

Bhavan's Tripura Vidyamandir
2nd Periodic Assessment : (2025-2026)

Class : 10

Time : 2 Hours

Subject: Science

Total : 50 Marks

Name of the student:

Roll:

Sec:

GENERAL INSTRUCTIONS

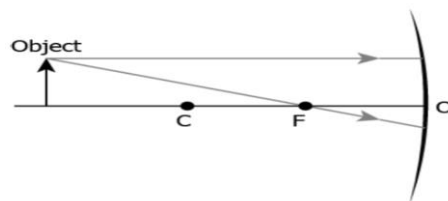
1. There are 22 questions in this question paper.
2. SECTION A consists of 10 questions carrying 1 mark each.
3. SECTION B consists of 3 very short answer questions carrying 2 marks each.
4. SECTION C consists of 5 short answer questions carrying 3 marks each.
5. SECTION D consists of 3 long answer questions carrying 5 marks each.
6. SECTION E consists of 1CBQ carrying 4 marks.
6. All questions are compulsory.
7. Use of log tables and calculators is not allowed.

Section-A

1) When a plane mirror is rotated through a certain angle, the reflected ray turns through twice as much and the size of the image:

- (a) is doubled (b) is halved (c) becomes infinite (d) remains the same

2) The image shows the path of incident rays to a concave mirror. Where would the reflected rays meet for the image formation to take place?



- (a) Behind the mirror
(c) Between C and F

- (b) Between F and O
(d) Beyond C

3) A current of 1 A is drawn by a filament of an electric bulb. The number of electrons passing through a cross-section of the filament in 16 seconds would be roughly

- (a) 10^{20} (b) 10^{16} (c) 10^{18} (d) 10^{23}

4) Select the route of urine flow in human excretory system-

- (a) Kidney → Urethra → Ureter → Bladder
(b) Kidney → Ureter → Bladder → Urethra
(c) Kidney → Bladder → Ureter → Urethra
(d) Kidney → Bladder → Urethra → Ureter

5) The information is passed from one neuron to another through:

- (a) Synapse (b) Dendrite (c) Axon (d) Cell body

6) Reema took 5 ml of lead nitrate solution in a beaker and added approximately 4 ml of potassium iodide solution to it. What would she observe?

- (a) The solution turned red
(b) Yellow precipitate was formed
(c) White precipitate was formed
(d) The reaction mixture became hot.

- 7) Fresh milk has a pH 6. To delay its curdling a chemical substance is added to it which is
(a) Sodium carbonate (b) Baking powder
(c) Sodium hydroxide (d) Baking soda
- 8) a metal and a non-metal that exists in liquid state at the room temperature are respectively:
(a) Bromine and mercury (b) Mercury and iodine
(c) Mercury and bromine (d) Iodine and mercury

Following questions consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

- (a) Both A and R are true and R is the correct explanation of A.
(b) Both A and R are true but R is not the correct explanation of A.
(c) A is true but R is false. (d) A is false but R is true.
- 9) **Assertion (A)** : The strength of the magnetic field produced at the center of a current carrying circular coil increases on increasing the current flowing through the coil.
Reason (R) : Magnetic field strength is inversely proportional to the current flowing in the coil.
- 10) **Assertion:** decomposition of vegetable matter into compost is an endothermic reaction.
Reason: decomposition reaction involves breakdown of a single reactant into simpler products.

SECTION - B

- 11) State two structural differences between arteries and veins.
- 12) A copper wire of length L , and cross section area A . if the length of the wire is made three times of its original length, find the new resistance of the wire. Given that the old resistance is 10 ohm.
- 13) a compound "A" is used in the manufacture of cement. When dissolved in water it evolves a large amount of heat and forms compound "B".
i. Identify A and B
ii. List two types of reaction in which this reaction may be classified

SECTION - C

- 14) "Adrenaline hormone help the body to deal with emergency situations"- Explain the statement with scientific reason.

OR

State three differences between sensory and motor neurons.

- 15) Define power of lens, write down its SI unit. The power of a lens found to be +2D. find the focal length of the lens and nature of the lens. (1+1+1)

OR

A lens forms an image of magnification +3

- a) Draw the ray diagram of the situation
b) If the focal length of the lens is 10cm. find object distance, and image distance. (1+2)
- 16) Two electric bulbs A of 60W, 220V and B 40W, 220V. are connected to 220V mains. Calculate which bulb will have more resistance. If both the bulb are connected to 220V in parallel connection. Find the total current in the circuit. (1+2)
- 17) a. Writes the name given to bases that are highly soluble in water. Give example.
b. How is tooth decay related to pH? How can it be prevented?
c. Why does bee sting cause pain and irritation? Rubbing of baking soda on the sting area gives relief. How?

OR

Two ores X and Y were taken. On heating these ores it was observed that

- (a) Ore X gives CO_2 gas and
- (b) Ore Y gives SO_2 gas.

Write steps to convert these into metals. Giving chemical equation of the reaction that takes place.

- 18) (a) Write chemical name and the formula of the pungent smell gas produced during thermal decomposition of ferrous sulphate.
(b) Name the gas found in cathode and anode during the electrolytic decomposition of water. Write chemical equation of reaction.

SECTION - D

- 19) Draw a well-labelled diagram of the human heart and explain the flow of blood through its different chambers. Why is it called double circulation? (2+2+1)

OR

A person suffers a head injury in an accident and experiences loss of balance and difficulty in walking.

- (a) Which part of the brain is likely to be injured?
 - (b) Explain the functions of this part.
 - (c) Draw a well-labelled diagram of the human brain showing this part.
 - (d) How is the brain structurally protected in the human body? (1+1+2+1)
- 20) A concave mirror is used to form a virtual image. It is found that the magnification is 3. If the distance between the image and the object is 10 cm. Find image distance, object distance, and focal length. Also draw the ray diagram of the above situation.

OR

Three resistors of 5, 10, 15, ohm. are connected to in series and next time in parallel. Find the ratio of R_s/R_p . if both the connection are provide 12V. find the current in both circuit. (3+2)

- 21) a) write electron dot diagram of oxygen and magnesium. Show the formation of magnesium oxide by transfer of electrons.
b) identify the nature of the above compound and explain three physical properties of such a compound.

OR

- a) state the chemical properties on which the following uses of baking soda are based:
i. As an antacid
ii. As a soda acid fire extinguisher
iii. To make bread and cake soft and spongy.
- b) how is washing soda obtained from baking soda? Write the relevant balanced chemical equation.

SECTION-E

CASE BASED QUESTION

- 22) In a grassland ecosystem, the following food chain exists:

Grass → Grasshopper → Frog → Snake → Hawk.

A group of students conducted an experiment to calculate the energy transfer between different trophic levels. They observed that only 10% of energy is passed to the next level.

Questions:

- (a) Identify the producer in the given food chain.
- (b) If the energy available at the producer level is 10,000 J, calculate the energy available to the snake.
- (c) What will happen if frogs are removed from this ecosystem? (1+2+1)

OR

- (a) Name two common decomposers present in ecosystem.
- (b) What will happen if decomposers are removed from an ecosystem? (2+1)