

a. Red blood cells

b. Hemoglobin

c. White blood cells

d. Platelets

Q3: The reproductive part of a flower is:

a. Branch

b. Root

c. Flower

d. Leaf

Q4: The cell which is formed from the fusion of gametes is called:

a. Zygote
b. Embryo

c. Seed

d. Fruit

Q5: The time taken by a pendulum to complete one oscillation is called:

a. Time frame

b. Oscillation time

c. Completion time

d. Time period

Q6: The device which measures the distance moved by the vehicle is called:

a. Odometer

b. Speedometer

c. Travel meter

d. Distance meter

Q7: When an electric current flows through a wire, the wire is heated. This is

called:

a. Boiling effect of current

b. Heating effect of current

c. The hot temperature effect of current

d. Magnetic effect of current

Q8: The electric bell works with the help of:

a. Heating effect of current

b. Magnetic effect of current

c. Both (a) and (b)

d. None of the above

Q9: The change in the direction of light when it hits a mirror is called:

a. Refraction of light

b. Tyndall Effect

c. Reflection of light

d. None of the above

Q10: A stainless steel spoon can act as a:

a. Concave mirror

b. Convex mirror

c. Both (a) and (b)

d. None of the above

Q11: Which of the following DO NOT cause the depletion of the water table?

a. Deforestation

b. Overpopulation

c. Industrial Activities

d. Rainwater Harvesting

Q12: Which of the following is NOT a good water management practice?

a. Drip irrigation

b. Rainwater Harvesting

c. Leaving the leaking taps and pipes unattended.

d. Judicious use of water while bathing.

Q13: Which of the following is FALSE?

a. Forests help in preventing soil erosion

b. Forests cannot grow and regenerate

c. Forests can influence climate

d. Forests can improve the quality of air.

Q14: Which of the following products are NOT forest products?

a. Gum

b. Polythene bags

c. Honey

d. Catechu

Q15: Which of the following are good Wastewater management practices

a. Leaving drains open

b. Throwing chemicals like paints into the drains

c. Building more Wastewater treatment plants

d. Throwing cooking oils and fats down into the drains.

Section B

Q16: What are the functions of (i) white blood cells (ii) Platelets

Q17: What is Pollination?

Q18: What is the heating effect of electric current?

Q19: What is the magnetic effect of electric current?

Q20: What are (i) concave mirrors and (ii) convex mirrors?

Q21: Give two causes for water table depletion.

Q22: What is a Forest? Describe it.

Section C

Q23: Draw and label a diagram of the pistil and stamen of a plant.

Q24: Draw a diagram to represent the reproduction of yeast by budding.

Q25: What is a simple pendulum? Define its time period.

Q26: What are the units of (i) time, (ii) distance, and (iii) speed?

Q27: Write the electric components corresponding to the following symbols.

Q28: Draw a diagram to show the splitting of light by a prism. What are the colors obtained from the splitting of white light?

Q29: What are the differences between concave and convex lenses?

Q30: List any four uses of forests.

Q31: How is water treated at a wastewater treatment plant?

Section D

Q32: Draw and label a diagram of the human excretory system.

Q33: What are the forms in which water can be found on the Earth? Give examples for each.

Q34: List 3 housekeeping practices which can help reduce the load on wastewater treatment plants.

Solution

A1: C

A2: B

A3: C

A4: A

A5: D

A6: A

A7: B

A8: B

A9: C

A10: C

A11: D

A12: C

A13: B

A14: B

A15: C

A16: (i) White blood cells fight against germs that can cause damage to our body.

(ii) Platelets form clots at wounded areas to stop further loss of blood.

A17: Pollination refers to the transfer of pollen from the anther to the stigma of the flower. Pollination that occurs on the stigma of the same flower is called self-pollination whereas the pollination that occurs on the stigma of a different plant of the same kind is called cross-pollination.

A18: When an electric current flows through a wire, it causes the heating of the wire. This effect is called the heating effect of electric current.

A19: When an electric current flows through a wire, the wire behaves like a magnet. This effect is called the magnetic effect of electric current.

A20: (i) Concave mirror - spherical mirrors with concave reflecting surfaces.

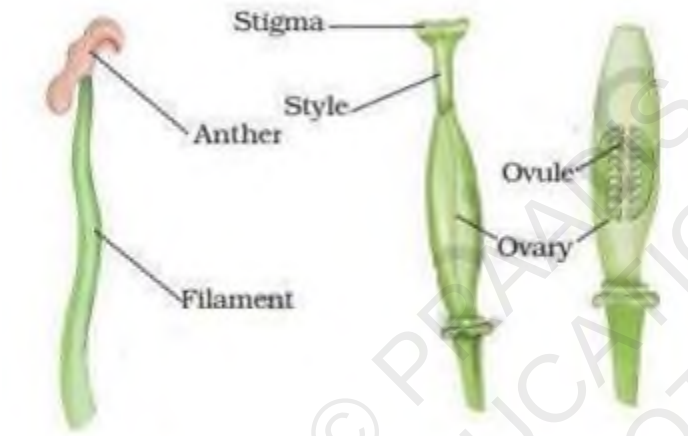
(ii) Convex mirror- spherical mirrors with convex reflecting surfaces.

