

Sub. Code: 086

Roll No. _____

Please check that this question paper contains 39 Questions and has 08 Printed pages.

D.A.V. INSTITUTIONS, CHHATTISGARH

PRACTICE PAPER

CLASS: X

SUBJECT: SCIENCE (086)

Time Allowed: 3 Hours

Maximum Marks: 80

General Instructions:

- (i) This question paper consists of **39 questions in 5 sections.**
- (ii) All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
- (iii) **Section A** consists of **20 objective type questions carrying 1 mark each.**
- (iv) **Section B** consists of **6 Very Short questions carrying 02 marks each.** Answers to these questions should be in the range of 30 to 50 words.
- (v) **Section C** consists of **7 Short Answer type questions carrying 03 marks each.** Answers to these questions should be in the range of 50 to 80 words.
- (vi) **Section D** consists of **3 Long Answer type questions carrying 05 marks each.** Answer to these questions should be in the range of 80 to 120 words.
- (vii) **Section E** consists of **3 source-based/case-based units of assessment of 04 marks each with sub-parts.**

Section: A

(1 × 20 = 20)

Select and write the most appropriate option out of the four options given for each of the questions 1 - 20. There is no negative mark for incorrect response.

1. Decomposition of vegetable matter is an example of

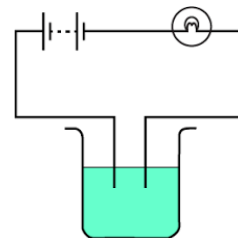
- (a) Combination Reaction
- (b) Exothermic reaction
- (c) Endothermic Reaction
- (d) None of the above

2. When zinc reacts with sodium hydroxide, the product formed is :

- (a) Sodium oxide (b) Sodium zincate
(c) Zinc hydroxide (d) Zinc oxide

3. In the given experimental set-up, if the experiment is carried out separately with each of the following solutions the cases in which the bulb will glow is/ are :

- (i) Dilute hydrochloric acid (ii) Dilute sulphuric acid
(iii) Glucose solution (iv) Alcohol
(a) (i) only (b) (ii) only
(c) (i) and (ii) (d) (ii), (iii) and (iv)



4. Which among the following statements is/ are incorrect for magnesium metal ?

It burns in oxygen with a dazzling white flame.

It reacts with cold water to form magnesium hydroxide and evolves hydrogen gas..

It reacts with hot water to form magnesium hydroxide and evolves hydrogen gas.

It reacts with steam to form magnesium hydroxide and evolves hydrogen gas.

An electrolytic cell consists of :

- (i) Positively charged cathode
(iii) Positively charged anode
(ii) Negatively charged anode
(iv) Negatively charged cathode
(a) (i) and (ii)
(b) (i) and (iii)
(b) (iii) and (iv)
(d) (ii) and (iv)

5. During electrolytic refining of **z i n c** , It gets :

- (a) deposited on cathode (b) deposited on anode
(c) deposited on cathode as well as anode (d) remains in the solution.

6. During photosynthesis the role of chlorophyll is :

- Absorption of sunlight (b) Splitting of water molecule
Formation of Oxygen (c) Gives green color to plant

7. Growth of pollen tube towards ovule is an example of

- (a) Chemotropism (b) Hydrotropism
(c) Geotropism (d) Thigmotropism

8. Plants which bear unisexual flowers
are :

(a) Mustard and Papaya (b) Hibiscus and Watermelon

(c) Mustard and Hibiscus (d) Watermelon and Papaya

9. When an 'X' bearing sperm fertilises the egg, the resulting zygote has the following combination of chromosomes :

(a) 44 + XX

(b) 44 + XY

(c) 22 + XX

(d) 22 + XY

10. Spincture muscles are present in the

(a) stomach and small intestine (b) stomach and anus

(c) small intestine and large intestine (d) oesophagus and stomach

11. Which of the following mirror is used by a dentist to examine a small cavity?

(a) Convex mirror (b) Plane mirror (c) Concave Mirror (d) None of these

12. Twinkling of stars is due to atmospheric :

(a) dispersion of light by water droplets

(b) refraction of light by atmospheric layers

(c) scattering of light by dust particles

(d) internal reflection of light by cloud.

