SHREE RADHEY COACHING CENTER

Plot No. 233 Flat no. 102 Niti Khand 1 Indirapuram

CLASS 10 - SCIENCE

Test 1 Test series 2

Time Allowed: 3 hours **Maximum Marks: 80**

General Instructions:

1. The question paper comprises three sections – A, B and C. Attempt all the sections.
2. All questions are compulsory.
3. Internal choice is given in each section.
4. All questions in Section A are one-mark questions comprising MCQ, VSA type and assertion-reason type questions. They are to be answered in one word or in one sentence.
5. All questions in Section B are three-mark, short-answer type questions. These are to be answered in about 50 - 60 words each.
6. All questions in Section C are five-mark, long-answer type questions. These are to be answered in about 80 – 90 words each.
7. This question paper consists of a total of 30 questions.

Section A

1. Is hydrogen gas evolved on reaction of silver metal with dilute sulphuric acid (H_2SO_4) ? if not, why? **[1]**
2. Which is the first member of noble gas family? **[1]**
3. **Answer the questions that follows on the basis of your understanding of the following paragraph and the related studied concepts:** **[4]**

   It is easy to see that solar cooker devices are useful only at certain times during the day. This limitation of using solar energy is overcome by using solar cells that convert solar energy into electricity. A typical cell develops a voltage of 0.5–1 V and can produce about 0.7 W of electricity when exposed to the Sun. A large number of solar cells are, combined in an arrangement called solar cell panel that can deliver enough electricity for practical use. The principal advantages associated with solar cells are that they have no moving parts, require little maintenance and work quite satisfactorily without the use of any focussing device. Another advantage is that they can be set up in remote and inaccessible hamlets or very sparsely inhabited areas in which laying of a power transmission line may be expensive and

not commercially viable.

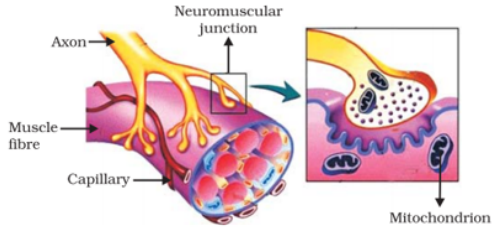
i. What type of source of energy is mentioned in the above picture?

ii. For what purpose solar panels are used?

iii. Write the three advantages of solar cells.

iv. Why solar cooker surface is painted with black colour?

4. In animals, control and coordination are provided by nervous and muscular tissues. Touching a hot object is an urgent and dangerous situation for us. We need to detect it, and respond to it. How do we detect that we are touching a hot object? All information from our environment is detected by the specialised tips of some nerve cells. These receptors are usually located in our sense organs, such as the inner ear, the nose, the tongue, and so on. So gustatory receptors will detect taste while olfactory receptors will detect smell. This information, acquired at the end of the dendritic tip of a nerve cell sets off a chemical reaction that creates an electrical impulse. This impulse travels from the dendrite to the cell body, and then along the axon to its end. At the end of the axon, the electrical impulse sets off the release of some chemicals. These chemicals cross the gap, or synapse, and start a similar electrical impulse in a dendrite of the next neuron. This is a general scheme of how nervous impulses travel in the body. A similar synapse finally allows delivery of such impulses from neurons to other cells, such as muscles cells or gland. **[4]**



Answer the following questions:

a. What is the role of axon?

b. From where electrical impulse travels?

c. Name the chemical which released at the end of axon to transmit the signal to the other neuron.

d. The nervous system uses the _____ to transmit message.

i. Electrical signal

ii. Chemical signal

iii. Both electrical and chemical signal

iv. None of the above

5. Match the following with correct response. **[1]**

(1) Prism

(2) Spectrum

(3) Tyndall effect
(4) Rainbow

(A) A medium bounded by two plane refracting surfaces at an angle
(B) Scattering of beam of light, when it passes through colloidal solution
(C) Splitting up of white light into its components
(D) It is a spectrum of white light when it passes through small rain drops

a) 1-D, 2-A, 3-C, 4-B
b) 1-A, 2-C, 3-B, 4-D
c) 1-C, 2-B, 3-D, 4-A
d) 1-B, 2-D, 3-A, 4-C

OR

Match the following with correct response.
(1) Retina
(2) Blind spot
(3) Iris
(4) Ciliary muscles