A21: (i) Increase in the human population

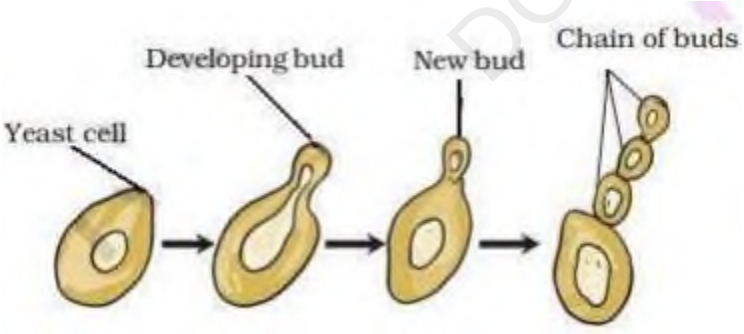
(ii) Increase in the number of industries and industrial activity.

A22: A forest is a system which comprises of various plants, animals, and micro-organisms coexisting together

A23:



A24:



A25: A simple pendulum is made up of a small metal ball which is suspended from a rigid body via a thread or a string. This metallic ball is referred to as the bob of the pendulum. The nudging of the bob begins a

sequence of to and fro motions, which is an example of periodic or oscillatory motion. The time taken by a pendulum to complete one oscillation is called the time period of the pendulum.

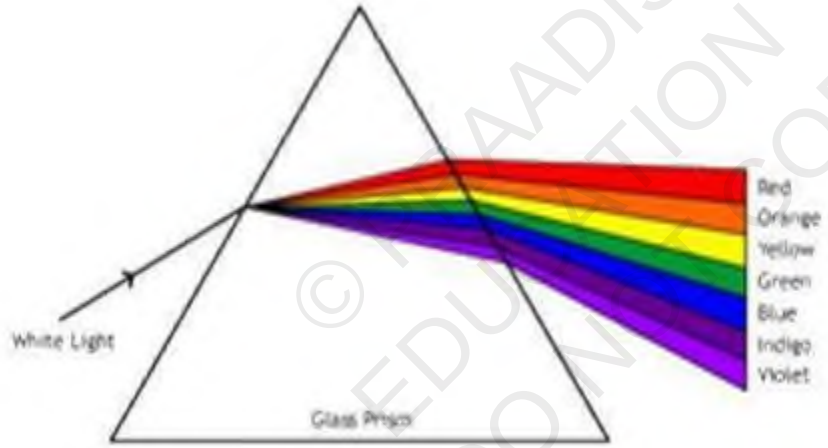
A26: (i) basic unit of time - second

(ii) unit of distance - meter

Therefore, (iii) unit of speed, can be given by meter/second. It can also be represented using other, larger units. E.g. kilometers/hour.

A27: (i) bulb (ii) cell (iii) Switch (ON) (iv) Battery.

A28:



A29:

Concave Lens	Convex Lens
Thin in the middle, thick at the edges	Thick in the middle, thin at the edges
Also referred to as diverging lens	Also referred to as converging lens
Its focal length is negative	Its focal length is positive
Used to correct short-sightedness	Used to correct long-sightedness

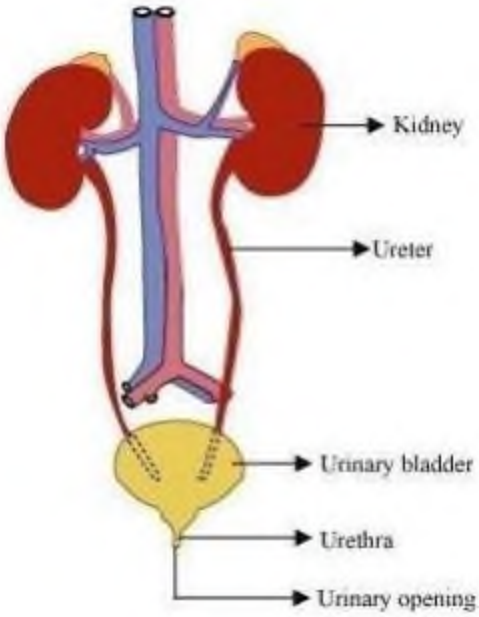
A30:

- Forests can protect the soil from soil erosion.
- Forests can improve the quality of air by checking the carbon dioxide
- quantity in it.
- Forests also have a positive influence on the water cycle and the climate.
- They offer various products such as honey and gum.

A31: Water is treated at wastewater treatment plants via the following processes:

- First, the wastewater is passed through bar screens to filter out large objects like plastic bags, cans, etc.
- The speed of the wastewater is now reduced so as to allow the sand and grit to settle down. Now, the water is made to settle in a tank which is sloped towards the middle.
- The solids that settle in the middle are now removed with a scraper.
- These solids are referred to as sludge. Now, the clarified water is pumped with air to promote the growth of aerobic bacteria. These bacteria consume the impurities remaining in the clarified water.

A32:



A33: Water can be found on earth in the following forms:

(i) as a solid, water can be found in the form of snow and ice at the poles of the

earth and in extremely cold areas such as mountains.

(ii) as a liquid, water can be found in the oceans, rivers, lakes, and even

underground.

(iii) water can also exist as a gas in the form of water vapor in the atmosphere.

A34:

(i) Avoiding the flushing of cooking oil and fats down the drain as they

can harden and lead to the blockage of drainage pipes. These oils and fats can be thrown in the dustbin.

(ii) Paints, motor oils, insecticides, medicines, and other chemicals may kill the microbes which help in the purification of water. These chemicals must be thrown in the dustbin.

(iii) Cotton, tea leaves which are used, food remains, soft toys, etc. must be thrown into the dust bin since they can choke drains if washed down the drain. They also hamper the flow of oxygen which in turn adversely affects the degradation process.