13. Biotic components of an ecosystem including

(a) Producers (b) Consumers

(c) Decomposers (d) all of the above

14. Microorganisms of a food chain are

(a) Producers (b) Decomposers

(c) Consumers (d) None of these

15. Which of the following statements are **correct**

(i) Carnivores have shorter small intestine than herbivores

(ii) Mucus protects stomach from the action of acid

(iii) Enzyme Amylase is produced by salivary gland

(a) (i) and (ii) (b) (i) and (iii) (c) (ii) and (iii) (d) (i), (ii) and (iii)

16. The basic filtration unit in kidney is

(a) Neuron

(b) Alveoli

(c) Nephron

(d) Cyton

For Questions number 17 to 20, two statements are given - one labelled as Assertion (A) and the other labelled as Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below.

- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion (A)
- (b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).
- (c) Assertion (A) is true, but Reason (R) is false.
- (d) Assertion (A) is false, but Reason (R) is true.

17. **Assertion (A)** : Sodium, calcium and magnesium are obtained by the electrolysis of their molten oxides.

Reason (R) : These metals have more affinity for oxygen than carbon.

18. **Assertion (A)** : Magnetic field lines do not intersect each other.

Reason (R) : Magnetic field lines are imaginary lines, the tangent to which at any point gives the direction of the field at that point.

19. **Assertion (A)** : When a bacterium divides into two, and the resultant two bacteria divide again, the four bacteria produced would be almost similar.

Reason (R) : DNA copying involves small inaccuracies in the reproduction process.

20. **Assertion (A)** : A person suffering from myopia cannot see the distant objects clearly.

Reason (R) : A converging lens is used for the correction of myopic eye as it can form real as well as virtual images of the objects placed in front of it.

SECTION-B

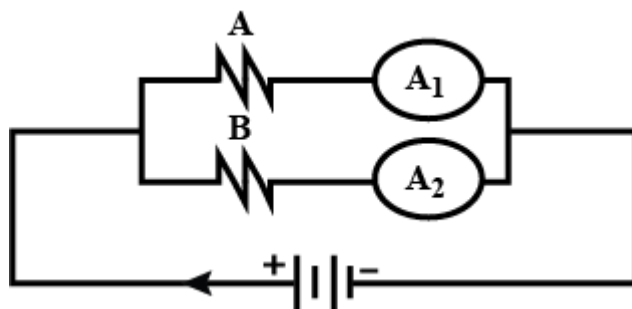
Question No. 1 to 6 are very short answer questions.

- 21. Write one equation each for decomposition reaction where energy is supplied in the form of heat, light or electricity.
- 22. "The chromosomal number of the sexually producing parents and their offspring is the same." Justify this statement.
- 23. Give reasons for the following:
 - (a) Rings of cartilage are present in trachea.
 - (b) Mucus is secreted along with HCl in the stomach.

Or

- a) Explain why do multicellular organisms need a transportation system for carrying food and oxygen?
- b) Why does an organism require an excretory system?

24. One half of a convex lens is covered with a black paper. Will this lens produce a complete image of the object? Verify your answer experimentally. Explain your observations.
25. In the circuit diagram shown, the two resistance wires A and B are of same area of cross-section and same material, but A is longer than B. Which ammeter A_1 or A_2 will indicate higher reading for current? Give reason:



- a) Why don't two magnetic field lines ever intersect each other? Explain.
- b) "The magnetic field is said to be uniform inside a current carrying solenoid." Why?
26. Explain the reason why in a food chain:
- (a) The number of individuals decreases as we move from lower trophic level to higher trophic level, and
- (b) The flow of energy is unidirectional.

SECTION-C

Question No. 27 to 33 are short answer questions.

27. A metal that exists as a liquid at room temperature is obtained by heating its sulphide in the presence of air. Identify the metal and its ore and give the reaction involved.
28. An ore on treatment with dilute hydrochloric acid produces brisk effervescence. Name the type of ore with one example. Write only the chemical equations for the reactions involved in the extraction a metal from its ore process.

Or

- (i) Carbonate of metal 'X' is abundant in earth crust and its hydroxide is used in 'white washing'. Identify metal 'X'.
- (ii) How will you convert this carbonate into its oxide? Name the process and write its equation.
29. Name the hormone required for the following.
- a. Lowering of blood glucose.
- b. Development of moustache and beard in human males.
- c. Metabolism of carbohydrates, fats and proteins.

Also, mention the name of endocrine gland from which that hormone is secreted.