(A) Region without any sensory cells
(B) Change the focal length of eye lens
(C) Give colours to the eye
(D) Light sensitive layer

a) 1-B, 2-D, 3-A, 4-C
b) 1-C, 2-B, 3-D, 4-A
c) 1-D, 2-A, 3-C, 4-B
d) 1-A, 2-C, 3-B, 4-D

6. Some of the ancient 'water harvesting structures' used in different rural regions of our country are: **[1]**

State	Water harvesting structures
Rajasthan	_____, _____, _____
Maharashtra	Bandharas, Tals
Uttar Pradesh	Bhundhis
Madhya Pradesh	Bhundhis

Which of the following is correct water harvesting structure of Rajasthan?

a) Khadin, tanks, Nadis
b) Kattas
c) Ahars, Pynes
d) Surangams

7. You have a coil and a bar magnet, you can produce an electric current by moving- **[1]**

a) The coil, but not the magnet.
b) Either the magnet or the coil or both
c) Neither the magnet nor the coil.
d) The magnet, but not the coil

8. Between dilute and concentrated samples of HNO_3 which sample of HNO_3 will have a higher H^+ ion concentration? **[1]**

a) conc. HNO_3

b) did HNO_3

c) Both have same H+ ion concentration

d) no H+ ion is present is HNO_3

OR

Washing soda has the formula

a) $Na_2CO_3.7H_2O$

b) Na_2CO_3

c) $Na_2CO_3.H_2O$

d) $NaCO_3.10H_2O$

9. Micro-organisms belong to the group of: **[1]**

a) Decomposers

b) Consumers

c) None of the above

d) Producers

10. If a grasshopper is eaten by a frog, then the energy transfer will be from: **[1]**

a) Primary consumer to secondary consumer

b) Secondary consumer to primary consumer

c) Producer to decomposer

d) Producer to primary consumer

11. What is the number of valence electrons in the last element of 3rd period? **[1]**

a) 8.0

b) 3.0

c) 7.0

d) 5.0

12. A student adds one big iron nail each in four test tubes containing solution of zinc sulphate, aluminium sulphate, copper sulphate and iron sulphate. A reddish brown coating was observed only on the surface of iron nail which was added in the solution of: **[1]**

a) Aluminium sulphate

b) copper sulphate

c) Iron sulphate

d) Zinc sulphate

13. **Assertion:** CH_3Cl is obtained from CH_4 by the action of Cl_2 in the presence of sunlight. **[1]**

Reason: It is obtained by addition reaction.

a) Both assertion and reason are CORRECT and reason is the CORRECT explanation of the assertion.

b) Both assertion and reason are CORRECT but, reason is NOT THE CORRECT explanation of the assertion.

c) Assertion is CORRECT but, reason is INCORRECT.

d) Assertion is INCORRECT but, reason is CORRECT.

14. **Assertion:** A voltmeter and ammeter can be used together to measure resistance but not power. **[1]**

Reason : Power is proportional to voltage and current.

a) Both assertion and reason are CORRECT and reason is the CORRECT explanation of the assertion.

b) Both assertion and reason are CORRECT but, reason is NOT THE CORRECT explanation of the assertion.

c) Assertion is CORRECT but, reason is INCORRECT.

d) Assertion is INCORRECT but, reason is CORRECT.

Section B

15. A compound X is bitter in taste. It is a component of washing powder & reacts with dil. HCI to produce brisk effervescence due to colourless, odourless gas Y which turns lime water milky due to formation of Z. When excess of this gas is passed, the milkiness disappears due to the formation of P. **[3]**

Identify X, Y, and Z & P.

16. Why are decomposition reactions called opposite of combination reactions? Write equations for these reactions. **[3]**

OR

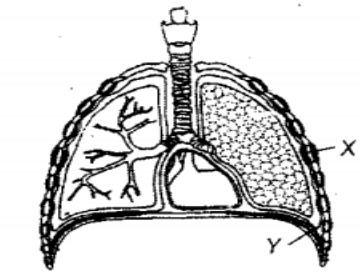
Give reasons:

(a) Aluminium is a reactive metal but is still used for packing food articles.

(b) Red litmus paper turns blue when touched with an aqueous solution of magnesium oxide.

17. Why do the elements present in a group have similar chemical properties? **[3]**

18. The diagram given below shows the lungs. Which structure will contract while inhalation takes place? **[3]**



OR

Plants excrete waste products from their body by various means. Justify the above statement.

19. Explain, how the scattering of light depends upon particle size? **[3]**

20. What is the contribution of Mendel to genetics? **[3]**

21. What are the functions of the relay, motor and sensory neurons in a reflex response? **[3]**

22. When does an electric short circuit occurs? **[3]**

23. Draw a circuit diagram of an electric circuit containing of two resistors ammeter, a resistor of 2Ω in series with a combination of two resistors (4 each) in parallel and a voltmeter across the parallel combination. Will the potential difference across the 2Ω resistors be the same as that across the parallel combination of 4Ω resistors? Give reason. **[3]**

24. In the figure given below, a narrow beam of white light is shown to pass through a triangular glass prism. After passing through the prism, it produces a spectrum XY on the screen. **[3]**

i. Name the phenomenon.

ii. State the colours seen at X and Y.

iii. Why do different colours of white light bend at different angles through a prism?

OR

At one of the blind ends of a road in a colony lot of accidents used to take place. One day Kunwar moved into a house near the blind end. On a certain day he saw an accident take place at the blind end. He at once rushed to the spot and helped the victims with first aid. He, then telephoned for an ambulance. Later on he met the President of the welfare committee of the colony and requested him to install huge convex mirrors at both ends of the blind end. After the installation of the mirrors the accident rates suddenly dropped.

i. What according to you are the values displayed by Kunwar?
ii. Why did Kunwar advise the installation of convex mirror?

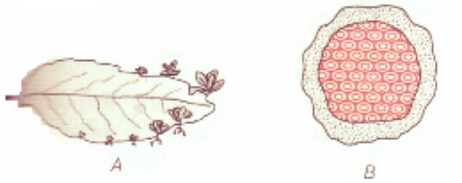
Section C

25. i. Give differences between roasting and calcination with suitable examples. **[5]**
ii. Explain how the following metals are obtained from their compounds by the reduction process. Give one example of each type.
   a. Metal M which is in the middle of the reactivity series.
   b. Metal N which is high up in the reactivity series.

26. i. How is vinegar made? **[5]**
ii. What is glacial acetic acid? What is its melting point?
iii. Why is butanoic acid a weak acid?
iv. Write the name and the formula of the two compounds formed when the ester, $CH_3COOC_2H_5$ undergoes saponification.

27. Write a note on lymphatic system in human beings stating two major functions of lymph. **[5]**

[5]

28. 

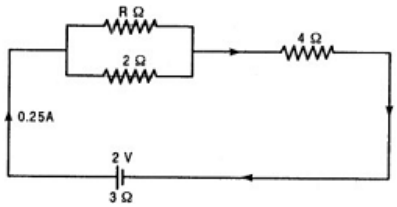
i. Identify the organisms A and B and the mode of asexual reproduction exhibited by them.
ii. How will an organism be benefited if it reproduces through spores?
iii. Mention the two asexual methods by which Hydra can reproduce. Explain briefly any one such method.

OR

Describe triples fusion in plants? Where does it occur? Draw a neat and clean well labeled diagram to support your answer.

29. The following circuit diagram shows three resistors 2Ω, 4Ω, RΩconnected to a battery of e.m.f. 2V and internal resistance 3Ω. A main current of 0.25 A flows through the circuit. **[5]**
a. What is the P.D. across 4 Ωresistor.
b. Calculate P.D. across the internal resistance of the cell.
c. What is the potential difference across RΩand 2Ω resistors ?

d. Calculate the value of R.



30. One-half of a convex lens is covered with a black paper. Will this lens produce a complete image of the object? Verify your answers experimentally. Explain your observations. **[5]**

OR

A student has three concave mirrors A, B and C of focal lengths 20 cm, 15 cm and 10 cm, respectively. For each concave mirror, he performs the experiment of image formation for three values of object distance of 30 cm, 10 cm and 20 cm.

Give reasons for the following:

i. For the three object distances, identify the mirror which will form an image equal in size to that of object. Find at least one value of object distance.

ii. Out of the three mirrors, identify the mirror which would be preferred to be used for shaving purpose.

iii. For the mirror B, draw ray diagram for image formation for any two given values of object distance.