30. (a) Why did Mendel chose garden pea for his experiment ? Give two reasons.
 (b) List two contrasting visible characters of garden pea which Mendel used for his experiment.
31. "A concave mirror of focal length f can form a magnified erect as well as inverted image of an object placed in front of it." Justify this statement stating the position of the object with respect to the mirror in each case for obtaining these images.
32. Show how would you join three resistors, each of resistance $9\ \Omega$ so that the equivalent resistance of the combination is (i) $13.5\ \Omega$ (ii) $6\ \Omega$?
33. What is a solenoid ? Draw the pattern, of magnetic field lines of (i) a current-carrying solenoid and (ii) a bar magnet. List two distinguishing features between the two fields.

SECTION-D

Question No. 34 to 36 are long answer questions.

- 34.
- a. Two carbon compounds X and Y have the molecular formula C_4H_8 and C_5H_{12} respectively. Which one of these is most likely to show addition reaction? Justify your answer. Also, give the chemical equation to explain the process of addition reaction in this case.
 - b. On dropping a small piece of sodium in a test tube containing carbon compound X with molecular formula C_2H_6O , a brisk effervescence is observed and a gas Y is produced. On bringing a burning splinter at the mouth of the test tube the gas evolved burns with a pop sound. Identify X and Y. Also, write the name and structure of the product formed, when you heat X with excess concentrated sulphuric acid.
- Or*
- (a)
 - (i) Which of the following will burn with a yellow flame: C_2H_5OH , C_2H_4 or C_2H_6 ?
 - (ii) Write a balanced chemical equation to show the burning of ethanol in oxygen.
 - (iii) Name an oxidizing agent which can convert ethanol to ethanoic acid.
 - (b) When ethanol reacts with ethanoic acid in the presence of conc. H_2SO_4 , a substance with fruity smell is produced. Based on this, answer the following:
 - (i) State the class of compounds to which the fruity smelling compounds belong. Write the chemical equation for the reaction and write the chemical name of the product formed.
 - (ii) State the role of conc. H_2SO_4 in this reaction.
35. (a) What are sexually transmitted diseases ? Name an STD which damages the immune system of human body.
 (b) Regeneration is not possible in all types of animals. Why?

(c) Define the term pollination. Differentiate between self pollination and cross pollination. What is the significance of pollination ?

Or

- (a) Name the endocrine gland associated with brain.
- (b) Which hormone is also known as emergency hormone?
- (c) A gland secretes a particular hormone. The deficiency of this hormone in the body causes a particular disease in which the blood sugar level rises.
 - (i) Name the gland and the hormone secreted by it.
 - (ii) Mention the role played by this hormone.
 - (iii) Name the disease caused due to deficiency of this hormone.

36. Draw a ray diagram showing the path of rays of light when it enters with oblique incidence (i) from air into water; (ii) from water into air.

Or

A concave lens of focal length 15cm forms an image 10cm from the lens. How far is the object placed from the lens? Draw the ray diagram.

SECTION-E

Question No. 37 to 39 are case-based/data based questions with 2 to 3 short sub-parts.

Internal choice is provided in one of these sub-parts.

37. Ethanoic acid is commonly known as acetic acid. 5-8% solution of acetic acid in water is called Vinegar and 100% pure acetic acid is called Glacial acetic acid because it has melting point 290 K. Ethanoic acid **gives salt**, CO_2 and water when it reacts with carbonates and bicarbonates.

- (a) Give the molecular formula of ethanoic acid.
- (b) Draw the structure of ethanoic acid.
- (c) Write the reaction of ethanoic acid with sodium carbonate.

Or

Write the reaction of ethanoic acid with sodium bicarbonate.

38. In a dihybrid cross of plants having yellow round and green wrinkled seeds, 16 combinations **were** found.

- (a) What type of plants were found having the traits in the ratio of 9/16?
- (b) What type of plants were found having traits in the ratio of 1/16?

(c) What type of plants were found having traits in the ratio of 3/16?

Or

Give the pair of contrasting traits of the following characters in pea plant and mention which is dominant and recessive: (i) yellow seed (ii) round seed.

39. The SI unit of resistance is ohm while the SI unit of electric current is ampere. The potential difference is measured in volt. Conductors are the materials which are having less resistivity or more conductivity and hence they are used for transmission of electricity. Alloys are having more resistivity than conductors and hence they are used in electric heating devices. While insulators are bad conductors of electricity.

(a) Write the SI unit of resistivity.

(b) What is variable resistance?

(c) Why tungsten is used in electric bulbs ?

Or

Why resistance increases in series combination?